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Tourism: sacred cow or silver bullet?

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Tourism: Sacred Cow or Silver Bullet?

by

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Dedicated to my life parter, Arne Heayn,

who handed food and coffee over my shoulder

because sitting still to write was more

important than cleaning the refrigerator.

With love and eternal appreciation

to my mother,

and in memory of my father

Dedicated to my life parter, Arne Heayn,

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OVERVIEW of TOURISM: SACRED COW OR SILVER BULLET

Tourism: Sacred Cow or Silver Bullet?
A comprehensive study of public sector performance and sustainability of the municipality of Benito Juárez (Cancún)

INTRODUCTION

The industry of tourism is estimated to be directly responsible for five percent of the world's GDP, six percent of total exports and to employ one out of every 12 people in advanced and emerging economies. Between 1995 and 2010 international tourism arrivals worldwide have doubled to nearly one billion (UNWTO, 2011, Jan). With such impressive growth, it is unsurprising that in thirty-five years following 1972, the World Bank loaned a total of US$ 4.4 billion to emerging economies to build tourism infrastructure and jumpstart economic development[1]. One of the first World Bank loans was to Puerto Vallarta in 1972 and then Cancún received a loan in 1978. Since 2000 Mexico has ranked consistently in the top ten countries in the world in terms of international tourist arrivals that lodge at least one night, yet it ranks only twenty-third in terms of tourism receipts (all expenses from international tourists excluding airfare). For comparison, the USA was second in tourist arrivals (after France) and first in international tourism receipts while France was third. In 2011, Canada was 18th in arrivals as well as receipts (UNWTO, 2012, July July). Even in comparison to other emerging economies such as Turkey and Thailand, Mexico´s low receipts to arrivals are incongruous. In international tourism Turkey ranked sixth in arrivals and twelfth in receipts while Thailand ranked fifteenth in arrivals and eleventh in receipts. Otherwise said, the emerging economy of Thailand garnishes more receipts per tourist than Mexico (UNWTO, 2012, July July). In 2010, Thailand received

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[1] World Bank, http://web.worldbank.org, Projects & Operations, accessed Feb, 2008.

US$1265 per tourist while Mexico received only $515. Some of the difference can be attributed to cross-border tourism between the USA and Mexico, but 2010 was the height of the northern frontier drug wars and this type of overnight tourism fell sharply. To understand these important but complex outcomes suggested by these rankings, I set out to investigate the multiple forces and the current situation following forty years of intense tourism development with Mexico as the focus.

Tourism studies fall into four broad categories: the structure of the tourism industry; models of tourism development; tourist typologies and motivations; and impacts of tourism development (Mowforth and Munt, 2003: 85). This study falls into the last category but differs from most studies in this category because it approaches tourism from an accounting and public finance perspective first and foremost, rather than the study of tourism being uppermost and then dissected with economic or political-scientific instruments (ex. Bachmann, 1987; Mowforth and Munt, 2003). In this study reference to the vast collection of tourism literature is minimal. Also, approaching tourism from a longitudinal public finance expenditure and benefit perspective lends itself to institutional theory, otherwise rarely used within the tourism discipline.

As institutional theory predicts, outcomes such as Cancún´s development are conditioned by history and the structures that are developed throughout the historical process. However, history and structures do not fully determine outcomes as agents have a range of actions available to them that can impact outcomes. For example, Cancún was the product of a development strategy promoted by the Mexico Central Bank, *Banxico*. Its range of action was determined by pre-existing structures: the introduction of the trust fund into a civil law country, the first country ever to do so, and the depletion of foreign

currency following a failed Import-Substitution-Industrialization policy promoted by the same bank. Then powerful, legitimated actors within *Banxico* were able to change the mechanisms for mega-projects. Cancún's success of the 1980s and early 90s lead to tourism, as an entrenched institution, to be an undisputed component of Mexico's development strategy with ever-increasing private and public investment. When President Felipe Calderon suggested that Mexico diversify from tourism, the backlash was so powerful the 2006-2012 president withdrew his plan. Another institutional touchstone is Gross Domestic Product (GDP) that now is a baseline for comparison for everything from economic growth to comparisons of social programme investment such as education. According to the United Nations Development Programme Mexico spends 9.7 percent of GDP on education while Canada, for example, spends 5.6 percent of GDP. Travel and tourism contributes directly 6 percent of Mexico's GDP of which 88 percent is domestic spending and 12 percent is foreign visitor spending (WTTC, 2012). Yet the use of the GDP is a past accretion that is now doing more harm than good. GDP as a measure of progress was developed when the environment dominated humans. Now that humans dominate the environment, new integrated measures are needed to ensure balance between economic growth, human well-being and environmental sustainability. Institutional theory helps guide and organize complex and disparate events into meaningful observations and interconnections.

The overall goal was to measure the long-term outcome of a development strategy, in this case tourism. Tourism as an academic subject balkanizes opinions. It is attacked by some academics such as sociologists as a source of poverty and slavery (e.g. Castellanos, 2010) while the industry is often defended and promoted as a source of development and

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wealth by business schools which house many tourism programmes. After years of experience in tourism in Mexico, I selected as the site of investigation, Cancún, municipality of Benito Juárez (BJ), Quintana Roo (QR) México, one of the most important examples of a highly strategic public sector involvement in implementing tourism. Therefore, the first part of this three part thesis is a study of the origins of Cancún. This site was selected because of the numerous anecdotal inconsistencies surrounding its origins which lead me to investigate an obscure trust fund called INFRATUR. Most importantly, the site is uncontaminated by other industries which allows for results to be reliably attributed to the development strategy of tourism. After unraveling the creation myth of Cancún which provided an affirmation of institutionalization and institutional change (Giddens, 1984; Hoffman, 1999; Scott, 2001, 2008), I wanted to determine if the continued promotion of tourism was viable and under what conditions, the second part of the thesis. To sift through these opposing views, I asked a simple question: Where's the money? Using public finance expenditure and benefit analysis, I set out to answer the question whether public infrastructure investment generates wealth and positive social outcomes, or does the government subsidize the tourist? Ultimately social programmes and environmental protection require legislation and planning in order for a government to generate value. But to enforce compliance and fulfill programmes, finances generated by the target sector (tourism) and redistributed to the population are the necessary starting points to determine if the policy is effective. With Cancún's history revisited (Part I) and its expenditures and benefits assessed (Part II), the last part is exploratory research, this time combining sustainability and accounting theory to develop a community balance sheet to redirect attention to the accounting fundamental of asset maintenance over the

macroeconomic touchstone of unbridled production and consumption. Although the calculation of a community balance sheet is difficult and debatable, such a balance sheet serves to increase visibilities of the environment and the social; heighten awareness of the indelible interconnections between the environment, social and economic spheres; and clearly demonstrate how human activity whether helpful or harmful, ripples to all corners of our communities. Cursory results are disconcerting but indisputable: a change in tourism models to fixed and floating all-inclusives since the mid-1990s is having a deleterious impact on host countries. But in Mexico the tourism industry is not only too big to fail, but too big to challenge.

Tourism as the Silver Bullet

On the heels of a failed Import-Substitution-Industrialization strategy and depleted foreign currency reserves, Mexico's Central Bank (*Banxico*) searched for a solution to the balance-of-payments crisis and to reduce migration to over-populated industrial cities (Clancy, 2001; Fernández-Hurtado, 1975; Marti-Brito, 1985). In the late 1960s, tourism was chosen as the industry most suited to redress the imbalances. In accordance with the Mexico's trust fund laws (*fideicomisos*), the plan was to receive from the Federal government land to rehabilitate, subdivide and re-sell as serviced hotel lots in order to offset the cost of infrastructure construction. The tourism centre thus created was to generate foreign currency and employment. To start the construction of Cancún, in 1972 the International Development Bank (IDB) granted a first loan of US $21.5 million to the trust fund called INFRATUR controlled by *Banxico*. This loan financed 40 percent of the basic tourism infrastructure of landfill, roads, electricity, water and an airport. When the land failed to sell, the Mexican government that had been marginalized at the outset was

now co-opted into the project by INFRATUR and subsequently repaid the loans (Ambrosie, 2008). Simultaneously, the Cancún project was moved from the independent *Banxico's* governance, was renamed FONATUR and has been administered within the Mexican government through the Ministry of Tourism since 1974.

Regardless of the source of reimbursement and site of control, if one of the policy goals of Cancún was employment creation to reduce migration to over-crowded Mexico City, then the use of federal funds to reimburse the international loan is consistent with best practices of long-term debt for intergenerational capital expenditure. The municipality of Benito Juárez where Cancún is located has grown from a mere 500 inhabitants in 1970 (Marti-Brito, 1985) to over 660,000 in 2010 (INEGI, 2011b). Therefore, from the perspective of staunching the flow to Mexico City the strategy could be called a development success. However, rather than the input of investment and the output of population, a more fundamental question is that regarding the outcome of the public sector expenditure in terms of the well-being of local inhabitants (van der Berg and Moses, 2009).

Funds such as those used to finance Cancún's tourism infrastructure are disbursed based on decisions made and policies enacted by the Mexican government to generate revenue for expenditure on public policy goals such as employment creation and public sector goods such as schools and hospitals. To achieve the goal of social and economic well-being, the government (public sector) is charged with the provision of services and the redistribution of resources. To finance the provision of services, revenue is generated through taxes, debt covenants, sale of property, and user fees or some combination thereof. These are the only means at the disposal of governments to pay for socially desirable goods and services such as public works (e.g. provision of water and electricity), education and

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health-care. The collection of revenue and subsequent expenditure provides clues whether dedicated tourism-resort investment generates sufficient surplus revenue both locally and nationally to allow for the necessary expenditure leading to social improvement and increased well-being, i.e. social development. Or is public sector investment in tourism centres a source of economic deterioration, environmental degradation and social degeneration? I found that public sector mega-resort development does not lead to poverty alleviation and a reduction in income disparities in emerging economies partially due to a lack of political will but more importantly because resulting economic activity from infrastructure expenditure may not generate the tax revenue necessary to provide social services, to protect the environment and to sponsor further development especially in economies that lack transparency and institutional cohesion. The question is complex and, along with social indicators, can only be answered by evaluating longitudinal data of the tax structure, the tourism industry and other economic indicators such as foreign exchange and employment, the original and ongoing arguments for more tourism development.

By traditional economic measures of GDP, QR and BJ are said to be among the richest sub-national entities in the country (INEGI, 2011a). Also, inbound tourism expenditure exceeds outbound by 60 percent. This proportion of inbound to outbound has remained relatively constant for more than fifty years and for a decade prior to the construction of the first centrally planned tourist center, Cancún (Banco de México, 1950: to 2001). Thus total receipts from tourism have climbed 5 to 10 percent per annum year on year (CEFP, 2006) and in gross terms, the tourism balance was US $2 billion in 1992, $4

billion in 2000 and $5 billion in 2005[2] (Banco de México, 2001, 2006). Therefore, it is true that Cancún provided the needed economic boost to the region creating jobs and generating surplus foreign currency, Banxico's goals. However, for the federal government the development has not translated into important surplus tax revenues when broader revenue and expenditures are analyzed.

Since the mid-1990s, tourism as a mono-industry is a major drain on QR state budgets without concomitant revenues. Weak institutions combined with centralization means that tax collection and compliance is low though improving. Nationally, tax evasion decreased from 48 percent of corporate income tax to 13 percent in 2010. Value added tax evasion was an estimated 47 percent in 1995 and is now down to 18 percent (Fuentes Castro et al., 2010; Hernández Trillo and Zamudio Carrillo, 2004). However, the tourism industry is particularly adapted to evade taxes through back-to-back credit operations[3] common throughout the 1990s and 2000s, and now avoiding taxes through the new corporate income tax floor rules called IETU. Of the 31 states, QR ranks 18th in corporate income tax effort[4], 15th in value-added tax effort and 8th in personal income tax effort (Sobarzo, 2003), the three federal taxes that historically supply 90 percent or more of the federal government's non-petroleum tax revenue. This poor result is reconfirmed in a recent study that suggests QR's revenue is only 80 percent of its potential, the fifth poorest tax effort in Mexico (Hernández Trillo, 2011). These vital taxes should be redistributed for

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2 These figures do not include external trade for goods required to service the tourism industry. Figures from the three seaports nearest to Cancún (Chetumal, Progreso and Cancún) show that imported goods regularly exceeded exports since 1970.

3 The company deposits money in an overseas bank at an agreed rate and then the same bank corporation within Mexico lends the same company money for construction and renovation at previously agreed upon high interest rates to reduce taxable income.

4 Tax effort is defined as the ratio of the actual tax collection to the predicted ratio given a country's tax structure and prevailing economic and social conditions (Piancastelli, 2001).

economic development, such as tourism, through investment in initial public infrastructure (economic) and ongoing maintenance of public goods especially social projects.

Millions of dollars of federal funds were poured into Cancún to develop a paradise for foreign tourists and federal funds of US $6 to 8 million per annum continue to ensure the maintenance of the 30 km hotel zone. Government funds are further depleted by direct and indirect subsidies to hotel resort investors. QR offers up to two months of employee training partially or fully paid for by the state. State officials also offer tax holidays on those taxes under their control: payroll taxes and municipal property taxes. Lastly, they offer to reduce construction permit fees, subsidize water infrastructure and pay for international publicity (Vazquez, 2011). Despite these subsidies, in the 80s and early 90s the net benefit was positive both to the region and to government coffers.

Tourism as the Sacred Cow

Since 1995, further investment in the region has been a net burden as the new tourism models of floating and fixed all-inclusives[5] erode tax collection. Cruise ships to the region have exploded in the past fifteen years from under 500 ships in the early 90s to over 1000 ships in 2010. While the number of ships plying the waters of QR increased 100 percent, mega-cruise ships with triple the lodging capacity have increased the number of passengers six-fold to 3 million by 2010. These passengers require critical resources such as roads to visit nearby sites but provide little and only marginal local employment, and pay no taxes. Since 1996 even their local expenditure is flat at US $50-60 per tourist. The ships, by their own admission (see Carnival Cruises Environmental Management Reports), pollute

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[5] European Plan is defined as room only with no meals included. The other end of the spectrum is all-inclusive hotels whereby in one price is included ground transportation, lodging, food, beverages, entertainment and tips.

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heavily and cause damage to reefs through collisions (CONANP, 2010a) yet in Mexico only pay dock fees to private operators. Land-based all-inclusive hotels pay some taxes but an increasingly small proportion thanks to transfer price agreements and a malleable product mix of ground services, food and lodging that can be modified on paper to lower the tax burden. All-inclusives also employ proportionally fewer personnel per room than regular hotels[6], and negatively impact the local economy as guests no longer leave the premises to patronize local businesses further affecting employment and tax generation. In addition to fewer employees, payroll taxes are eroded by minimum-pay rates supplemented by a myriad of tax-free benefits such as tips and transportation[7]. Despite perpetual complaints from private industry of excessive taxation, the construction of hotels is increasing exponentially in the region especially from Spanish consortiums (Jiménez Martínez, 2010). From 6,600 rooms in Cancún in 1985, there were 20,300 in 1995 and 27,000 by 2010. The combined total between BJ and Solidaridad (Playa del Carmen) in 2007 was more than 62,000 making the area one of the most important beach destinations in the world.

As concluded above, public money is increasingly used to remove risk, leaving the profit to the private investors. In other words, there is less public money to pay for necessary public goods. QR's federal tax collection is one-third of its proportion of national

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[6] The economic studies to justify Cancún estimated that for each hotel room constructed a hotel would employee two employees (Ambrosie, 2008). Studies show that the recent all-inclusive hotels employ less than 0.8 employees per hotel room, 1.5 times fewer employees than originally estimated and 25 percent fewer than regular European Plan hotels (pers. com.). The reason is that all-inclusives enjoy economies of scale from a one-size-fits-all experience; self-service buffet meals and drinks which reduce the need for staff; and employ multi-task staff (e.g. pool activities during the day and show entertainment in the evening) who live onsite.

7 FRINGE BENEFITS TAX "Specified employee benefits provided to employees over and above those required by law are exempt from income tax up to certain limits and are deductible for companies insofar as they are granted to all employees." (PKF, 2011: 2)

GDP. These federal taxes provided 80 percent of national non-petroleum revenue and subsequently more than 90 percent of state budgets. Of total budgets, QR and BJ spend 40 to 50 percent on current expenditures for personnel and materials. And although these two sub-national governments now receive an excess of transfers over federal tax collection, the state and municipality systematically over-spend and then contract debt to cover the gaps. This suggests that sub-national governments increasingly exist to ensure their own continued governance evidenced by bloated administrations and low tax effort to ensure continued local political victories (Ahmad et al., 2007; Broid Krauze, 2010; Lozano Cortés and Cabrera Castellanos, 2010; Martinez-Vazquez, 2008; Sour, 2007). The municipal administration of 2007 to 2009 accelerated this process by inflating land values and contracting inexplicable debt further eroding resources available for public works and social projects. The amount of debt contracted by BJ plus that of QR state hovered around US $100 million throughout the 90s and shot up eightfold since 2006 to US $800 million in 2010. In BJ, per capita debt has more than tripled from US $200 per inhabitant to US $663 when municipal per capita debt is combined with state per capita debt[8]. Both the municipality and QR were declared bankrupt in early 2011 and downgraded by international credit agencies (Cruz Serrano, 2011; IMCO, 2011).

Cautiously it could be argued that Cancún was a development success until 15 years ago when a change in tourism models to mobile and immobile all-inclusives provided new mechanisms to elude, and perhaps evade, taxes in a country and state with historically low tax capture and weak institutions with little oversight. While the Mexican people now

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8 As a point of reference BJ's average per capita property tax is equivalent to US $70-80 per year, one-tenth of its per capita debt.

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subsidize the international tourist, the apparent success of centres such as Cancún and Los Cabos has fuelled a push for more centres now constructed under the new all-inclusive model[9].

From Silver Bullet to Sacred Cow

This dissertation has three interrelated but independent parts. To explain how tourism models are enacted and transformed, using previously undiscovered archival data the first part unravels the myth of Cancún's origins and the pivotal role of relatively independent Mexico Central Bank and the use of credit laws and accrual accounting. The second part, also archival but combined with new archival techniques, cross-cuts revenue sources, expenditures, debt and social performance to better reveal outcomes. Combining by decades the above-mentioned themes, this longitudinal analysis from 1970 to 2010 demonstrates the ebbs and flows of government revenues from tourism as a function of three factors. First is the fickleness inherent in the industry due to seasonality, consumer tastes and crises both economic and physical (e.g. recessions, hurricanes and H1N1). Second, is a change in the tourism models from standard hotels in the 1970s and 1980s to a sharp rise in all-inclusive resorts and (mega-)cruise ships since the mid-90s. Last but certainly not least, are federal taxes combined with local politics and lack of oversight that have fomented volatile public finance and excessive debt. The confluence of these three factors critically erodes tax compliance and reduces funding for social projects and environmental protection in a country where tax effort historically is one of the lowest of

[9] In the municipality adjoining Cancún, Isla Mujeres, construction permits have been issued for 20,000 plus hotel rooms (pers. com. 2012). In the Baja California Sur, the federal environmental protection agency approved a Spanish development for 20,000 rooms off the fragile and pristine protected area of Cabo Pulmo. To the applause of the unrelenting environmental groups, on June 15, 2012 the outgoing Mexican President, Felipe Calderon, cancelled the investors' construction permits (proceso.com.mx) arguing insufficient environmental protection.

the OECD countries[10] and one of the lowest in all of Latin America (Piancastelli, 2001). The last part, and most controversial, is a conceptual and exploratory paper to demonstrate the importance of focusing on assets to ensure quality of life for current and future generations (sustainability). The measure of assets rather than flows (such as those monitored by National Economic Accounting and its touchstone metric Gross Domestic Product) ensures that the natural, social and economic capital on which our well-being depends also satisfies the minimum conditions for ecosystem resilience (Brand, 2009). However, this requires explaining why this is important and presenting a proposal to overcome current limitations. After an overview of the historical events behind today's economic hegemony, GDP accounting and public sector accounting, I discuss the key accounting principles and especially the principles of relevance and reliability. With a focus on relevance, I assess current valuation methods and models, and then propose a public sector balance sheet with key asset and depletion metrics. Rather than a new or adjusted metric to arrive at a new or improved indicator, I propose a new approach to existing metrics and indicators: presenting the assets in a balance sheet for enhanced visibility, transparency and interdependency. I test my proposal using Cancún as a case to illustrate the use of metrics and demonstrate how a balance sheet highlights long-term assets with short-term flows as the handmaiden, not vice versa as is now the actuality. This balance sheet helps to explain why Cancún's reefs are degrading, school attendance is falling, teenage pregnancy and suicide is rising, and insecurity is increasing. Most disturbing of all, despite the continued growth in tourism thanks to important legislatively ear-marked funds for tourism promotion, fewer residents than ever have social security or some form of

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[10] Mexico is a member of the Organization for Economic Cooperation and Development (OECD).

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insurance. Rather than tourism being the solution, a solution is needed for Mexico's tourism mechanisms.

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PART I: CANCÚN'S ORIGINS AND THE

INSTITUTIONALIZATION OF TOURISM IN MEXICO

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CANCUN 2000

Introduction to PART I

Mexico has a young and burgeoning labour force, and 9330 km of coastline, one of the longest in the world. This unique combination of labour, coastline, climate and culture explains why in 2006 México ranked seventh worldwide in the number of foreign visitors, the only developing country in the top ten with the exception of China (UNWTO, 2006). According to a recent Ministry of Tourism report, domestic and foreign private investment was over US $12 billion in 2006 and increasing at 12 percent annually since 2002. However, these figures cannot explain **how** Mexico became such a beacon for tourism and **how** the field became an established social practice within Mexico. Fifteen years ago Aldrich & Fiol (1994: 663) stated that "the period during which a new industry emerges deserves more theoretical attention because the struggle to carve out a niche for a new industry involves such strong forces that the events of that period may be forever imprinted on the organisations that persist". In other words, to understand the processes available to existing organizations and institutions, knowledge of field introduction is vital.

Institutions are durable social systems made up of symbolic elements, social activities, and resources, both material and human, which are transmitted across generations and relatively resistant to change. Institutional theory and structuration seek to explain the stability of social systems but also the mechanisms of change and displacement of certain systems. Systems include broadly society, fields, organizations and interpersonal relations. DiMaggio & Powell (1983) and Hoffman (1999) addressed field characteristics, the former analyzing stability while the latter addressed transformation. However, few have specifically addressed emergence or field

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construction. To create institutions agents deploy the resources at their disposal that are aligned with their interests. "These agents have the resources and hence the power to shape the character of institutions and institutional change" (Dacin et al., 2002: 47). This study illustrates the crucial role of powerful carriers to implement and legitimize new systems in the public sector and the public at large, and how the original events are still imprinted on the available development mechanisms today.

The explanation of Mexico's tourism emergence[1] is best revealed through institutional theory and structuration: the interplay of structure and agency. Structures only exist to the extent that ongoing activities reproduce them such as banking and accounting regulations. Iteratively, activities demonstrate agency within the bounds of structure (Baber, 1991; Giddens, 1984, 1993; Scott, 2008: 77- 78) such as the employ of the regulations in a development project. The rules are predicated on existing norms and values. For example, the Cancún project was made possible because of the introduction of the common law public trust fund instrument in to Mexico's civil law code in 1932, the first civil law country to do so. And trust funds (*fideicomisos*) continue to litter the Mexican development landscape today (Licon Baca et al., 1982; Turrent-Díaz, 2003a). This juridical instrument is such an oddity for a civil law country that it has its own accounting rules (Rodriguez Ruiz, 1975). As such the accounting practices employed must be contextualized in order to explicate the bounded, rationalized choices that lead to the selection of tourism as a development strategy and the portrayal of Cancún as a successful outcome by accruing direct investment and land-for-share swaps, tactics that

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[1] Although seemingly obvious, tourism can mean the activity of a person (tourist) who has temporarily left her/his place of residence; the industry such as airlines, hotels, restaurants, etc; consumption and monetary exchange through the location of the expenditure. For the purpose of this paper, I refer to tourism from the host country (receiving tourists), economic-growth industrial perspective of building infrastructure and providing employment in order to receive tourists and generate revenue.

were unavailable as a government public works project and cash accounting. Beneath the surface of buoyant and orderly reports, the accounting traces illustrate the chaos of a failing project and the desperation to triumph. The portrayal of triumph by powerful agents within Mexico's Central Bank Ltd. (*Banco de México SA*, hereinafter referred to as ***Banxico***) initiated the institutionalization of tourism, subsequently embraced by government and carried by a discourse of persuasion, training and employment opportunities.

Greenwood et al (2002) describe the six stages of institutional change as destabilization, deinstitutionalization, preinstitutionalization, theorization, diffusion and reinstitutionalization (Greenwood et al., 2002; Miner, 2006). Destabilization is characterized by crises that impact and fracture existing practices. Crisis leads to new players or new statuses of players in response to functional, political or social pressures. The instance here is one of functional pressures which are problems in performance levels associated with institutionalized practices, in this case a failed import-substitution development strategy[2]. Following deinstitutionalization is pre-institutionalization during which individuals and organizations innovate to provide viable solutions, in this case responding to a balance of payments crisis. Phase four is theorization during which period different possibilities are examined and justified using cause-effect arguments. ***Banxico*** undertook a major two year study before confirming tourism and selecting the site of Cancún. However, diffusion, phase five, "occurs only if new ideas are compellingly presented as more appropriate than existing practices" (Greenwood et al., 2002: 60). In this

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[2] From the 1950s to the 1980s, Mexico embraced Import Substitution Industrialization whereby imports of industrialized goods were replaced with local production creating an internal market to decrease dependency on imported goods. However, import of machinery and raw materials to produce industrialized goods indebted the country and drained foreign reserves (Clancy, 2001).

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case, the directors of the trust fund INFRATUR[3] convinced government officials and the public of Cancún's instant success, a myth still diffused today. Successful persuasion results in a social movement that gains momentum to become an institutional imperative. Finally is full institutionalization when ideas are taken-for-granted. In Mexico, statistics on investment and employment are trotted out regularly to demonstrate the importance of this industry to Mexico and the need for its continued maintenance.

Rather than unbridled agency, each stage is conditioned by accreted structures which make certain choices and outcomes more likely (Giddens, 1984). To understand some of the structures which mediated decisions, I illustrate how a change in credit and accounting rules in the first half of the 20th century combined with a balance of payments (**BoP**) crisis in the second half lead to the full institutionalization of tourism as a field in Mexico. But first is a brief introduction to the case.

The Case of Cancún

Stories of Cancún's genesis vary from the collusion of Mexican politicians with international capitalism (Clancy, 2001; Clancy, 1999; Collins, 1979; Gladstone, 2005; Hiernaux, 1999; Gormsen, 1982; Torres, 2002; Torres and Momsen, 2005) to highly speculative anecdotes of suspicions of a Cuban invasion. Often President Miguel Alemán-Valdes (1946-1952) is referred to as the 'father of the Mexican tourism industry' as he developed strategic plans for tourism as far back as 1950 (Valenzuela Valdivieso and Coll-Hurtado, 2010). However, at that time all investment and promotion were channelled to Acapulco where Alemán-Valdes had his own investments and agreements

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[3] INFRATUR (Fondo para la Promoción de Infraestructura Túristica-Trust Fund for the Promotion of Tourism Infrastructure) was responsible at the same time for a tourism project in Ixtapa-Zihuatanejo for which INFRATUR was granted a World Bank (IBRD) loan. For the purpose of this paper, the focus will be exclusively on Cancún as a case study.

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with the Mexican elite (Jiménez Martínez, 1992; MacDonald Escobedo, 1981; Valenzuela Valdivieso and Coll-Hurtado, 2010). Thus ***Banxico*** selected tourism as a strategy but focused on sites other than Acapulco. Moreover, following much criticism of the expropriation, nepotism, and chaotic growth of Acapulco, the central bankers convinced the government of the need for integrally planned tourism centers (*Centro Integralmente Planeado* -**CIP**) to administer the millions of dollars and thousands of construction workers needed. Rather than a federally directed public works project, ***Banxico*** created the public trust INFRATUR to execute the project. The trust fund instrument allowed each **CIP** to be separated into uncontaminated investment and accrual accounting funds far from government surveillance.

Despite efforts to attract industry investment at the onset, the project was rejected by international hotel professionals who were launching their investments in Acapulco (Valenzuela Valdivieso and Coll-Hurtado, 2010). INFRATUR had no option other than to invest directly, extra-officially expanding its mandate. This direct investment allowed INFRATUR to achieve the numerical goals of rooms in operation within a specific time frame and therefore portray Cancún as a success not only to the project's executive committee and national politicians but also the International Development Bank that had lent US $21 million to the project. By portraying Cancún and other centrally planned tourism projects as a triumph, investment was catalyzed, more workers employed and in the coming decades more Mexicans selected tourism as a career. Today one out of every nine Mexicans is involved directly or indirectly in the industry throughout Mexico and this is expected to increase to one in eight over the next decade (UNWTO, 2006). Forty percent of the foreign currency generated from tourism in Mexico today is generated by

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the original **CIP**, Cancún (UNWTO, 1998: 26) plus the adjoining areas of Playa del Carmen and Tulum. Worldwide, in the 35 years since its first tourism infrastructure loan in Mexico, the World Bank has lent a total of US $4.4 billion to more than 160 tourism or tourism-related projects.[4]

Numerous tourism planners and academics have pointed to Cancún for replication (Anonymous, 1993; Ayala, 1996; Bosselman et al., 1999; Judd and Fainstein, 1999; Manning and Dougherty, 1995). Although some normative and prescriptive lessons can be drawn from the case of Mexico, as with any institutionalization much was a unique confluence of agents and history. Nonetheless this study should contribute to current-day accounting discussion in three ways. First, to date tourism as an industry has been ignored in the accounting literature despite its economic importance worldwide especially to emerging and island economies. Second, this case illustrates the role of accounting in national development strategies. Finally, the current study illustrates the role of power by actors in an emerging economy in the imposition of its model on larger society. Rather than a 'developed' nation imposing its needs on a less developed country, this is a story of an emerging economy manipulating First World consumerism to its own ends.

This paper is structured as follows. First is the theoretical framework of institutions and structuration that serve to explicate the institutionalization of tourism in Mexico. Next is a section on method and data sources. Based on the theories and sources, I reveal the dominant forces: key agents within ***Banxico*** that were bounded and facilitated by regulation such as trust funds and accrual accounting. These agents used

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[4] World Bank, http://web.worldbank.org, Projects & Operations, accessed Feb, 2008.

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their legitimacy and powers of persuasion to transform the failing project into one of success, the topic addressed in "Crisis and INFRATUR", the final section prior to the discussion and conclusion.

Institutional and Structuration Theories

Institutions are durable social systems made up of symbolic elements, social activities, and resources, both material and human, that are transmitted across generations and relatively resistant to change. They are "regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 2008: 48). The regulative, normative and cultural-cognitive elements are embodied in power, rules and norms that are manifested in texts such as laws and accounts, and rituals such as professional accreditations. Although both institutional and structuration theories address the recursive interplay of social activities of agents and structure, a key debate within these theories is the constraint of structures versus the manoeuvrability of agents.

Actors encode institutions in their stocks of practical knowledge, and carry and transmit these knowledges (Dacin et al, 2002; Scott, 2008). These knowledges are identified by behavioural regularities or routines called modalities (Giddens, 1993), scripts (Barley & Tolbert, 1997) and carriers (Scott, 2008). Scripts or carriers include procedures, laws, objects or artefacts, even accreditations that all form part of structures. Although 'structure' implies an object, it "has no existence independent of knowledge that agents have about what they do in their day-to-day activity" (Giddens, 1984: 26). Structure is both the medium and outcome of social routines within a social system and constrains agency making certain behaviours more likely. Yet within these boundaries,

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agents still enjoy a range of choice and action that over time can result in the creation, modification, even displacement of institutions. This process is referred to by Giddens (1993) and Scott (2008) respectively as structuration and institutionalization.

Institutional Theory and Institutional Change

DiMaggio & Powell (1983) observed that organizations' operating in the same field show remarkable similarity in their structural features. Their definition of a field is those organizations, both public and private, that aggregate around a product or a service, i.e. an industry. In the early stages of field formation, organizations assume a variety of forms. As the field evolves, organizations exhibit increasing homogeneity because of coercive, normative and mimetic mechanisms. Isomorphism is a contest for legitimacy that helps to explain field stability. However, this observation fails to explain field formation and change. Hoffman (1999) demonstrated that fields form and evolve around issues. Rather than the market for chemicals, Hoffman showed how the issue of environmentalism induced the chemical industry to evolve following pressure from environmentalists and regulators. Similarly, this longitudinal study reveals that the true actors behind Cancún, the nexus for tourism development in Mexico over the past thirty years, was the 'bank of banks', Mexico's Central Bank Ltd. (*Banco de México SA*, hereafter referid to as ***Banxico***), a semi-private entity. ***Banxico*** needed to address the issue of foreign currency depletion following a failed Import Substitution Industrialization strategy. Contrary to the long-standing and generally-held belief of tourism promotion by Mexican politicians and seasoned experts, the thrust behind international tourism in Mexico were powerful central bankers. To reveal the underlying processes requires an explanation of the location of project responsibility for integrally

planned tourism destinations such as Cancún initially within ***Banxico***; the regulative mechanism of the trust fund in Mexico that allowed ***Banxico*** to execute massive public works projects; and a detailed analysis of the accounting to portray 'success' by providing numbers on room construction and operation through a manipulation of the trust fund mandate.

The explanation of Mexico's tourism success is best revealed through institutional theory and structuration: the interplay of structure and agency. Structures only exist to the extent that ongoing activities reproduce them such as banking and accounting regulations. Iteratively, activities demonstrate agency within the bounds of structure (Baber, 1991; Giddens, 1984, 1993; Scott, 2008: 142) such as the employ of the regulations in a development project. The rules are predicated on existing norms and values. For example, the Cancún project existed because of the introduction of the common law public trust fund instrument in to Mexico's civil law code in 1932, the first civil law country to do so. The Mexican juridical instrument is so unique that it has its own accounting rules (Rodriguez Ruiz, 1975). Beneath the surface of buoyant and orderly reports, the accounting traces illustrate the chaos of the failing project and the desperation to triumph. Obviously there were many forces acting at once over and above the Cancún project. The point here is that institutionalization requires a crucial catalyst that forces a change of orbit. Cancún was the catalyst but certainly not the only event because institutionalization requires carriers such as the ensuing WB loan which came on the heels of the IDB loan, and the creation of FONATUR now a branch of the Tourism Ministry. Otherwise said, the portrayal of triumph by powerful agents within ***Banxico*** triggered the legitimation of tourism which was subsequently carried by government

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agencies and activities through discourse, legislation, organizations, training and employment opportunities.

Institutional-Structuration Theory (IST)

Although Scott (2001) and Giddens (1993) separate structuration and institutionalization, other authors (Barley and Tolbert, 1997; Dillard et al., 2004) use them synonymously. Both theories recursively model the historically-grounded creation, adoption, reproduction and displacement of institutional practices, i.e. structures, by agents. The difference is that Institutional Theory provides a better description of institutions and established practices while Structuration Theory provides a better model of agency and change (Dillard et al., 2004). Here, I use them synonymously as Institutional-Structuration Theory (IST) as both address structure and agency to explicate power, legitimacy and dissonance that spawns institutional displacement, for example the shift from import-substitution to tourism.

Following is a discussion first of four social formations which are: larger society, fields, organizations and interpersonal relations. Intersecting orthogonally each formation are the three carriers of institutions: regulations, norms and representations, the next discussion. Finally the sources of institutional tensions which lead to change at one or several of the twelve intersections of formations and carriers are considered. These include dissonance when information discords with lived experiences, threats to legitimacy and power struggles (Scott, 2008) also referred to as signification, legitimation and domination (Dillard et al., 2004; Giddens, 1993).

<u>Social Formations: Individuals, Organizations, Fields and Larger Society</u>

Although other interpretations exist, I heuristically divide the social formations into four strata: the individual (or interpersonal), the organization, the field, and society or world systems. World systems, fields and organizations are populated by individuals. It is individuals who are "suspended in a web of values, norms, rules, beliefs, and taken-for-granted assumptions, that are at least partially of their own making" (Barley and Tolbert, 1997: 94). This web partially constrains choices available to the individual and frames interpersonal relations. Nonetheless, the web does not fully determine outcomes. Through choice and actions, individuals can deliberately modify, even displace, institutions. In short, within the interpreted bounds of past practices and understandings, individuals enact daily practices that, as organizations, reinforce or debilitate institutions (Barley and Tolbert, 1997).

When individuals socially arrange in pursuance of collective goals and seek to control their own performance and resource use, this arrangement is called an organization. However, the word organization refers to both a process, the act of organizing, and an outcome, the end product, a common confusion. Early definitions of organizations referred to the end product: highly formalized collectivities (rational system) and less formally organized collectivities (natural system) both in reference to **intra**-organizational activities. More recent definitions of organization as open systems refer more broadly to interdependent activities and therefore the **inter**-organizational space of collaboration and conflict (Baum and Rowley, 2002). Otherwise said, the act of organizing creates a space with shared rules.

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The larger society consists of the nation-state and broader supra-national organizations. Studies at this level seek to identify the mechanisms that align social and private interests. These interests, once legitimated are the source of rights which are enshrined in agreements, laws and regulatory institutions to monitor and enforce those rights. Although there may be general agreement across cultures as to fundamental rights (e.g. the United Nations), each nation-state chooses how to embody those rights which gives rise to different institutional arrangements (Scott, 2008).

Nested between organizations and larger society are fields. DiMaggio & Powell (1983: 148) defines them as "those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products". A field is identified by increased interaction among organizations, "the emergence of sharply defined inter-organizational structures of domination and patterns of coalition"; and increased information sharing all to solve a common issue (DiMaggio and Powell, 1983). Although Hoffman (1999) agrees with how a field is identified, he hypothesized and demonstrated that rather than a common industry or a shared technology, a field forms around a mutual issue and change originates from competing interests in that issue. While markets and technology spark debate, change is a political process (Dillard et al., 2004) wherein legitimated actors compete. The creation of tourism as a field was spawned by the organization ***Banxico*** that co-opted private banks into investing in hotels. The key actors within this organization were highly trained economists who first measured and then formulated as an object of policy the development strategy of its own

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brand of tourism resorts through processes far different than those employed by their competitor Miguel Alemán in his construction of Acapulco[5].

Carriers of Institutions: Regulations, Norms and Sense-Making

Within each of the four social formations, Scott (2001) describes the mechanism as one of three institutional carriers: the regulative, the normative and the cognitive, or what he calls 'pillars'. The regulative carrier is the rule-setting, monitoring and sanctioning activities conducted within a society, a field or an organization. Regulatory processes involve the capacity to establish rules, enforce adherence and impose sanctions, either rewards or punishments, in order to influence future behaviour. The processes can function informally such as local conventions as to what is shameful, or formally through organization rules and public laws (Scott, 2001). The role of rules, regulations and laws is to provide prescriptions for conduct. However, these prescriptions are sometimes obscure which is why "rules must be interpreted and disputes resolved; incentives and sanctions must be designed and will have unintended effects; surveillance mechanisms are required but will prove to be fallible, not foolproof; and conformity is only one of many possible responses by those subject to regulative institutions" (Scott, 2001b: 54).

Normative systems define what is considered legitimate as a means to pursue valued ends. While some norms are general, others are specific and referred to as 'roles'. One manifestation of roles is certification of individuals and accreditation processes

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[5] For a detailed description of Acapulco's particular development, see Valenzuela Valdivieso, E., & Coll-Hurtado, A. (2010). La construcción y evolución del espacio turístico de Acapulco (México). *Anales de Geografía, 30*(1), 163-190.

within a field wherein specified actors are expected to behave in prescribed manner as a function of their activities or social position. Barley & Tolbert (1997) refer to accreditations as an example of a script: a well-established pattern of interaction. Although roles (scripts) can be devised formally (e.g. laws) and eventually internalized by the individual (norms and cognition), they can also emerge informally through personal interaction that serves to demonstrate appropriate behaviour.

The cognitive carrier is the recognition that it is actors, not structures, which perceive, interpret and make sense of the world. Rather than behaviour fully determined by structure, it is the "active and reflexive self that creates, sustains, and changes social structures" (Scott, 2001b: 38). Studies based on cognition, routine and sense-making focus on the effects of cultural belief systems within organizations. While cognition and routine generally produce stability, sense-making can lead to tensions and change. Sense-making is the "noticing and bracketing of experiences triggered by discrepancies and equivocality in ongoing projects"(Weick et al., 2005: 414). Weick et al (2005) argue that sense-making results from disruptive ambiguity or dissonance, when information discords with events and lived experiences. "Answers to the question "now what?" emerge from presumptions about the future, articulation concurrent with action, and projects that become increasingly clear as they unfold" (Weick et al, 2005: 413). These emerging projects are manifested in institutional tensions such as those created by diminishing foreign currency reserves and increasing debt that initiated the search for alternative development strategies.

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Sources of Institutional Tensions: Representation, Legitimacy and Power

Ultimately Scott's three institutional carriers: the regulative, the normative and the cognitive, are heuristic categorizations that help to identify phases in the internalization of institutions. Of particular interest in this investigation is institutional change. Changes in practices and membership are fuelled by conflicts of representation (signification), legitimacy (legitimation) and power (domination), what Dillard et al (2004) call axes of tension. "Signification structures have to do with symbolic representations that provide meaning and facilitate communication. Legitimation structures relate to norms and values. Domination structures relate to power as it concerns the ability to control and mobilize resources" (Dillard et al., 2004: 519).

Representation is intimately linked to the cognitive. As Hoffman (1999) observes, presence of and change in the cognitive institutional carrier is extremely difficult to measure. In fact, most research into the cognitive seeks to explain "observably regular, patterned, repetitive actions by some kind of analysis of the actor's point of view" (Burrell and Morgan, 1979: 252). Most studies focus on the construction of routine and the formation of agreement of certain meanings and definitions that result in regularized, coordinated behaviour. Difficult to observe is the sense-making and the change that is sparked by dissonance when information discords with lived experiences (Weick et al, 2005). This leads to a search for new frameworks that better correspond to perceptions. Rather than sense-making itself, more observable are the struggles for new representations and among actors to earn the right to impose their significations (representations) on others.

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Legitimacy, simply put, is social acceptability and credibility. It is the perception that "the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchman in Scott, 2001: 59). Rather than one resource among others, legitimacy is considered by institutional theorists as a publicly displayed value. Shared meanings of cultural frames (cognitive), norms and rules (normative) develop into routines and sometimes laws (regulative). Those who adhere closest to the frames, rules and laws enjoy greater legitimacy because their actions are considered highly appropriate by a wider population. Legitimacy is the link between representation and power.

Power (domination) articulates with representation and legitimacy by identifying who has the ability to define norms and standards that shape and guide behaviour (legitimation structures); and who has the ability to circumscribe appropriate models of structure and policy (signification structures) that become taken-for-granted (institutionalized) (Dillard et al., 2004; DiMaggio and Powell, 1983). Power is always constituted in a relational universe of representation and meaning. Interests of powerful groups must be reproduced in order to constitute the structures which are fundamental to the institutionalization process (Dillard et al., 2004: 510).

Although these descriptions suggest determinism, change can occur through a debate over norms. For example, Hoffman's 1999 study analyzed how the debate formed around defining the norm for corporate environmentalism and how that debate evolved over time as the field-level constituency reconfigured and the dominant meanings and interpretations changed. Dillard et al (2004) refers to this type of change as routine in that the circumstances (events) do not threaten the existence of the entity, field or

society. These are changes that are "motivated by, or reflected in, evolutionary improvements in the organizational routines, organizational field characteristics and/or societal characteristics" (Dillard et al., 2004: 521). As such, these events do not threaten existing institutionalization. In the case of Cancún's origins, routine changes in credit laws combined with the constitution of a new object, tourism, set the stage for new structures. Equally, change can be sparked by crises which threaten the entity, organizational field or society's continued existence. Here the expectation is that changes will result in new organizational routines, new organizational field perspectives and/or new societal arrangements reflecting, for example, significantly different administrative and/or scientific technology (Dillard et al., 2004: 521; Greenwood et al., 2002; Miner, 2006).

Crisis arose when Banxico's import-substitution strategy of industrial development failed fuelling instead a BoP shortfall. ***Banxico***'s directors were pressed to find a new development strategy to redress the imbalance. Whether routine or crisis, change is sparked by dissonance and competition for legitimacy and control. This change can be studied by charting the flows of action at the individual, organizational, field or societal level; extracting the scripts characteristic of particular periods be they normative or regulative; and examining these scripts for changes in membership, behaviour and interaction patterns (Barley and Tolbert, 1997). Here archival data from the 1930s to the 1970s provides the scripts that illustrate how tourism became an object, why ***Banxico*** was the organization that had the power and legitimacy to enact this new development strategy and the tactics used within existing structures such as credit laws and accrual accounting to constitute a new field.

Carriers, Triggers and Scripts

Increasing dissonance between economic theories of unbounded rationality and lived experience has led to rising interest in IST (Institutional-Structuration Theory) because it highlights historical and cultural influences on formal structures, decision-making and behaviour. IST recognizes the agent-structure iteration but most studies to date are theoretical not empirical (e.g. Dillard et al, 2004), and those empirical studies conducted have focused on constraint leading to isomorphism rather than empowerment and change. As such, these investigators focus on outcomes rather than the process.

Change is often sparked by events that trigger actions leading to field consolidation or displacement and creation (Barley and Tolbert, 1997; Hoffman, 1999). Most studies of institutional change necessarily focus on sites that have already changed, the second moment of institutionalization. Thus, carriers and trigger events[6], perhaps innocuous and unrecognized in the moment, eventually create disturbances or facilitate reconstitution of the field that are more identifiable.

Carriers are manifested in artefacts and technology that become reified and form part of the objective, structural properties of an institution. These carriers, whether laws encoding trust funds or technologies such as accounting, leave traces in written and visual medium referred to as scripts. Unlike Giddens' modalities which are vague, a script is empirically definable, identifiable and analyzable for all levels of social

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[6] What Hoffman calls trigger events, Foucault (1991) refers to as 'eventalization' defined as the "rediscovering the connections, encounters, supports, blockages, plays of forces, strategies and so on which at a given moment establish what subsequently counts as being self-evident, universal and necessary…[to analyze]..an event according to the multiple processes which constitute it" (Foucault, 1991: 76). In other words, eventalization refers to examining the pressures and processes involved in changing mentalities and the subsequent internalization of those changes by the target population. Internalization is "a knowledge whose visible body is not theoretical or scientific discourse, nor literature either, but a regulated, everyday practice"(Foucault, 1997: 6).

formations through the written and visual traces (Barley & Tolbert, 1997). Scripts provide clues to institutional modification and displacement.

Following is the analysis of three trigger events, two routine and one crisis, which lead to the creation of Cancún by Mexico's central bank and ultimately the formation of tourism as an institutionalized field at the regulative, normative and cognitive levels. The introduction into the Mexican legal-financial system in 1932 of the *Ley General de Titulos y Operación de Créditos* (General Law of Titles and Credit Operation), a carrier, allowed for the management of trust funds by licensed and regulated credit institutions such as **Banxico** to administer and evaluate projects. The fund INFRATUR then carried the rationalized construction of Cancún far from the chaos of federal Public Works. These funds had their own accounting rules, carriers and scripts, which allowed for the portrayal of Cancún as an early success using accruals. The second routine event was the measurement of tourism. This began in the 1940s by a young economist Fernández-Hurtado. This new calculation made tourism an economic object. The third event was the crisis: a failed economic development strategy of import-substitution which led **Banxico**, now with Fernández-Hurtado as second in command, seeking solutions to a BoP crisis.

Accounting as Persuasion

Miller & Rose (1990) characterize accounting as a technology which they define as a mechanism "through which authorities of various sorts have sought to shape, normalize and instrumentalize the conduct, thought, decision and aspirations of others in order to achieve the objectives they consider desirable" (Miller and Rose, 1990: 8). Accounting and statistics are derived from data which are filtered and presented by experts in reports (scripts) to produce a desired macro-economic portrayal. In short,

rather than a neutral tool accounting objectifies, it is a technology that is used to persuade, measure and represent activities. As we will see following, there were several sites of persuasion in Mexico: the politicians persuaded the populace of the importance of tourism; ***Banxico*** persuaded the politicians of the need for integrally planned tourism sites such as Cancún; and INFRATUR (***Banxico***) portrayed the rationality of their decision through accounting in order to persuade the board and the lenders that their vision was a success.

To summarize, accounting practices and agents are central components of the institutionalization of tourism as a field. The calculative practices are a function of the juridical mechanisms that frame accounting choices: the introduction of trust funds and trust fund accrual accounting. Tactical legislation and administrative reports compiled from successively filtered accounting traces were the strategic instruments to achieve selected objectives. These scripts demonstrate the tensions in representation, legitimacy and domination which are the keys to explicating the institutionalization of tourism in Mexico.

Method: Historiographic Archival Research

As institutional-structuration theory (IST) requires longitudinal study and the documents analyzed here date from 40 years ago or more, the method here is necessarily archival described by Ventresca & Mohr (2002: 805) as "a loosely coupled constellation of analytic endeavours that seek to gain insight through systematic interrogation of the documents, texts and other material artefacts that are produced by and around organizations". Historical or archival research is said to have "no overarching theoretical structure [that] appears to give the field coherence" (Fleischman et al., 1996: 57). So rather than coupled with certain theories, Ventresca & Mohr (2002) state that this research design benefits from theories from a variety of disciplines, in this case IST. Archival methods are well-suited to IST because institutionalists focus on relations and symbolic systems at the local and non-local levels that produce effects over long time periods and leave traces such as reports (Barley and Tolbert, 1997; Scott, 2008). "Few official actions of any sort are conceived, enabled and enacted without having been written down both in advance, in retrospect, and invariably many times in between" (Ventresca and Mohr, 2002: 806).

A definition of archival data is ongoing, continuing records of a society produced for other than scholarly purposes and the collection of which is paid for by someone other than the researcher (Webb et al., 1966). The source of archival data is extremely varied. A few examples include government records such as census information, voting records and land titles; professional and other directories; political statements and activities; judicial proceedings and decisions; the media and the internet; and accounting records for public and private institutions.

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As to types of archival research, there are three general types. The most traditional is historiographic in order to study the emergence of institutional arrangements. Subsequently, business historians began studying the origins of modern business practices and lately critical historians have begun studying class conflicts and control (Ventresca and Mohr, 2002). Each type has a different method. Traditional historians undertake nuanced readings of actions, understandings or careers of individuals, groups and/or organizations to produce a narrative. Historical ecology and new archival research use texts as data points and count rather than read the results. Rather than a linear narrative of one or few organizations, historical ecologists transect many similar organizations and compare these points over time to find differences or similarities among structural characteristics that help to explain field formation, e.g. Hoffman (1999). The most recent stream of new archival research combines both narrative and data to focus on relations rather than structures. These studies infer interrelations such as legitimacy that recursively alter relations and mechanisms. One example of this type of study is network analysis (Scott, 2008: 214; Ventresca and Mohr, 2002: 810). The study here is conducted using traditional historiography because the research question addresses the creation of tourism as a field and the questions as to why ***Banxico*** was the site of control of the Cancún's construction and how did INFRATUR operate. In order to understand complex, nuanced, context-dependent social processes, the research method is necessarily qualitative (Prasad, 2005).

<u>Method</u>

In order to study 'institutions in action' and over time the method is to select the site of change or, in this case, creation; chart the flows of action leading to change or creation

(structuration); and triangulate the findings with other sources (Barley and Tolbert, 1997). With the focus on Banxico and INFRATUR, investigation focused on the actions prior to and especially during formative period of 1968 to 1974. With the help of Banxico's historian, Eduardo Turrent y Diaz, original documents dating from the construction were located in the private home of one of the original planners, Pedro Dondé Escalante, after two months of searching in Mexico City. Dondé Escalante had carefully kept and organized these texts from his years of involvement in the planning of Mexico's first **CIP**, Cancún. More than 20,000 pages that had not been seen in over thirty years were scanned and carefully stored (see Original and Official Documents). Although numerous versions of Cancún's origins exist (e.g. the mythical pivotal role of President Echevarria), contemporaneous accounts of interaction and actors' interpretations of their behaviour are preferable as these are less subject to rationalized reconstruction (Barley & Tolbert, 1997) and therefore provide superior evidence. The contents of the original reports were read alongside other texts to confirm and contextualize Donde-Escalante's reports. Other clues to the macro-outcome of field construction were found in reports from Banxico dating back to the 1930s, speeches given by Banxico's governors that illustrate certain mentalities, accounting and legal manuals for the administration of trust funds. These manuals provided proof of the trust-fund's isolation from other projects and the independence of INFRATUR directors. Last but not least other scholarly works bracketing the formative 1968-1974 period, i.e. prior to 1968 (e.g. Clancy, 1999; 2001) and post-1970s (e.g. Hiernaux, 1999; 2007), were read in light of these contemporaneous accounts to determine trigger events and provide a revised interpretation of current institutions.

Institutionalization is sparked by routine and/or crisis events that trigger action leading to field creation, consolidation or elimination (Barley and Tolbert, 1997; Dillard et al., 2004; Hoffman, 1999). As is the case of Cancún, sites selected for study are those that have already changed and therefore constitute the second moment of institutionalization. Thus, trigger events, perhaps innocuous in the moment that created the disturbances or facilitated the constitution, are more identifiable. Following is the analysis of three events, two routine and one crisis, which lead to the creation of Cancún by Mexico's central bank and ultimately the formation of tourism as a field: the introduction into the Mexican legal-financial system in 1932 of the *Ley General de Titulos y Operación de Créditos* (General Law of Titles and Credit Operation); the measurement of tourism by a young economist Fernández-Hurtado to refine the BoP calculations making tourism an economic object; and the crisis following a failed economic development strategy of import-substitution which led ***Banxico***, now with Fernández-Hurtado as second in command, seeking solutions to a BoP crisis.

Bias

Archival research is a form of interpretive qualitative research (Prasad, 2005) because samples of narratives and numbers are purposively selected rather than random. Although considered non-reactive since there is no interviewee giving potentially socially appropriate answers, archival data contains bias because of the selective destruction of certain documents (e.g. a change of political parties in power), the loss or destruction due to moving, administrative errors and warehousing conditions. The irony of archival data is called <u>Croce's</u> problem: "Either one is uncertain of the data when only

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a limited body exists, or uncertain of the sample when so much exists that selection is necessary" (Webb et al., 1966: 54).

Despite the possible bias from shifting standards of record-keeping, inconsistency in categorization or grouping, record-keeping rigidity which excludes certain information, triangulation attenuates these problems (Jick, 1979; Webb et al., 1966). Triangulation is used synonymously with consensus testing (Webb et al, 1966) or convergence techniques (Cook and Campbell, 1979; Jick, 1979; Kerlinger, 1986; Schwab, 1980). Simply explained triangulation requires converging public policy statements with media statements, for example. Also political speeches (self-reports) can be compared to newspaper messages. In addition to convergence, divergence is an important indicator. "When different measures yield dissimilar results, they demand that the researcher reconcile the differences somehow. In fact, divergence can often turn out to be an opportunity for enriching the explanation" (Jick, 1979: 607).

For triangulation in this research, government and academic sources were mined for an explanation of the institutional context and the individual attributes that coincided in the planning and construction of Cancún. With the questions of 'why ***Banxico*** and why INFRATUR', the focus of these readings was on the origins of the structures such as trust funds, the creation of an economic object called tourism within ***Banxico***, and the attributes of the agents to impose a particular model of development. How was it that a 'para-statal' such as ***Banxico*** had the authority to obtain an international loan, administer the funds and undertake a public works project that is usually the domain of a central government body? Still today, accounts of Cancún's construction refer almost systematically and erroneously to the Mexican government. President Echevarría was co-

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opted into the project in 1972 which has resulted in the government being credited for Cancún. This lead to another paradox, that of the myth of Cancún's instant success. Why would ***Banxico*** need to co-opt the Mexican government several years into the project in order to repay the loan if it was a success? And why was INFRATUR transformed into FONATUR in 1974? With years of personal experience working in tourism in México, I set out to clarify the contradictory accounts and inadequate explanations of Cancún's origins.

Institutionalization of Tourism: The Case of Cancún

<u>Dominant Actors and Resources</u>

One very widely-held explanation of Cancún's origins suggests collusion between the Mexican government and international capitalism (Clancy, 2001; Clancy, 1999; Collins, 1979; Gladstone, 2005; Gormsen, 1982; Torres, 2003; Torres and Momsen, 2005). It is undeniable that domestic and foreign investment was actively promoted to solve Mexico's high unemployment and low level of development (Banco de México-INFRATUR, Departamento de Economía, 1970ª, Clancy, 2001; Clancy, 1999; Fernández-Hurtado, 1975; Jiménez Martínez, 1992; Torres, 2002). But it was only in the 1980s that foreign hotel chains became interested in investing in Cancún, more than a decade after breaking ground. It is also true that in the 1950s ***Banxico*** moved consciously to a monetary policy favoring export-led growth. However, the necessary importation of expensive machinery and materials depleted foreign reserves. The current account balance plummeted from a positive balance of US $149 million in 1955 to a negative balance of more than US $1 billion by 1970 or 3.3 percent of GDP (Clancy, 2001: 36). In response to the BoP crisis, there was a shift to the exportation of tourism services in the late 1960s[7] (Fernández-Hurtado, 1975; Clancy, 2001: p49). But there has been no description to date to effectively explain the actors and the processes that led to the institutionalization of tourism.

Academic contributions to the origins of Cancún refer systematically to statism and government central planning (Clancy, 2001; Clancy, 1999; Gormsen, 1982;

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[7] Foreign tourists traveling to a destination such as México is referred to as an 'exportation of services' because the point of sale is outside México, the destination country.

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Hiernaux, 1999; Torres, 2003) by 'federal agencies' (Collins, 1979). There is also the Marxist view of an omniscient and coordinated Mexican state colluding with international capitalism to impose tourism on the population (Jiménez-Martínez, 1992; Gladstone, 2005). From a political perspective, there is the belief that Miguel Alemán-Valdes, Mexican President (1946-1952) and later the Director General of the influential National Tourism Commission (1958-1983), set about to make Mexico an important tourist destination. But infrastructure, promotion and supplier agreements all concentrated on Acapulco under his direction (Valenzuela Valdivieso and Coll-Hurtado, 2010). There is no evidence of interest in expansion to other destinations and/or to benefit broader society. Another assertion is that the catalyst behind Cancún was Mexican President Luis Echevarria (1970-1976) but the project had been developed and the IDB loan requested prior to his presidency. Moreover, documents show that Echevarria was more focused on the Pacific coast until his project 'Bahia de Banderas' proved a failure (Echevarria, 1971). All of the previous explanations are insufficient because all exclude from their analyses the formative period of 1968-1972 and the role of INFRATUR.

Unlike most countries which have a central bank that is an autonomous body governing monetary policy (currency emission, exchange and interest rates) and a 'bank of bankers', until **1993** the ***Banxico*** was a limited company with the government holding 51 percent of the shares and the key banks (primarily Banamex[8] and Bancomer) holding 49 percent. In other words, rather than a separate body mediating private and public interests, ***Banxico*** was until 1993 an active participant in those interests. The Board of

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[8] ***Banxico*** or *Banco de México SA* is not to be confused with *Banamex*: Banco Nacional de México, a 100 percent privately owned bank until the 1980s and an important shareholder of ***Banxico***.

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Directors of **Banxico** was composed of a total of nine members: five from the government and four from the private banking sector. Although it might appear that the government was more powerful under this structure holding the majority, this was not the case because the government's term of office is six years with no possibility of re-election thus rupturing government input at the end of each '*sexenio*'[9]. Conversely, the bankers and **Banxico** directors occupied their positions for extensive periods. Moreover, the government representatives were of varying backgrounds whereas the **Banxico** directors were invariably highly trained economists.

Unlike most central banks, the Mexican central bankers of the 1960s considered that an integral part of **Banxico's** mandate was the development of Mexico (Fernández-Hurtado, 1975; MacDonald Escobedo, 1981; Philips-Olmedo et al., 2003; Turrent-Díaz, 2003). However, to describe the political-banking elite as a unified whole would be reductionist. Although the business/banking establishment required some legitimation from the political elite, this same political cadre was excluded to the greatest possible extent through the isolated administration of the trust fund INFRATUR.

There were many government executive branches that could have completed studies and implemented 'integrally planned tourism centers' (**CIP**-*Centro Integralmente Planificado*). Yet the first major center, Cancún, was planned and executed by the semi-private **Banxico** through the creation of the trust fund, INFRATUR[10]. Due to the amorphous nature of the 'trust', this juridical instrument was seen as useful in civil law Mexico and as such was grafted into Mexican credit laws in 1932. The accounting for trust funds in Mexico follows bank accounting rules since legally recognized credit

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[9] Reelection is illegal under the Mexican constitution.
[10] In the late 1960s, five sites were identified: Cancún, Ixtapa, Loreto, Los Cabos and Huatulco. In the early 1970s, two CIPs had been initiated: Cancún and Ixtapa.

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institutions exclusively are allowed to be trustees under the Mexican concept of 'trust funds'.

Agents, acting on behalf of organizations, enact routines within the interpreted bounds of past practices and understandings. These routines or carriers include procedures and laws that have become structures which constrain agency making certain behaviours more likely. Yet within these boundaries, agents still enjoy a range of choice and action that over time can result in the creation, modification, even displacement of institutions. This is the case of Mexico's trust funds and their deployment by agents of **Banxico** for **CIP**s. Therefore it is important to start with an explanation of the rules of **trust funds** comparing the common law conception to its civil law Mexican translation. Knowledge of this regulation aids in explicating the practice of trust fund accounting in Mexico and its application by INFRATUR.

Regulative Forces and Routine Changes

Trust Funds under Civil Law in Mexico

Dating back as far as the 13th century, the trust fund is part of 'equity' which is based on a series of organic juridical principles originating from British common law. There are three key components in a trust fund: a settlor or trustor or fiduciary is the creator of the trust and the original owner of the property; the trustee is the person who is charged with managing the trust and the temporary holder of the property; and the beneficiary is the person who benefits from the management of the property (Gillese, 1997). In short, trusts involve a trustee that has the right and power to administer property on behalf of a third party (the beneficiary) that was entrusted to the trustee by a

fiduciary. A key concept within trusts is the principle of equity. Trust principles such as 'equity regards as done that which ought to be done' and 'equity regards substance rather than form', evolved under common law and today still guide the courts in determining whether to grant equitable relief. In other words, trust law under common law is not codified and disputes are settled by reference to equity principles and precedence, not legislation.

Civil law, the most common form of legal system in the world, is the opposite: codification in constitutions or statutes passed by governments referred to as legislation. Despite an opposing system of laws rather than principle to regulate trusts, the concept of 'trust' was introduced into the Mexican legal-financial system in 1932 for the same reason as in Britain seven centuries earlier: to mollify the rigid boundaries of statutory law (Rodrigez Ruiz: 1975; Gillese, 1997). Several legal texts in Mexico argue that the trust fund mechanism is innovative and useful as it combines the effective evaluation of projects, efficiently supervised lending and specialized technical assistance" (Martinez Canales, 1988: 4). In Mexico the key components of any trust are the trust fund (*Fideicomiso*); the trustor or settlor (*Fideicomitente*); the trustee or fiduciary (*Fiduciario*); and the beneficiary (*Fideicomisario*).

The essence of the trust is split-title ownership which is normally not recognized under civil law. As a civil law country, Mexico codified key concepts including the transfer of property and a trustee that temporarily appropriates and administers the property with certain rights conferred to the beneficiaries. For the reason of codification, there are substantial differences in the trust fund in common law countries and its application in Mexico such as:

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1. <u>trusts are categorized according to object</u>. In Mexico a trust is categorized according to its object: investment, guarantee, administration or mixed. Under common law, trusts are categorized according to their formation or origin (express, purpose, resulting or constructive).

2<u>. trusts are expressly contractual</u>. While common law recognizes four categories of trusts (express, purpose, resulting or constructive), in Mexico only the equivalent of an 'express trust' is allowed, i.e. the trust is intentionally created (not implied) and provides specific instructions for the use of the property;

3. <u>the trustees are restricted to recognized, licensed and regulated credit institutions</u>. Under common law any person may be designated as a trustee. In Mexico only recognized credit institutions are permitted trusteeship;

4. <u>the trustee cannot be a beneficiary</u>. In Mexico, it is strictly prohibited that the credit institution (trustee) be a beneficiary. Under common law it is legal for a trustee to be one of the beneficiaries and any of the beneficiaries may enforce the trust obligation.

5. <u>the beneficiaries can be non-identifiable</u>. In common law the beneficiary or beneficiaries must be stated or at least identifiable. This is referred to as the 'certainty of objects'. Under Mexican law, the creator of the trust (the trustor) can be named the beneficiary and the beneficiary does not need to be stipulated or even identified. Instead the beneficiary can be simply the Mexican government and by extension the Mexican people.

In short, the Mexican version of 'trust' more closely resembles a state-concessioned corporation than a common law trust. Whatever its title, this instrument has demonstrated its exceptional usefulness. Within 50 years of the introduction of this

practice the Mexican government had created over 200 public trust funds to achieve a myriad of development objectives from research to credit lending (Licon Baca et al., 1982). And in just the two decades from 1950-1970, the total amount invested increased exponentially from MXP[11] 513 million to MXP 17.42 billion by 1971 (Rodriguez Ruiz, 1975: 175).

Figure 2: 1952-1970 Growth in the number of Trust Funds in Mexico
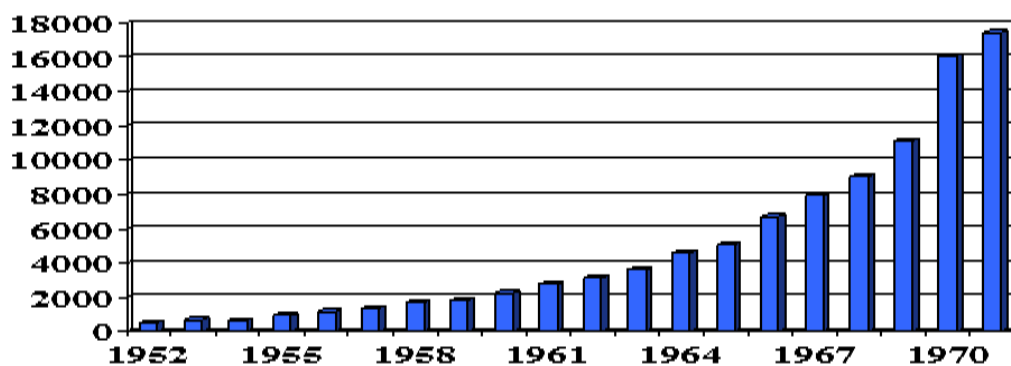
This explosion and resulting chaos of 'trusts' within the Mexican government complicated implementation and the monitoring of performance. Therefore, since 1977 the myriad of trust funds were organized under each appropriate Mexican ministry. For example, a key agriculture trust fund FIRA was placed under the Ministry of Agriculture (Turrent-Díaz, 2003). Another example is that INFRATUR's successor, FONATUR, is under the supervision of the Ministry of Tourism since 1975.

Despite major historical and technical differences there is a teleological similarity between common law countries and its civil law application in Mexico. In both jurisdictions the trust fund is a form of protection and even paternalism. For example, the

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[11] MXP refers to Mexican pesos; US $refers to US dollars. The exchange rate was MXP 12.5 to US $1 until 1976. As well, Central Bank Ltd., *Banco de México SA* and **Banxico** refer to the same institution and are used interchangeably.

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trust fund instrument has been used by federal governments to control disbursements to indigenous peoples for centuries (Greer, 2007). Similarly, in Mexico the trust instrument grafted onto their system of rights for constitutional flexibility, was a new form of access to resources and an essential routine event in the institutionalization of tourism (Dillard et al., 2004) that allowed powerful actors to act on behalf of a constitutional government and the Mexican people.

Trust Fund Accounting in Mexico

Trust fund accounting in Mexico in the 1960s and 1970s was an intermediate accrual accounting between public sector cash accounting and today's full public sector accrual accounting[12]. Unlike standard public sector cash accounting that does not consider assets or liabilities but only the moment of the cash transaction, accrual accounting attempts to report at the time the substantive financial effects of a transaction rather than the cash effects only. Rather than simply a statement of cash receipts and payments, the accounting documents that the executors of INFRATUR provided to the Board of Directors included a balance sheet (*Balanza General*), a statement of financial performance (*Estado de Resultados*), a statement of cash flow (*Origen y Aplicación de Recursos*) plus an analysis of the investments in progress. Although INFRATUR's statements did not include accrued employee entitlements such as pension plans to reflect all future amounts accruing to the project as recommended in public sector accounting standards, the analysis and projection of such amounts was recommended in the 1973 report to the Board of Directors (INFRATUR 1973a). And even if the INFRATUR

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[12] IPSAS (2007) IFAC, I. P. S. A. S. B. International Public Sector Accounting Standards: Preface. Retrieved December, 2007, from http://www.ifac.org/PublicSector/

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accounting statements did not fulfill precisely the requirements of full accrual accounting, it was followed in spirit. More than complying with spending limits and explicating public sector cash flows, INFRATUR's accounting reports to the Board of Directors highlighted assets and sought to demonstrate the project's efficiency and effectiveness.

As credit institutions are the only entities allowed as trustees (*fiduciario*), accounting must adhere to bank and credit regulations (Rodriguez-Ruiz, 1975: 160) which are strictly outlined and supervised by the *Comision Nacional Bancaria* (National Banking Commission). Although this may appear straightforward, the property held in trust must be valued[13]. But how to valuate public land that does not have a fair-market value? Again, being encapsulated within the credit institutions, the valuation of the trust impacts the level of reserves to be set aside by the fiduciary in accordance with banking regulations[14].

In addition to a transfer of property, is the generation of a return through the investment of the property according to the use mandated in the trust fund contract. The contract establishes the rights and obligations to which the trust fund administrators must adhere including the treatment of revenue and expenses generated by the investments. The advantage of the trust fund in the Mexican context is that it constitutes one of the most flexible mechanisms to realize certain operations so long as these activities are mandated and with the only limitation being the certainty of the existence of the property

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[13] Less than 5 percent of the land used by INFRATUR had to be purchased from private owners. Although INFRATUR was granted powers to expropriate, the administrators chose not to enact those powers and instead purchase land in order to increase investor confidence. (Contrato de fidiecomiso, 1969; Marti-Brito: 29).

[14] It is unclear to what extent a 'trust' for public works such as INFRATUR would fall under conditions of a 'bank secret' according to Mexican credit regulations (Rodrigo-Ruiz, 1985:182). If this was so, INFRATUR was even further from public scrutiny.

or rights which is the object of the trust (Rodriguez-Ruiz, 1975: 162). These regulatory structures are the bounds within which dominant actors focused on a relatively new economic object: tourism.

Tourism as a Measurable Economic Object

In the 1940s and only in his early 20s, Ernesto Fernandez-Hurtado was a junior researcher at **Banxico** in the area of Balance of Payments (BoP). He noted that the net tourism revenue was not accounted for in the BoP so he developed a method to calculate foreign exchange generated by this marginal service. He began with questionnaires to hotels in various border cities. However, this proved too cumbersome and inexact for such an flow of resources. He then decided that the most efficient measure of accounting for foreign exchange generated by tourism was through the sale or redemption of travelers' cheques at banks in the area (Turrent-Díaz, 2003: 78). Due to these nascent measures, tourism is mentioned for the first time in the 1944 **Banxico** Annual Report (*Banco de México*, 1945) and the border survey mentioned in the 1945 **Banxico** Annual Report (*Banco de México*, 1946). In the 1946 Annual Report for the first time tourism is clearly accounted for by **Banxico** as a factor in the increase of foreign reserves. According to this report, the net tourism balance increased from US $4.1 million in 1938 to US $87.7 million in 1946. (*Banco de México*, 1947: 47)[15].

In the 1947 Annual Report, tourism has its own heading under 'Current Transactions' with a break-down of debits and credits as well as an extensive explanation of the small decrease in the overall tourism balance (from US $87.7 million to $84.4).

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[15] Concurrently throughout the 1940s and 1950s, Aleman-Valdez as Interior Minister and later as President of Mexico, was investing heavily in infrastructure in and around Acapulco (Valenzuela Valdivieso and Coll-Hurtado, 2010)

Also mentioned is the new law to create the National Tourism Commission (*Banco de México*, 1948: 45). In 1948 and 1949 annual reports, focus shifted to the increase in the number of tourists (an estimated 7.5 percent and 22 percent respectively) rather than tourism's impact on BoP.

While Fernandez-Hurtado was in Harvard working on his Masters in Public Administration (Turrent-Diaz, 2003:78; Philips-Olmedo et al, 2003: 175-180), the methodology of data gathering was changed. Fernandez-Hurtado´s method of collecting data through the northern-border banks for the buying and selling of travelers' cheques had the unfortunate consequence of confusing the exchange of dollars to pay for tourist services with the currency exchange for the purchase of merchandise. To clarify the specific amount in the BoP an estimate of international tourism was made by surveying certain hotels in Mexico City (*Banco de México*, 1949: 18). Although the US$ per capita tourist expenditure had decreased, thanks to the surge in the number of tourists the overall surplus from international tourism was estimated to be US $95.1 million in 1949 and $117 million in 1950.

Upon return from Harvard, Fernandez-Hurtado quickly moved up the ranks to Assistant General Director in the 60s and to **Banxico** General Director in 1970. Turrent-Díaz (2003b: 4) wrote that the Central Bank Ltd under Hurtado was not simply an orthodox central bank but a heterodox institution dedicated at one and the same time to monetary responsibilities and to promote the economic development of the country. As to what was considered the best path to that development, Hurtado's speeches (Philips-Olmedo et al, 2003: 225-257) clearly indicate: monetary regulation and control in order to institutionalize "selective credit". This was the policy of prioritizing access to credit

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that channeled credit resources to government public works, to industrialization, to affordable housing and only as strictly necessary, to the financing of commerce (Philips-Olmedo et al, 2003: 249-250). The firm and strict administration of credit to achieve what the bankers considered the 'path to equity for all' is clearly outlined in a speech given by Fernández-Hurtado in 1971. Rather than "non-productive" and "speculative" commerce, credit was to be channeled into public works and large industrial business employing thousands of workers. **Banxico** strangled credit to small and micro commerce despite the fact that this sector tended to employ a large percentage of less educated and poorer sectors of the population, and in particular women, focusing instead on large corporations.

Crisis and INFRATUR

The catalyst for change and institutional displacement is sense-making, when information discords with events and lived experiences (Weick et al, 2005). These emerging projects are manifested in institutional tensions or destabilization that impact and fracture existing practices (Greenwood et al., 2002; Miner, 2006). **Banxico**, faced with diminishing foreign currency reserves and increasing debt, began to search for alternative development strategies that resulted in the institutionalization of tourism.

Between 1960 and 1980, the directors of **Banxico** saw their role as more broadly than simply "the bank of banks" as in most countries. They viewed their role as the invisible hand guiding development through "selective credit" which was granted in accordance with their vision of industrialization. With Fernández-Hurtado near the helm as assistant General Director, he formed a team to examine the best strategy to provide badly needed foreign currency and reduce the pull to over-populated industrial cities by

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wealth redistribution in regional employment opportunities (Fernández-Hurtado, 1975; Marti-Brito,. 1985:13; Clancy, 2001). In this stage of theorization (Greenwood et al., 2002; Miner, 2006), tourism was chosen as the industry most suited to redress the imbalance. In accordance with the law of trust funds (*fideicomiso*), the plan was to receive from the Federal government land (transfer of property) to rehabilitate, subdivide and re-sell as serviced hotel lots in order to offset the cost of infrastructure construction (use of property). The tourism centre thus created was to generate foreign currency and employment (distribution of benefits).

Theorization: Power and Persuasion

In order to persuade, ideas must be compellingly presented as "more appropriate than existing practices" (Greenwood et al., 2002: 60). However, those whose ideas are taken into consideration are those with legitimacy and power. Power (domination) articulates with representation and legitimacy by identifying who has the ability to define norms and standards that shape and guide behaviour (legitimation structures) and who has the ability to circumscribe appropriate models of structure and policy (signification structures) that become taken-for-granted (institutionalized) (Dillard et al., 2004; DiMaggio and Powell, 1983). During this phase individuals and organizations innovate to provide viable solutions and different possibilities are examined and justified using cause-effect arguments (Greenwood et al., 2002; Miner, 2006). Persuasion necessarily involved the public discourse of societal well-being through economic and employment opportunities in regions outside the over-crowded industrial cities. Nonetheless, the main goal of the corporatist **Banxico** was to generate a source of hard currency while maintaining a path of industrialization (Fernández-Hurtado, 1975; Marti-Brito, 1985;

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Clancy, 2001). Proof of this priority is that the first two integrally planned centres (Cancún and Ixtapa) were controlled by ***Banxico*** and headed by Harvard-trained economists from the BoP department: Fernández-Hurtado, Enriquez-Savignac and Donde-Escalante.

In 1965, Ernesto Fernández-Hurtado now Assistant General Director at ***Banxico***, instructed Antonio Enriquez-Savignac, also a Harvard postgraduate in economics, to undertake a major two year study. Rather than looking domestically at Acapulco, Enriquez-Savignac traveled the world to the most important tourist destinations: Florida, Hawaii and the Caribbean, among others. After 18 months of investigation he delivered his report to his superiors in 1967 containing important economic indicators at key destinations: revenue per capita, tourist expenditure, return on investment, finance, design and implementation of new tourist developments, and much more (Marti-Brito, 1985). To the bankers' surprise, tourism was growing faster than manufacturing and regions such as Florida had chosen to concentrate on tourism to sustain their economy. Tourism showed possibilities as the new development strategy.

With the profile of the average tourist in mind, from 1967-1968 Enriquez-Savignac and his Director of Planning, Pedro Donde-Escalante (another Harvard-trained economist), traveled the 9330 km (5800 mi.) of Mexican coastline and jungle again gathering statistics on climate, rainfall, hurricanes, soil types, tidal patterns, property titles, socio-economic levels of the region, supply routes and even pests[16]. All these data points were fed into a computer in order to determine which physical sites in Mexico

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[16] "In one place, sharks meant an immediate negative vote; in another cannibal ants moving down from the mountains and devouring everything in their path sent the investigators scurrying." (Dunphy, 1972)

united the characteristics sought by "fat-wallet" foreign tourists. From twenty-five sites, the list was refined to five: Loreto, Los Cabos, Huatulco, Ixtapa and Cancún.

In order to implement the plan, two alternatives were presented. One was for the public sector to install the necessary infrastructure and subsequently look for investors. The second option was coordinated public and private investment programs so that both infrastructure and hotels would begin operations concurrently. The bankers argued that the second option would reduce carrying costs of loans by accelerating the start up of the tourist centre. The second option required a disciplined execution of a program of public investment and private investment agreements as well as negotiation with airlines to schedule flights (*Banco de México*, 1968:37). To successfully coordinate such an ambitious project of public and private interests, it would be necessary to create a coordinating institution with sufficient legal authority to negotiate and close contracts with the different public, parastatal and private institutions. Moreover, the entity would require the legal authority to buy or expropriate land (*Banco de México*, 1968:44). The Mexican *fideicomiso* fulfilled these requirements.

Diffusion and Displacement

Power is the ability to control and mobilize resources. These central bankers now had to further persuade the government of their vision in order to enlist the resources of government institutions, particularly federal land and loans. To give just one example of the hundreds of pages of reports (scripts) to persuade, the economic planning department of **Banxico** estimated that the number of jobs created in the construction of 1,000 rooms of a deluxe hotel for a total investment of MXP 300 million (US $24 million) would be precisely 11,819 jobs in different sectors. The largest demand would be created in

construction (8,558 persons) followed by services (1,296 persons) and commerce (1,003 persons). Their conclusion was that if this cadence of construction of deluxe hotels was maintained year after year such employment would become permanent (*Banco de México*, 1968: 4). Moreover, employment opportunities would multiply once the hotels were operating. It was estimated that US $80 million spent annually by tourists in Mexico would create 17,200 jobs in food and agriculture, 16,484 service jobs, 9,550 jobs in commerce and 5,150 jobs in other sectors for a total of 48,384 jobs (*Banco de México*, 1968:5).

Last but not least, is the specific choice of site for the first **CIP**, Cancún. During their initial study, the central bankers had astutely observed that

> Florida had developed almost entirely around tourism, and with the expulsion of Americans from the Cuban beaches and casinos following the Revolution all the nearby islands swiftly converted their homelands into new alternatives (translation mine[17], (Marti-Brito, 1985: 13).

In addition to absorbing exiled Cuban tourists, ***Banxico*** argued that Cancún was the best location for the first **CIP** because the Yucatan peninsula[18] was economically disadvantaged due to the fall in the world demand for the region's monoculture, sisal (henequen). Cancún was unpopulated which meant there was little problem of population displacement from the coveted lands and few problems in terms of land titles.

According to the loan proposal submitted to the IDB in 1969 for US $20 million, by 1972 the Cancún tourist project was expected to welcome more than 60,000 tourists

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[17] *Florida se habia desarrollado casi en su totalidad como una entidad turística y, con la clausura de las playas y casinos cubanos después de la Revolución, todas las islas de la zona se habían apresurado a convertirse en destinos alterno.*

[18] Excluding Chetumal, the capital of the territory of Quintana Roo, the entire population of the territory was less than 1000 permanent residents (Marti Brito, 1985). Quintana Roo was annexed from the state of Yucatan and became a federal territory in 1902. It was declared a state in 1974.

annually of which 48,300 would be foreign. The number of tourists was forecasted to increase by 10 percent per year so that by 1975 a total of 185,400 tourists of which 148,300 would be foreign tourists (Banco de México, 1969b:31). To lodge these tourists, 750 rooms were to be in operation by 1972, twice that many by 1975, and double that again by 1980. In other words, the projection was for a total of 3,000 rooms to be in operation in less than 10 years. Hotel occupancy was estimated at 44 percent in 1972 and expected to rise to 80 percent by 1980 as the following copy of the report illustrates (Banco de México, 1969b:34).

Figure 3: 1969 Estimations of Cancún's Economic Impact

CUADRO No. 19

Construcción de Hoteles y Ocupación Hotelera

Año	Turismo (miles)	Iniciación de Construcción (cuartos)	Operación (cuartos)	Índice de Ocupación %
1970	–	750	–	–
1971	–	250	–	–
1972	60.4	250	750	44.1
1973	118.8	250	1 000	65.1
1974	150.0	250	1 250	65.8
1975	185.4	250	1 500	67.7
1976	225.1	500	1 750	70.5
1977	263.8	250	2 000	72.3
1978	306.6	250	2 500	67.2
1979	353.8	–	2 750	70.5
1980	406.7	–	3 000	74.3
1981	438.0 +	–	3 000	80.0

+ Cifra estimada para tener un índice de ocupación del 80% anual.

With an estimated two employees per hotel room, Cancún was projected to employ a total of 6,000 persons in the hotels alone (*Banco de México*, 1969b:39). An important part of persuasion was an unusually high economic multiplier effect that was estimated to be 6.5[19] for every US $1 spent by a tourist (*Banco de México*, 1969b:30).

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[19] "*Con base en los datos preliminares de la Encuesta Nacional de Turismo – 1968, en proceso de elaboración por el Departamento de Estudios Economicos del Banco de México, se calcula el multiplicador del ingreso turistico, a largo plazo, asciende a 6.5 veces el gasto inicial, tomando en cuenta el aumento de la demanda externa y la inversion indicida por esta…. Cabe agregar que el multiplicador del 6.5 sobre el*

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Thus for every tourist dollar spent in Cancún a gross income of US $6.5 was forecasted in such sectors as food, agriculture, commerce and services.

These studies are only a sample the many reports produced in order to rationalize and persuade government and international authorities of **Banxico's** vision, and to enlist these stakeholders where their help was most needed: lands and loans. As **Banxico** was a licensed credit institution, it could legally create and administer a trust fund. The trust would allow the central bankers discretion to allocate the funds and avoid certain procedures such as a lengthy bidding processes required for public works projects. This is not to imply that the bankers misappropriated the funds. Instead, the bankers wanted to implement the project from the very first stone strictly and efficiently adhering to their plan without outside influences or competition for the resources. The trust fund instrument allowed for the isolation of coveted resources within an uncontaminated administrative bubble providing measurable performance in order to put into operation as quickly as possible the hotel rooms needed to jumpstart development.

The Genesis of INFRATUR

The sucessful persuasion passed the Rubicon. Created in May 1969 by the federal government, Banxico was entrusted with an initial operating budget of MXP 30 million (approximately US $3 million) to manage the Trust Fund for the Promotion of Tourism Infrastructure (INFRATUR). The trustor of the trust was the *Secretaría de Hacienda y*

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ingreso de los turistas es uno de los mas altos en los distintos sectores económicos, estando por terminarse una serie de comparaciones al respeto" (*Banco de México*, 1969b:29-30)...Based on preliminary data from the National Tourism Survey – 1968, being elaborated by the Economic Research Department of the Banco de Mexico, it is calculated that the multiplier based on tourism revenue, over the long term, will be 6.5 times the original investment when the increased demand and the accompanying investment is considered…It must be noted that the multiplier of 6.5 on tourism revenue is one of the highest of all economic sectors having completed a comparison.

Crédito Público SHCP (Treasury), the *fiduciario* or trustee was the *Banco de México S.A.* (**Banxico**) and the *fideicomitente* or beneficiaries remained unspecified. Thus INFRATUR was established and supervised by **Banxico** from 1969 to 1974.

The INFRATUR contract stated that the object was the design, development and promotion of new tourism centres, as well as the upgrade of existing ones (SHCP, 1969). The original assets of the newly created trust were MXP 30 million plus the revenue generated by the investment of this patrimony. In addition, national and international funds could be channeled to the trust fund by the Treasury (SHCP), and any other funds deemed necessary. The fees for the administration of the trust were set at 0.125 percent on the first MXP 500 million and 0.0625 percent on the remainder, calculated each year on Dec. 31st. This financing and administration was structured as follows:
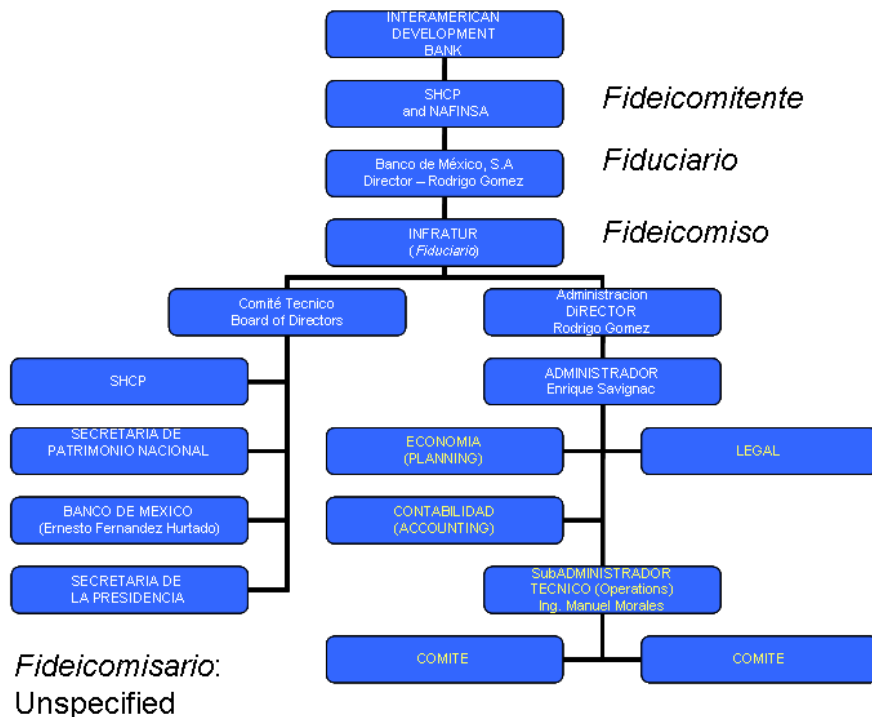
The trust fund contract stipulated that the Board of Directors was to be composed of two members each from four organizations: the Treasury, the Ministry of the Presidency, the Ministry of National Patrimony and **Banxico**. The key responsibilities of the *Comité Técnico* (Board of Directors) were fourfold:

1. Regulate and approve the activities of the trust fund (INFRATUR)

2. Outline the rules for subcontracting construction

3. Fix the conditions by which INFRATUR could develop and sell the properties

4. Approve the annual budget.

According to the trust fund contract, there was no meeting period specified for board meetings to oversee INFRATUR. It was up to the Board of Directors to decide the regularity of the meetings. Thus, not only were the funds isolated from other government projects, monitoring was limited to those periods deemed necessary by the Board of Directors located in Mexico City, 1,500 km from the construction in Cancún.

Accounting Scripts

Due to the choice of the trust fund over public works project, the practices followed accrual accounting and banking regulations especially land valuation and the necessity of reserves[20] as opposed to public sector cash accounting. Accrual accounting for government sector would be legislated only in 2008 for the federal government and for sub-national governments as of 2012 (see Part 2 for more information).

In addition to the MXP 30 million operating budget, tracts of federal land were transferred into the trust fund to fulfill the mandate. Of the 7,749 Hectares of land, only

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[20] The quantity of additional reserves maintained by **Banxico** to be in accordance with banking legislation is unknown (Rodrigo-Ruiz, 1985 pp178-182).

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408 hectares were acquired from private owners and thus accounted for at purchase price. The bulk of the land was federal land transferred to the trust through presidential decree with the fixed asset registered at appraisal value determined by the National Banking Commission plus the costs of land registration and compensation for crops and construction. The initial value for land was MXP 14.6 million.

According to the 1969 report to the International Development Bank (IDB), the total investment required for the first stage of Cancún was MXP 547.5 million. The source of the funds was the public sector (MXP 142 million), the private sector (MXP 192.5 million) and an InterAmerican Development Bank-IDB loan (MXP 213 million). The IDB funds were to be lent to *Nacional Financiera* that had the legal powers to negotiate with international credit institutions. *Nacional Financiera* was to lend the funds to **Banxico** to be deposited into an account for INFRATUR (*Banco de México*, 1969b:22). After three years of negotiations and clarifications, in September, 1971 IDB granted an unprecedented loan for tourism infrastructure for $21.5 million (INFRATUR, 1972: 19; Marti-Brito, 1985: 41) with results expected by the end of 1974. According to the first annual report this amount represented 45.6 percent of the total estimated investment for the first stage of Cancún (INFRATUR, 1972). The loan was at 8.5 percent on unpaid principal over 18 years (not 25 years as requested) with a grace period of three years (not five as requested).

As for private investor participation, the search began at the same time as construction in April, 1970. Despite intense construction efforts and promotional strategies, while the construction was advancing, in 1972 when INFRATUR had projected 750 rooms to be operating and total private investment of US $13 million

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(Banco de México-INFRATUR, 1970a), not one private investor had commited to spending one cent for a hotel in the area.

<u>Reinstitutionalization</u>

Institutionalization starts to take hold once new ideas are compellingly presented as more appropriate than existing practices (Greenwood et al., 2002). Thus empty-handed in 1972, in an interview with a New York Times travel reporter, Enriquez Savignac proudly stated that

> The resort area will occupy a 20-mile strip of the L-shaped island's 84-mile coastline. The first stage of development, to be completed by December, 1973, calls for construction of several small hotels with a total of 1,000 rooms plus the international airport, 15 miles away on the mainland. (Dunphy, 1972: XXI)

He also boldly announced in 1973 Board of Director's report that there were three hotels and twenty-four houses under construction in Cancún for a total of 256 rooms. He claimed that INFRATUR was in the process of negotiating with seven companies that would build an additional 1,150 rooms (INFRATUR, 1973a). He concluded that the project was more of a success than expected: "the response of private investment in the hotels in particular and tourism in general, the Cancún Project is surpassing initial projections" (INFRATUR, 1973a: 21)[21].

With the reality being that the project attracted no interest, INFRATUR had to become 'creative' in overcoming the reticence to invest. The solution was threefold: lowering the land price, an exchange of land-for-shares and direct investment. All these incentives were to ensure that a certain number of rooms were operational when Cancún

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[21] *"La respuesta de las inversiones privadas en negocios hoteleros en particular y en turismo en general, en el Proyecto Cancún viene superando con creces las proyecciones de crecimiento hotelero establicido incialmente"*. (INFRATUR Report to the Board of Directors, 29 October, 1973)

was to be inaugurated on 30 November, 1974. Thus extra-officially expanding the INFRATUR mandate, the central bankers invested directly in superstructural projects worth millions of dollars which redirected a significant portion of the trust fund's resources. Forewarning of these tactics, in the 1972 report Savignac expressed the difficulties.

> In the beginning, it was thought that the natural beauty of Cancún and Ixtapa combined with an integral development plan promoted by the federal government and endorsed by international credit institutions would be a strong incentive for private investors to build hotels, condominiums and houses. Although some interest, a certain reticence is noted about being pioneers in these new areas. For this reason, INFRATUR had to undertake economic-financial studies of the first international hotel and 24 homes, and undertake the construction and create Inmobiliaria Cancún-Caribe. (Translation from original; INFRATUR, 1972)

Soon after, Savignac suggested reducing the price of the land to attract investment in time for the official opening.

> It would be desireable in certain cases and in order to guarantee the fulfillment of our contractual obligation to have 750 rooms at the time of inauguration of the tourist center, to **offer a discount of 20 percent on the sale price of the land** if the purchaser inaugurates the hotel installations no later than 30 November, 1974 (Emphasis added. Translation from original. INFRATUR, 1972 in Promoción Hotelera y Politicas de Venta)

Banker after banker was being drawn into various hotel investments because seasoned hoteliers were not interested. Since the private bankers lacked experience, INFRATUR offered to locate the land, prepare the architectural plans and initiate construction (Marti, 1985: 49-50). In 1972 INFRATUR spent trust fund monies of MXP 3.7 million (approximately US $250,000) to initiate the first hotel in the zone, the hotel Cancún Caribe. In exchange for the land, INFRATUR held 19 percent of the shares and other bankers invested the remainder (Marti-Brito, 1985: 48; INFRATUR, 1972: Balanza).

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Then, to entice the constructor/investor Garcia de la Torre to build a second hotel, INFRATUR's engineers and architects designed a hotel, exchanged land for shares and arranged a loan for the construction. When the hotel La Playa Blanca was inaugurated at the deadline in November 1974, the hotel did not have running water, it was not connected to the drainage system and had no electricity except for that produced by generators which blew up the air conditioners (Marti-Brito, 1985: 49-50). Despite the reality, INFRATUR could claim that were now 332 rooms 'in operation', on track towards the stated objective of 750 rooms.

Other examples of land-for-share swaps include land valued at MXP 3.40 million in exchange for 20 percent of the shares of the Hotel Aristos; land valued at MXP 3.34 million in exchange for a 23.4 percent stake in the Hotel Garza Blanca; land valued at MXP 3.24 million in exchange for 13 percent of the shares of the Hotel Presidente Intercontinental; and land valued at MXP 9.91 million in exchange for 32 percent of the shares of the Hotel Braniff (INFRATUR, 1973a).

Another strategy was outright construction and ownership. For example, the Club Mediterranée agreed to operate a hotel but was not interested in owning real estate at that time. The 300 room, 600 bed hotel tourism complex cost US $10 million and was rented out annually to Club Med to operate once it opened in 1975.[22]

Last but not least were the international chains that analyzed the possibility but never invested. According to the 1972 report, the Hilton chain was negotiating but chose

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[22] *Proyecto: Villa turística para 600 camas ... bajo el sistema "todo incluido" de Club Mediterranée. Inversión total entre $52'500,000.00 y $91 750,000.00 [MXP].* INFRATUR *construye las instalaciones y arrienda el inmueble a Club Mediterranée a una renta fija del 6 percent aproximadamente sobre inversión más una renta adicional en función del promedio anual de ocupación.* Project: tourism village of 600 beds using Club Meds system of 'all inclusive'…Total investment between MXP 52.5 million and 91.75 million. INFRATUR will build the installations and rent the building to Club Med for a fixed rent of aproximately 6 percent of investment plus an additional rent based on the average annual occupancy. *(*INFRATUR*(b); my ref: pdf 13f: 36)*

not to invest. Hilton International only invested in the area two decades later when the chain bought the Cesar's Palace which was part of the third (and late) phase of Cancún. In fact, despite the myth of early heavy foreign ownership, no major hotel chain invested in Cancún until the 1980s.

To give a clearer example of the evolution of the resources, on the balance sheet 31 December, 1972 no income was registered for land sales. Instead there was the unexpected expense of MXP 366,000 for hotel construction which was detailed in the notes stating that this superstructural expense was not projected in the original budgets as it was not infrastructural. By 1973, superstructural projects, not part of the trust fund mandate, had increased from 0.2 percent of the use of funds to 3.8 percent. During the same period income from the sale of land, the key objective of the trust fund, went from 0 percent to 2.2 percent of the balance sheet. However, much of the land was sold on credit so that MXP 3.7 million was owed to INFRATUR at the end of 1973. Although there was income, there was no cash to pay contractors or reimburse the IDB loan coming due the following year.

By June of 1974, the balance sheet showed revenue from land as 8.65 percent of the total value of the assets, less than half of which were real purchases (only MXP 15.6 million of the 34.1 million). The other half, MXP 18.5 million, was land-for-shares swaps. In that same year, INFRATUR spent an additional MXP 48 million on architectural studies for the private hotels, cash donations and hotel construction. For example, the Hotel Presidente received a total benefit of MXP 15.5 million in a package of land, architectural studies and cash; the hotel Garza Blanca a total benefit of MXP

12.5 million; Hotel Aristos received a total benefit of MXP 6.7 million and the hotel Cancún Caribe MXP 3.7 million.

In addition to the land-for-share swaps, the financial statements show that all these hotels were financed by loans from FOGATUR[23] plus some direct investment by the existing state-owned hotel corporation, *Nacional Hotelera*. One example, the MXP 50 million for the construction of the Hotel Presidente was financed 50 percent by FOGATUR, 6.5 percent by INFRATUR with the land and 11 percent by *Nacional Hotelera* (a subsidiary of FOGATUR) for a total of 67.5 percent from government sources. The origins of the other hotels appear to be similar with the exception of INFRATUR's first direct investment, Cancún Caribe, which was almost entirely financed by FOGATUR (93 percent). By 1974, INFRATUR had almost MXP 47 million (12 percent of balance sheet) invested in 'superstructure' projects such as hotels and houses, and less than 9 percent of revenue generated from land sales. Moreover much of the land was sold on credit.

Full Institutionalization

Interests of powerful groups must be reproduced in order to constitute the structures which are fundamental to the institutionalization process (Dillard et al., 2004: 510). In interviews with journalists and in reports to the Board of Directors, Enriquez Savignac always proudly declared the success of **Banxico**'s vision. In reality no one wanted the land so the sale of lots did not generate the cash needed to reimburse the IDB loan. The loan was reimbursed by the Mexican government. But powerful banks such as

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[23] FOGATUR (Fondo de Garantía y Fomento del Turismo) was a government trust fund for hotel development founded in the 1950s. However the trust fund was largely ineffective and was merged with INFRATUR to create FONATUR in 1974.

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Banamex and Bancomer were now reconstituted as hoteliers and financiers to the service sector.

By extra-officially expanding their mandate, the central bankers themselves became involved in direct investment worth millions of dollars, a substantial portion of the trust fund's assets. Although in 1974 INFRATUR fell 50 percent short of its goal of 'rooms-in-operation', the hotels built and in operation catalyzed more private investors from the banking sector and later from the hotel industry itself. It is to Enrique Savignac's credit that by 1980 Cancún was only 100 rooms short of the original goal of 3,000 (Marti-Brito, 1985: 86) and by 1984 there were more than 5,000 rooms with more and more international chains. Tourist arrivals to Cancún grew from zero to 712,000 over the same decade (Clancy, 2001: 135). Cancún is now the source of 40 percent of international tourism receipts for Mexico (UNWTO, 1998: 26). Although there were other resorts built by FONATUR such as Los Cabos, Vallarta and Ixtapa, none had the attraction or the relatively rapid success of Cancún (Hiernaux, 1999: 133). Fourty years after breaking ground in Cancún, hotels and restaurants represent 5 percent of Mexico's GDP in real and constant terms (Brida et al., 2008).

Unintended Consequences

In the 1960s ***Banxico*** chose foreign tourism as a development strategy to resolve a BoP crisis. The construction of integrally-planned tourism centres was considered a quick and inexpensive solution to generate foreign currency. Moreover, it would gainfully employ masses of under-employed and under-educated in economically disadvantaged regions, and stem the tide of migration to overpopulated industrial zones. ***Banxico*** argued that tourism would provide 'equity for all' and a "*prosperidad que*

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alcance a todos los mexicanos por igual" (prosperity that reaches all Mexicans equally). In reality, Mexico's Gini coefficient per capita[24] remained high at over 0.50 since the 1950s. Some state it was as high as 0.58 in 1994 (Aguilar Gutiérrez, 2009) while others averaged it at 0.54 throughout the 90s (Scott, 2001a). Aguilar Gutiérrez (2009) states that the national Gini per capita only declined to 0.535 in 2005 (Aguilar Gutiérrez, 2009) while Gini per household is around 0.455 (CEFP, 2008). Mexico's household Gini is increasing again at .483 in 2008[25] (World Bank, 2011). Between 2000 and 2006, 36.5 percent of Mexico's wealth was concentrated in 10 percent of the population (CEFP, 2008) and increased by 2008 to 39 percent with the lowest decile at 2 percent or less of Mexico's wealth (World Bank, 2011). It is notable that the Gini is approximately 5 percent higher than the national average in those states heavily dependent on tourism such as Quintana Roo. And although a general study found the Gini from tourism activities is similar to other industries in Mexico (SecTur, 2003), tourism has not provided 'equity for all'.

Another argument for an integrally planned tourist centre was to avoid the chaos of Acapulco. Building from the ground up was viewed as a means to maximize the benefits and minimize the costs such as pollution, land speculation, hyperinflation. Moreover, rapid and unzoned growth created large shanty towns near resorts. Planners and observers often compared the new tourism centres to Acapulco where unregulated tourism led to many of these problems (Clancy, 2001: 51).

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[24] Gini is an indicator of inequality and income disparity. It measures income concentration of the wealthiest population deciles based on a measure from zero to one. The higher the value, the more concentrated in higher income brackets is economic wealth and less distributed among all citizens.
[25] Such wealth concentration is much higher than in Canada which historically is in the low 0.30s and European countries which are also in the mid 0.30s.

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Despite an early discourse of integral planning to avoid settlement problems (*Banco de México*, 1968; *Banco de México*, 1969a; *Banco de México*, 1969b) INFRATUR was unprepared for the influx of workers. In 1973, the population doubled between April and August to 5,100 and was expected to rise to over 8,000 residents by the end of the same year. By September 1974 the population had exploded to 15,122 of which approximately one-half were employed. Of the 7,500 employed, 5,000 (or one-third of the total population) were in construction and the 2,500 remaining in local commerce and services. Of these workers and their dependents one-third (approximately 5,500) lived in construction camps due to the lack of housing. One of the spontaneous markets springing up over the city was so unhygienic that it was called 'Calcutta' by the local population (Brito-Marti, 1985: 52).

Although the construction of Cancún increased employment opportunities, resources were channeled into the tourist zone not the residential areas. According to the financial statements in 1972 when the permanent population rose from 845 to 2,780, of the MXP 86 million spent on construction in Cancún, 62 percent was spent directly on the tourist zone for landfill, roads, etc. In the same period less than 9 percent was spent on roads and accomodation for workers. In 1973, when the population was over 7,000, approximately 8 percent was spent on the permanent resident infrastructure versus 58 percent on the tourist zone. In order to finance residential construction and essential services, a 1971 INFRATUR memo recommended the obtention of a loan to be reimbursed by the sale of lots to the workers.

In order to levy the workers in Cancún, one of ***Banxico***'s many analyses was the study of '*Income and expense of the hotel employees in Acapulco*' as well as '*Socio-*

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economic characteristics of the population of Acapulco'. These calculations had the stated objective to "establish the debt capacity of hotel employees to be considered as a subject of credit in the acquisition of project housing" (*Banco de México* -INFRATUR, 1970c). With its usual precision, INFRATUR evaluated what portion of a worker's salary could realistically reimburse loans for land and construction of a small residence. It was determined that 25 percent of monthly salary could be expensed with one-fifth applied to the cost of the land and four-fifths to the construction. The land should be financed at 4 percent over 20 years whereas construction should be financed at 9 percent over 15 years. The sale price of land should be set at MXP 25 – 45 per sq. metre (various memos).

The irony of settling the migrant population and levying them was not lost on Cancún's first mayor and INFRATUR manager. Alfonso Alarcon astutely observed that

> The project never took into consideration the philosophy of the Mayas of Quintana Roo, perhaps because it wasn't possible to do so. But the ideas of these people influenced the development of Cancún**.** In the jungle, property is communal. One builds his house wherever there is empty land. And it has been thus so for centuries. Now, when they arrive to Cancún they find another world with many rules that say where they can buy land and must contract credit to pay for it, and build according to certain specifications after demonstrating certain solvency. (Brito-Marti, 1985: 52).[26]

Perhaps the greatest irony of all is that while low-income re-settled workers were buying their land at up to MXP 45 per m^2, the lots in the hotel zone, initially to be sold

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[26] *El proyecto nunca tomó en cuenta la filosofía de los mayas de Quintana Roo, quizás porque no era posible hacerlo. Pero las ideas de esa gente influyeron en el desarrollo de Cancún. En la selva, la propiedad es común. Uno hace su casa donde quiere, en cualquier sitio baldío, Y así ha sido durante generaciones, durante siglos. Ahora, cuando llegan a Cancún se encuentran con otro mundo y con unas reglas que dicen que ellos tienen que comprar un terreno y contratar un crédito para pagarlo y construir dentro de ciertas especificaciones y demostrar previamente cierta solvencia* (Brito-Marti, 1985: 52)

for a minimum of MXP 92.18 per m^2 (Banco de México, 1969b) were being endowed to wealthy Mexican companies.

As for other effects, in 1973 INFRATUR established the first social services office. Then in 1974 the first clinic opened followed by the first hospital in 1976 (Contla-Hosking et al, 2005), no longer requiring seriously injured workers to be transported 300 km to either Chetumal or Merida for surgery and treatment.

Lastly, the BoP crisis which initiated the tourism strategy was not averted. The deficit grew from US $19.6 billion in 1976 to US $58.9 billion in 1982. Mexico suffered three major financial crises over the next decade following 22 years of monetary stability. The first was in 1976 with a 50 percent devaluation in the exchange rate to MXP 22.50 to the US dollar; the second in 1982 with a further 25 percent decline in the value of the Mexican peso to 27; and the third and most serious was in 1986 with a devaluation of more than 8300 percent to MXP 2281 (Banco de México, S. A. *Informes Annua*l). Yet **Banxico**'s vision is an unquestioned 'success': the centrally planned tourism centers are generating some foreign revenue[27], Americans and other tourists have a playground after the loss of Cuba, and the Mayans and other workers are employees and mortgage-holders.

Normalization

Successful persuasion results in a social movement that gains momentum to become an institutional imperative. Full institutionalization is when ideas are taken-for-granted as tourism is today in Mexico. In March, 1974 the trust fund INFRATUR was

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[27] On average, the tourism balance of payments is positive. Foreign currency receipts from incoming tourists exceed currency exports by traveling Mexican residents by 10 to 30 percent (CEFP, 2005).

merged with the relatively inactive credit institution called FOGATUR to form FONATUR (Fondo Nacional de Fomento al Turismo). Enriquez-Savignac, the director of the Cancún project under Fernández-Hurtado, became the first director of FONATUR which was then placed under the Ministry of Tourism[28]. According to FONATUR's website (www.fonatur.gob.mx), since its creation the fund has invested a total of US $2.3 billion and attracted more than US $15 billion in investment. Although these dominant actors and structures controled resources, institutionalization is clearly evidenced by the normalization within the population of educational opportunities and career-choice. Foucault defines a discipline or profession as a 'field of knowledge'. This 'field' must be created and then normalized.

> The Normal is established as a principle of coercion in teaching with the introduction of a standardized education...; it is established in the effort to organize a national medical profession and a hospital system capable of operating general norms of health; it is established in the standardization of industrial processes and products...normalization becomes one of the great instruments of power at the end of the classical age. (Foucault, 1986: 196-197)

Numerous studies have shown that tourism suffers from a poor image which is the major deterrent to attracting young adults into post-secondary training in preparation for tourism and leisure employment (Airey and Frontistis, 1997; Baum, 1994; Getz, 1994; Haven-Tang and Botterill, 2005; Haven, 2002; Pizam, 1982; Ross, 1992). The poor image is a result of perceptions of low wages, unsatisfactory working conditions and few career advancement opportunities (Pizam, 1982; Baum, 1994; Airey & Frontistis, 1997; Haven, 2002). These findings seem to hold irrespective of the level of

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[28] Enriquez-Savignac was Minister of Tourism from 1982-1990 under the presidency of Miguel de la Madrid-Hurtado, Fernandez-Hurtado's nephew. In 1990 Enriquez-Savignac was elected Secretary General of the UN World Tourism Organization. He retired in 1996.

development of a country and have held over time (Baum, 1994). Based on these consistent results, demand for post-secondary training in tourism should be stagnant or declining.

Contrary to these findings, the number of educational and accreditation opportunities in tourism is probably greater in Mexico than any country in the world. Demand for post-secondary training (vocational and university) has risen significantly since Mexico opened its first technical school in 1953, the *Escuela Mexicana de Turismo* (El Universal, 2007; MacDonald Escobedo, 1981: 129). In 1959, a university degree in tourism was offered at the Universidad Autonoma del Estado de México and the programme still exists now called a Bachelor in Tourism. As of July, 2007[29] the number of programmes directed at employment in the hospitality industry has exploded in Mexico to 768 different training opportunities ranging from basic skills training (70 programmes nationwide) to post secondary vocational training (317) to programmes nation wide to three-and four-year bachelors degrees (351). From one diploma in 1953 there are now programmes in every state (see Appendix I) offering a diploma or a degree officially recognized and accredited by the *Secretaria de Educación Pública* (Minister of Education). Quintana Roo ranks second in Mexico for programs per capita[30]. These programs evidence the legitimation and professionalization of tourism. The choice of a career in tourism is a willingness to invest substantial public and private resources in training for a career that is now institutionalized as a stable field in Mexico and worldwide.

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[29]   Secretaría de Turismo (2007) *Guía de Instituciones de Enseñanza Turística*, http://www.e-México.gob.mx/wb2/eMex/eMex_Guias_de_escuelas_de_turism_o; Accessed May, 2008

[30] Baja California Sur, the site of the second planned tourism project, Los Cabos, is ranked first based on per capita

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Discussion and Conclusion

In the late 1960s the World Bank chose two pilot tourism projects, one in the former Yugoslavia and the other in Mexico. Due to the success of these projects, in the thirty-five years following 1971, the World Bank has lent a total of US $4.4 billion to more than 160 tourism or tourism-related projects worldwide[31]. The continued success of tourism in Mexico, especially Cancun, has made it a model to be replicated. However, rather than deterministic, outcomes are a series of possibilities and potentialities some excluded and discarded, others embraced and implemented. For example, why investment in this thin strip of sand (in some places no wider than 40 m.) which required millions of dollars of land fill, rather than Akumal 100 km. to the south with beautiful bays and beaches, and easy access to fresh water? Why hotels and not airplane construction if tourism and transportation were growing internationally? Why tourism rather than another service industry such as insurance? Why a service industry and not a product industry since labour was cheap and available? IST frames the iteration of actors and historically accreted structures to explicate behaviour and decisions. Using IST I illustrate how a change in credit and accounting practices in the first half of the 20th century combined with a new economic object of tourism, allowed Mexico's Central Bank Ltd (**Banxico**) to implement its vision of development while solving a BoP crisis.

Despite a failing project, accounting scripts demonstrate how Cancún was portrayed a triumph eventually rationalizing and normalizing tourism. The population of an economically depressed region was afforded employment opportunities in both

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[31] http://web.worldbank.org, Projects & Operations

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construction and tourism. However, the Mexican government, not ***Banxico***, reimbursed the IDB loan, BoP continued to degenerate and a banking crisis was not averted.

Contrary to the forces and processes revealed in this study, previous articles written about Cancún and its origins refer systematically to statism and government central planning by 'federal agencies'. Foucault (1991) argues that this constant reference to 'statism' and 'state-driven development' is an overvaluation of the state. He wrote that the state "does not have this unity, this individuality, this rigorous functionality, nor, to speak frankly, this importance; maybe, after all, the state is no more than a composite reality and a mythicized abstraction, whose importance is a lot more limited than many of us think" (Foucault, 1991a: 103). Yet, to date the myth persists that Cancún was originated by seasoned experts and politicians when the truth is that the catalyst behind tourism in Mexico was a group of economics-trained semi-private central bankers with no previous experience in the field. In the 1960s this semi-private 'bank of banks' chose regional tourism development as a solution to a BoP crisis and overcrowding in industrial cities. Mexico's import substitution strategy of industrialization had gravely depleted foreign reserves. In an effort to reverse this destructive trend, the bankers methodically and meticulously studied different factors to determine the industry most effective in increasing foreign currency receipts. Despite a public discourse of societal well-being and wealth redistribution, the priority of the corporatist ***Banxico*** was to generate hard currency while maintaining a path of industrialization (Fernández-Hurtado, 1975). ***Banxico*** could have submitted their results and recommendations to the appropriate executive government branches such as Public Works for action. They could have co-opted their major competitor, Miguel Alemán and the model of Acapulco to sites

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along the Carribbean. Instead the central bankers justified the maintenance of full control over the project through arguments of efficiency and established an autonomous trust fund, INFRATUR, to execute the plan. This legal tactic allowed projects such as Cancún to be virtually unhindered by the usual constitutional restrictions on bidding and construction, and kept the project far from the usual inefficiencies of government authorities. The INFRATUR/FONATUR model is now imprinted on Mexico's main tourism mechanisms (Dacin et al., 2002) as the federal government continues to invest heavily in tourism infrastructure and mega-projects such as the *Escalera Nautica*, a series of maritime ports to promote maritime tourism, in the Sea of Cortés (see: http://www.escaleranautica.com/general2.html).

An analysis of actors and structures explicates the origins, practices and consequences of a development strategy. The routine event of the introduction of the trust fund instrument into their civil code offered the powerful Mexican banking establishment new strategies to control resources. Accounting was used in the justification of tourism through economic studies on the potential of tourism to increase foreign revenue; the choice of tourism implementation sites through reports of geology, geography, climatology and American consumer behaviour; the construction of the site and sale of properties through credit mechanisms; and the auditing of performance to report the success of Cancún and the potential for other sites in Mexico. Moreover, during the construction of Cancún communal Mayans were transformed into sedentary, individual mortgage holders and the populace was trained to work in the tourism industry either as construction workers or as employees of tourism service companies such as hotels.

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One view of accounting is that it is the numerical mediation of relations between individuals and collectivities (Miller and Rose, 1990). The mediation involves the measurement and redistribution of resources based on a policy instrument chosen and implemented in a distant field. The specificity of the instrument dictates what type of incentives and penalties are created, which rules are mandated, which "facts" are used to inform and persuade, which rights and duties are stipulated, and how authority and power are to be reorganized. Accounting serves to interpret and communicate distant activities through a selection of what is to be observed thus creating a determined 'reality'. Accounting is a symbolic reportrayal that not only reflects but also alters social relationships. The outcome in this instance was the instutionalization of tourism in Mexico.

This study of the Cancún project is more than a historical correction. It offers a rare glimpse into field construction and the process of institutional change. It also demonstrates the important intersection of tourism and accounting. There is much scope for further research of other cases. The primary documents consulted are now publicly available at the Universidad del Caribe in Cancún and provide a wealth of information for further investigation. As for other sites, in Mexico alone a similar analysis of Ixtapa which benefited from a US $22 million World Bank (IBRD) loan would be informative especially if compared to the development of Cancún. More broader still is an analysis of world system impacts: international funds financing tourism in Mexico and the success of this first-ever tourism investment catalyzing further investments by national banks such as Banamex and Bancomer, and international lending agencies such as the World Bank. In the thirty-five years since its first tourism infrastructure loan in Mexico, by

2007 the World Bank had lent a total of US $4.4 billion to more than 160 tourism or tourism-related projects worldwide.

The political philosopher Hannah Arrendt observed that governments no longer concern themselves with directing a country, only administering. In today's world, as nations obsess over growth they acquire more and more objects, and these acquisitions require more and more administration. In short, governments no longer govern but punctually manage assets. In lieu of governing by national governments, supranational institutions such as the World Bank have taken on added importance in national governance in addition to autonomous, infranational entities such ***Banxico*** to implement its development strategy. While the Mexican government simply 'managed' and responded, ***Banxico*** through the mechanism of a trust fund was sufficiently powerful to provide a crucial catalyst to the institutionalization of tourism.

Appendix – Tourism Education Programmes Offered

According the Ministry of Tourism [32]today Mexico offers three levels of accredited hospitality training. Entrance into the Basic Level training does not require post-secondary completion. This level is called "Basic or Work Training" and is provided to enter specific positions at a low level of responsibility and often unionized positions such as chambermaids, bell boys, waiters and short-order cooks. The 70 programs across the country are run by the federal or state government in more than half the schools while others are private. The programs are usually a few weeks to a few months. The next level of programs offered is called '*Medio Superior*' or Intermediate. These programs are aimed at specialized technical training for operational or supervisory positions such as hotel reception manager, head waiter, housekeeping supervisor, purchasing assistant, warehouse supervisor, etc. This level of training is usually one to two years. The last level of programs is '*Superior*' or University degrees of three and four years such as hotel and/or restaurant management, tourism policy and administration. These programs often involve extended internships in the area of specialization. As can be seen from the above, each level of training involves increasing investment in terms of resources such as time and money, and therefore increasing commitment to the area of study as a career rather than simply opportunity and survival.

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[32] http://www.e-México.gob.mx/wb2/eMex/eMex_Guias_de_escuelas_de_turism_o, accessed May, 2008

Assignment#3_Sample_Escuelas.xls

APPENDIX 1 - THE NUMBER OF PROGRAMS OR DIPLOMAS IN VARIOUS AREAS OF HOSPITALITY TRAINING AND RECOGNIZED BY THE MINISTRY OF EDUCATION (*Secretaría*

Level of Training / ESTADO/ STATE	Basico / Basic Skills Training	Medio Sup / Vocational Training	Superior / Under-graduate degree	Diplo-mados / NOT full degrees	TOTAL by State	State Rank by # Prgms	Popn (000s)	# prgms / 1000 popn	State Rank by Qty Training per 1000
Aguascalientes		4	5		9	20	1065	118.3	11
Baja Calif N	2	5	6		13	18	2844	218.8	26
Baja Calif Sur	1	15	12		28	8	512	18.3	1
Campeche		3	7		10	19	755	75.5	8
Chiapas		9	12		21	12	4293	204.4	23
Chihuahua	1	1	7		9	20	3241	360.1	30
Coahuila			9		9	20	2495	277.2	28
Colima	1	5	3		9	20	568	63.1	4
Districto Federal	32	49	42	15	138	1	8721	70.9	6
Durango		1	1		2	22	1509	754.5	32
Estado de Mexico	9	27	31	8	75	2	14007	209.1	24
Guanajuato	1	5	8		14	17	4894	349.6	28
Guerrero	1	11	9		21	12	3115	148.3	15
Hidalgo	1	10	8		19	14	2346	123.5	12
Jalisco	4	14	17	1	36	6	6752	192.9	22
Michoacan	2		4		6	21	3966	661.0	31
Morelos	2	8	10	1	21	12	1613	80.7	9
Nayarit		8	5		13	18	950	73.1	7
Nuevo Leon		12	8		20	13	4199	210.0	25
Oaxaca	1	16	5		22	11	3507	159.4	18
Puebla		6	35	2	43	3	5383	131.3	13
Queretaro		2	8		10	19	1598	159.8	20
Quintana Roo	3	20	12	2	37	5	1135	32.4	2
San Luis Potosi		6	11		17	15	2410	141.8	14
Sinaloa	2	8	13		23	10	2608	113.4	10
Sonora	1	7	7		15	16	2395	159.7	19
Tabasco		25	9		34	7	1990	58.5	3
Tamaulipas	2	7	11		20	13	3024	151.2	16
Tlaxcala		4	2		6	21	1608	268.0	27
Veracruz	1	16	25		42	4	7110	169.3	21
Yucatan	3	9	14	1	27	9	1819	70.0	5
Zacatecas		4	5		9	20	1368	152.0	17
TOTAL by Type	70	317	351	30	768	TOTAL	103800		

Source:
http://www.e-mexico.gob.mx/wb2/eMex/eMex_Guias_de_escuelas_de_turism_o
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PART II: FOUR DECADES OF CANCÚN'S PUBLIC FINANCE

Table of Contents

Abbreviations

AI	all-inclusive (includes room, food, beverages, activities and tips)
BJ	**Benito Juárez – Municipality 005 in the state of Quintana Roo**
CIT	Corporate Income Tax
EP	European Plan (room only)
GDP	Gross Domestic Product
HDI	Human Development Index
IDE	Tax on Bank Deposits in Cash (*Impuesto Sobre Depositos en Efectivo*)
IEPS	Special Excise Tax on Goods and Services, e.g. alcohol, cigarettes
ISH	Tax on Hotel Lodging (*Impuesto Sobre Hospedaje*)
FONATUR	National Fund for Tourism Development (*Fondo Nacional de Fomento al Turismo)*
MFP	Municipal Participable Fund
MXP	Mexican Pesos
OECD	Organization for Economic Co-operation and Development
PIBA	Private Individuals with Business Activity, e.g. Consultants, etc.
PIT	Personal Income Tax
QR	**Quintana Roo State**
REPECO	Micro/small business regime
RFP	Participable Federal Receipts *Recaudación Federal Participable*
Simplificado	Simplified Tax Regime for primary sector (cash accounting)
USD	also US$ - United States Dollar
VAT	Value Added Tax
ZOFEMAT	Federal Maritime Land Zone (High tide plus 20 metres inland) (*Zona Federal Maritima Terrestre*)

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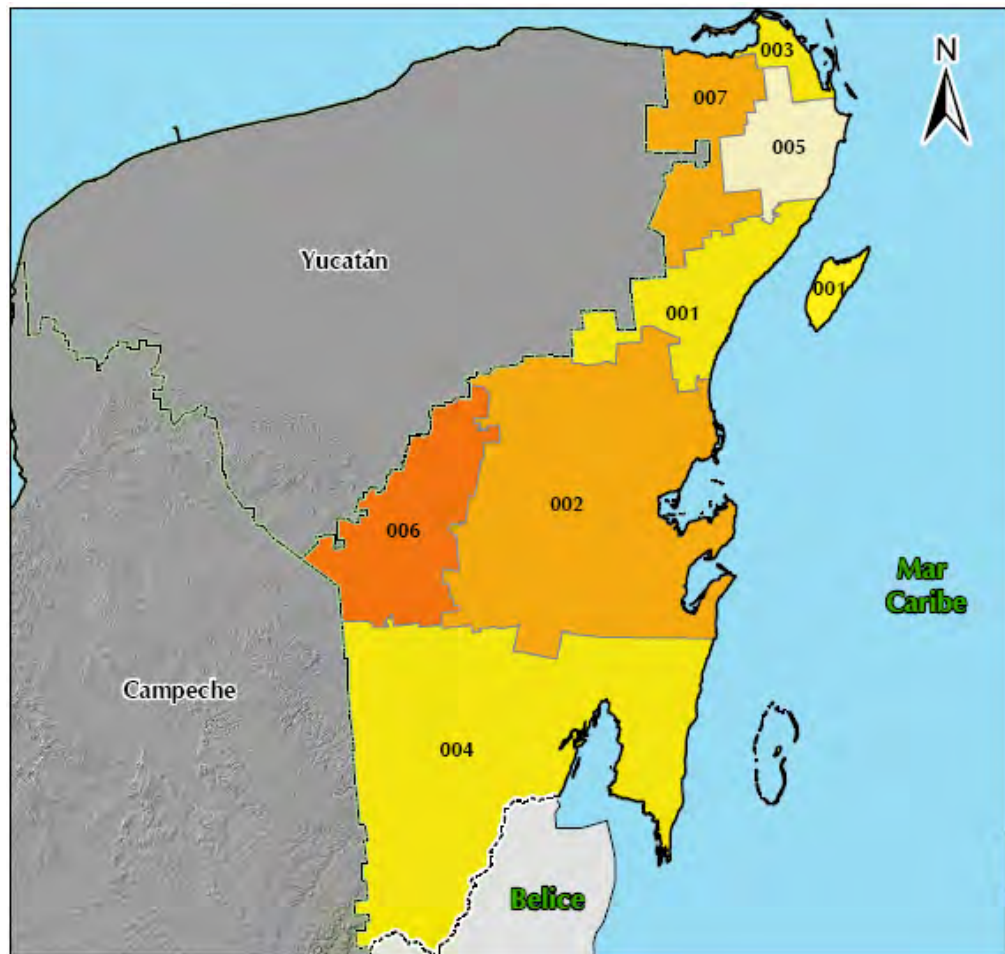
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Introduction to Part II

In Part I, I explained the significance of Cancún as the brainchild of the dirigisme Mexico Central Bank (Banxico) in the 1960s. To start the project the International Development Bank (IDB) granted a first loan of US $21.5 million to the trust fund called INFRATUR controlled by Banxico. This loan financed the basic tourism infrastructure of landfill, roads, electricity, water and an airport. Although reimbursement of the loan was to be settled by the sale of serviced lots to hoteliers, when INFRATUR tried to sell the serviced lots, the large international hotel chains rejected the project as too risky. Consequently INFRATUR directors expanded their mandate from simple land development and property sales to partners in risk-free land-for-shares swaps, hotel construction plans and the procurement of government-backed loans to entice inexperienced private bankers into hotel construction and operation. Although the directors could demonstrate the requisite number of rooms available as per IDB loan terms and conditions, involvement in hotel construction meant that INFRATUR was insolvent when the loan repayments to the IDB came due in 1975. In the early 70s, when the land failed to sell, the Mexican government that had been marginalized at the outset was now co-opted by INFRATUR into the project and subsequently repaid the loans. Simultaneously, the Cancún project was moved from the independent Banxico's governance, was renamed FONATUR and has been administered within the Mexican government through the Ministry of Tourism since 1974.

Regardless of the source of reimbursement and site of control, if one of the policy goals of Cancún was employment creation to reduce migration to over-crowded Mexico City, then the use of federal funds to reimburse the international loan to reimburse the international loan is consistent with public sector best practices of long-term debt for

intergenerational capital expenditure. The municipality of Benito Juárez (hereafter BJ) where Cancún is located has grown from a mere 500 inhabitants in 1970 (Marti-Brito, 1985) to over 650,000 in 2010 (INEGI, 2011b). Therefore, from the perspective of staunching the flow of outward migration, Cancún could be called a development success. However, more than the input of investment and the output of population, the fundamental question is that regarding the **outcome** of the public sector expenditure in terms of the well-being of local inhabitants (van der Berg and Moses, 2009).

Funds such as those used to finance Cancún's tourism infrastructure are disbursed based on decisions made and policies enacted by the Mexican government to generate revenue for expenditure on public policy goals such as employment creation and public sector goods such as schools and hospitals. To achieve the goal of social and economic well-being, the government (public sector) is charged with the provision of services and the redistribution of resources. To finance the provision of services, revenue is generated through a combination of taxes, debt covenants, sale of property, and user fees. These are the only means at the disposal of governments to pay for socially desirable goods and services such as public works (e.g. provision of water and electricity), education and health-care. Therefore, I assess the collection of revenue and subsequent expenditure to determine if **dedicated tourism-resort investment generates sufficient surplus revenue both locally and nationally to allow for the necessary expenditure leading to social improvement and increased well-being, i.e. social development**. Conversely, I ask if public sector investment in tourism centres is rather a source of economic deterioration, environmental degradation and social degeneration. I hypothesize that public sector mega-resort development does not lead to poverty alleviation and a reduction in income disparities in emerging economies partially due to a lack of political will but more

importantly because resort development does not generate the expected return on investment to provide social services, to protect the environment and to sponsor further development. Aggravating this situation, Mexico has one of the lowest tax efforts worldwide[1] (OECD, 2009: 34). The question is complex and, along with social indictors, can only be answered by evaluating longitudinal data of the tax structure, the industry and other economic indicators such as foreign exchange and employment, the original and ongoing arguments for tourism development.

Tourism as a Development Strategy

Cancún fulfilled two of the original objectives - to stimulate one of the poorest regions in Mexico while slowing migration to the already over-populated Mexico City. From 1970s to 2010 the state grew from less than 90,000 inhabitants to more than 1.3 million. BJ grew from a handful of fishers to a major city of more than 660,000, one-half of the state's population. By traditional economic measures of GDP, Quintana Roo (hereafter QR) and BJ are said to be among the richest sub-national entities in the country (INEGI, 2011a). Also, inbound tourism expenditure exceeds outbound by 60 percent in US dollar terms. This proportion of inbound to outbound has remained relatively constant for more than fifty years and for a decade prior to the construction of the first centrally planned tourist center, Cancún (Banco de México, 1950, 1961, 1971, 1981, 1991, 2001). Thus total receipts from tourism increased at 5 to 10 percent per annum year on year (CEFP, 2006) translating to, in aggregate terms, a tourism balance of US $2 billion in 1992, $4 billion in 2000 and $5 billion in 2005[2] (Banco de México, 2001, 2006). Therefore, it is true that

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[1] Tax effort is defined as the ratio of the actual tax collection to the predicted ratio given a country's tax structure and prevailing economic and social conditions (Piancastelli, 2001).

[2] These figures do not include external trade for goods required to service the tourism industry. Figures from the three seaports nearest to Cancún (Chetumal, Progreso and Cancún) show that imported goods regularly exceed exports since 1970 (INEGI, various years, *Cuaderno Oportuno de Información Regional*).

Cancún provided the needed economic development to the region creating jobs and generating surplus foreign currency, Banxico's goals. However, for the federal government the development has not translated into important surplus tax revenues when broader revenue and expenditures are analyzed.

This study shows that the state with tourism as a mono-industry is a major drain on budgets without concomitant revenues especially since the mid-90s. Weak institutions combined with centralization resulted in low tax collection and compliance. Evasion nation-wide decreased from 48 percent of corporate income tax (CIT) to 13 percent in 2010. Value added tax (VAT) evasion was an estimated 47 percent in 1995 and is now down to 18 percent (Fuentes Castro et al., 2010; Hernández Trillo and Zamudio Carrillo, 2004). However, the tourism industry is particularly adapted to evade taxes through back-to-back credit operations[3] common throughout the 90s and 2000s, and now to elude taxes through the new CIT floor rules called IETU (see Sources of Revenue). Of the 31 states, QR ranks 18th in corporate income tax (CIT) tax effort, 15th in value-added tax (VAT) tax effort and 8th in personal income tax (PIT) effort (Sobarzo, 2003), the three federal taxes that historically supply 90 percent or more of the federal government's non-petroleum tax revenue. This poor result is reconfirmed in a recent study that suggests QR's revenue is only 80 percent of its potential, the fifth lowest tax effort in Mexico (Hernández Trillo, 2011). These vital taxes are then redistributed for economic development, such as tourism, through investment in initial public infrastructure (economic) and ongoing maintenance of public goods especially social projects.

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[3] The company deposits money in an account at an agreed rate at overseas international bank that has operations in Mexico. Guaranteed by the overseas deposit, the Mexican branch of the international bank loans the same company money for construction and renovation at previously agreed upon artificially high interest rate. As interest for construction is tax deductible, the company is able to reduce taxable income.

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Millions of dollars were poured into Cancún to develop a paradise for foreign tourists. My initial and cursory cost estimate for the 'integrally-planned center' is more than one billion US dollars (valued in 2010 dollars) to date plus annual maintenance of the 30 km hotel zone of US $6 to 8 million by the federal agency BMO Maintenance (See section Revenue Source: FONATUR, page 161). To this amount government coffers are further depleted by direct and indirect subsidies to hotel resort investors. The state government offers up to two months of employee training partially or fully paid for by the QR government. They also offer tax holidays on those taxes under their control: state payroll taxes and municipal property taxes. Lastly, they offer to reduce construction permit fees, subsidize water infrastructure and pay for international publicity (Vazquez, 2011). Despite these subsidies, in the 80s and early 90s the net benefit was positive both to the region and to government coffers.

Since 1995, further investment in the region has been a net burden as the new tourism models of floating and fixed all-inclusives erode tax collection. Cruise ships to the region have exploded in the past fifteen years from under 500 ships in the early 90s to over 1000 ships in 2010. The number of ships plying the waters of QR has doubled and with triple the capacity the number of passengers has increased six-fold to 3 million by 2010. Their local expenditure is low and flat at US $50-60 per tourist since 1996. Yet these passengers require critical resources such as roads to visit nearby sites but provide little and only marginal local employment and are tax-exempt. The ships, by their own admission (see Carnival Cruises Environmental Management Reports), pollute heavily and cause damage to reefs through collisions (CONANP, 2010a) yet in Mexico only pay dock fees to

private operators. Permanent all-inclusive hotels[4] pay some taxes but an increasingly small proportion thanks to transfer price agreements and a malleable product mix of ground services, food and lodging that can be modified on paper to lower the tax burden. All-inclusives also employ proportionally fewer personnel per room than regular hotels, approximately 25 percent less, and negatively impact the local economy as guests no longer leave the premises which affects local small business, employment and VAT. In addition to fewer employees, payroll taxes are further eroded by minimum-pay rates supplemented by a myriad of tax-free benefits such as tips and transportation. Despite perpetual complaints from private industry of excessive taxation, the construction of hotels is still increasing exponentially in the region especially from Spanish consortiums (Jiménez Martínez, 2010). From 5000 rooms in Cancún in 1985, there were 20,000 mostly in Cancún in 1995 to a total of 62,000 rooms between BJ and Solidaridad (Playa del Carmen) by 2007.

The apparent success of centres such as Cancún and Los Cabos has fuelled a push for more centres but now constructed under the new all-inclusive model. In the euphoria and myopia, local politicians demanded more federal resources and increased debt for an increasingly bloated, inefficient public sector. Of public sector budgets, personnel costs in the BJ municipal administration were an average of 65 percent in the 80s, 39 percent in the 90s and 46 percent in the past decade. As for QR state, its administration has steadily averaged 45 percent of its budget for personnel over the 40 years since Cancún was built. The amount of debt contracted by BJ plus that of QR state hovered around US $100 million throughout the 90s and shot up eightfold since 2006 to US $800 million in 2010. In BJ, per capita debt has more than tripled from US $200 per inhabitant to US $663 due to combined

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[4] European Plan is defined as room only with no meals included. The other end of the spectrum is all-included hotels where everything is included in one price from room, meals, entertainment and tips.

state and municipal borrowing. As a point of reference, the average per capita property tax in BJ is equivalent to US $70-80 per year. Both the municipality and QR were declared bankrupt in early 2011 and downgraded by international credit agencies (Cruz Serrano, 2011; IMCO, 2011). Cautiously it could be argued that Cancún was a development success until 15 years ago when a change in tourism models to mobile and immobile all-inclusives offered new opportunities to reduce tax capture in a country and state with historically weak institutions that have little oversight.

First is a brief description of the method which is necessarily archival but combined with new archival techniques to cross-cut specific themes such as revenue sources, expenditures, debt and social performance. Following the method, this paper starts with a summary of public finance in Mexico: sources and uses of resources. Sources necessarily address the structure and politics of taxation including the fundamental issue of tax administration and compliance. In addition to the contextualization of Mexico´s public finance, there is a special discussion on the additional revenue through tourism taxation, specifically hotel and airport departure taxes. Next, I address tax incidence, expenditure and outcomes for the municipality of Benito Juárez (BJ) from 1980 to 2010. This longitudinal analysis demonstrates the ebbs and flows of government revenues from tourism as a function of three factors:

- the fickleness inherent in the industry due to seasonality, consumer tastes and crises both economic and physical (e.g. recessions, hurricanes and H1N1);
- a change in the tourism models from standard hotels in the 1970s and 1980s to a sharp rise in all-inclusive resorts and cruise ships since the mid-1990s;

- the local politics and lack of oversight that have fomented volatile public finance and excessive debt to finance primarily current expenditures.

Despite efforts by the three levels of government (federal, state and municipal) to improve tax collection, the confluence of these three factors critically erodes tax compliance and reduces funding for social projects and environmental protection in a country where tax effort historically is one of the lowest of the OECD countries[5] and of all of Latin America (Piancastelli, 2001). As revenue capture is demonstrably insufficient and expenditure allocation misaligned, the evolution of QR and BJ is re-examined by decades. The conclusion provides recommendations for future research in view of the inevitable gaps, estimates and extrapolations required to achieve such a comprehensive analysis, but one that is long overdue.

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[5] Mexico is a member of the OECD.

Method

Archival Research

In view of the research question asked, the method necessarily is historical-analytic. Archival research methods are employed because archives are "ubiquitous, consequential and strategically useful" (Ventresca and Mohr, 2002: 806). Archival research is divided into three types: traditional, ecological and new archival. This study employs the traditional historiographic methods of longitudinal analysis spanning forty years and is supplemented with a method called the 'new archival project', an analysis of cross-sections of longitudinal data to arrive at conclusions about institutional logics. In other words, rather than simply providing a description and empirical substance through historical data, it is also the cross-sectioning and analysis at intersections that provide explanation and answers to the research question (Ventresca and Mohr, 2002). Each major category of taxes and expenditures is revealed as to its contribution to continued and expanded development over four decades. Equally revealing are the changes in tax laws that intersect with municipal tax effort and corporate income tax (CIT) compliance. Federal social program delivery decentralization intersects with BJ population growth, local politics and social outcomes. Then there are the changes within the tourism industry such as the explosion of all-inclusive properties that impact tax collection and social outcomes. By perforating vertically typical horizontal public finance strata, local consequences of tax rules are revealed with the concomitant outcomes to the residents of BJ.

In essence, this is a longitudinal study of fiscal incidence in one locality: tax burden of tourism development, public expenditure and the resulting private sector investment and social outcomes. Broadly defined, the study of tax incidence is the study of the effects of

tax policies on the distribution of economic welfare: a combination of who pays and who benefits. Policy choices such as tax schemes result in taxes and fees that are subsequently redistributed through public sector expenditure. Although there is a major debate about different forms of taxation, progressivity-regressivity and redistribution (Bird and Zolt, 2004; Martinez-Vazquez, 2008; Moreno-Dodson and Wodon, 2008), rather than a conceptual discussion of optimal tax schemes, this study is more concerned with the actual income from taxes, and the resultant redistribution be it national or sub-national considering sources and uses in order to assess the costs imposed and the benefits received (Zolt, 2008: 57-58). In this study, burden and benefit are assessed on a resident group rather than by income strata or for a nation as a whole.

Expenditure incidence has two aspects: income redistribution and benefit analysis of government expenditure. Previously studies focused on "those effects on relative factor and product prices that alter the distribution of earnings" (Ruggeri, 2005: 3). More and more these studies are complemented with benefit analysis which focuses on the effects of government expenditure that alter the "well-being of individuals and families through direct cash transfers and the benefits generated by the public provision of goods and services" (Ruggeri, 2005: 3). As the terms benefit and expenditure incidence are used interchangeably by some (e.g. van der Berg and Moses, 2009), Ruggeri suggests the terms 'direct effects' of expenditure (income redistribution) and 'indirect effects', i.e. benefit analysis of government expenditure. Nonetheless, the key concern here is the measure of inequality and poverty especially when referring to development and well-being. However, the measurement of inequality is also a source of debate.

> Inequality measures are generally computed from household income and expenditures surveys, which are now conducted by almost every country in the

world. Inequality is computed on the basis of either per capita household income or per capita household expenditure. No consensus exists on whether one should use income or expenditure. Income is the major resource for each individual for consuming goods and services in the economy, whereas consumption indicates the actual standard of living enjoyed by an individual. The inequality of per capita income is generally larger than that of per capita consumption. (Kakwani and Son, 2005).

Rather than select one inequality measure over another and to verify convergence, I verify over the periods available and for the level available the Gini coefficient, the UN's Human Development Index and Mexico's poverty measures provided by several independent monitoring agencies for Mexico's national average, QR state and the municipality of BJ whenever available. However, the starting point to determine the outcomes of taxation and expenditure are forty years of public sector accounting documents.

Mexico's Public Sector Accounts and Accounting

A government can apply a range of accounting practices from cash only to comprehensive accruals. In cash accounting only cash receipts and payments are registered. Under such a system, sources of cash less uses of cash with net cash available at the end of the reporting period are published. Under modified cash accounting or current obligations, short term receivables and payables outstanding at the end of the reporting period are added to the above cash reports providing a closer accounting of the cash position. In public sector accruals, like private sector accruals, operations are recognized rather than cash. Full accruals require the recognition and valuation of assets, an important debate in public sector accounting due to public, non-marketed goods and services (see Part III, an Accounting Proposal, for a complete discussion). However, most countries that move to accrual accounting use modified accruals, i.e. non-market assets are unaccounted for. And those countries that use modified accruals rarely use accruals for budgeting, only for reporting

(Blondal, 2003; Dees and Neelissen, 2004). Mexico is also moving in the direction of accruals both for reporting and budgeting.

Mexico public sector accounting mirrors changes in the tax code. In 1982 the now defunct Ministry of Planning and Budgeting (*Secretaría de Programmación y Presupuesto* as of 1992 a department of the *Secretaría de Hacienda y Crédito Público*) issued a bulletin endorsed by the Mexican Institute of Public Accountants listing the Basic Principles of Government Accounting. Although similar to Generally Accepted Accounting Principles (GAAP) that apply to private sector enterprises, the socio-economic goals of the public sector and its organizing principles formulated in legislation mean that there are some differences between public sector GAAP and that of the private sector. The principles are defined as the fundamentals that support the correct recording of operations, the timely preparation and presentation of financial statements backed by specialized legislation as to the general application of public sector accounting. The principles in Mexico can be summarized as follows: a permanent public body created by legislation and whose rights, obligations and operations are registered in local currency within the period of one calendar year based on the actual purchase or sale price or the estimated market value in case of a donation or expropriation. The information supplied in the statements should conform to the legal dispositions, and be sufficient, comparable and reliable allowing for verification, decision-making and integration with the accounts from other public bodies (Meza Lopez, 2003: 10-15).

With Mexico's entrance to the OECD in 1994, the country started to move toward international public sector accounting standards which recommends accruals. Accruals were finally legislated in 2008 for all public sector bodies by 2012 (Sour, 2011). However, prior to 2008 the immensely important parastatals such as trust funds and credit institutions

(see Part I) applied accruals while the public sector used cash accounting. Moreover, parastatal statements require adjustments for inflation and/or devaluation as well as asset depreciation. All these differences rendered impossible the accounting consolidation of parastatals within their main governing bodies, the ministries and national government (IMCP, 2000: 73-74; Meza Lopez, 2003: 10-15), a problem also encountered in this investigation and for which reason accounts were treated separately, e.g. FONATUR. The introduction in 2008 of the *Ley General de Contabilidad Gubernamental* (General Law of Public Sector Accounting) legislated a change from cash to accruals for federal' government as well as the harmonization of municipal and state chart of accounts to facilitate comparison and consolidation and in order to harmonize the accounting and budgeting norms across all levels of government" (OECD, 2009: 14). During 2012 all subnational central government bodies are expected to establish registries of goods and real estate, and begin reporting using accrual accounts (OECD, 2009). As the OECD observed three years ago, the introduction of accruals for both reporting and budgeting in just three years is ambitious:

> adopting a uniform chart of accounts and consistent accounting standards, and developing timely integrated reports, will present major challenges. Implementation of full accrual accounting requires the valuation of assets and the selection of appropriate depreciation schedules. The treatment of specific assets such as military, heritage and infrastructure assets, and liabilities such as social insurance programmes is generally a very contentious issue when implementing accrual accounting. The tasks are very complex, and at a minimum there needs to be a register of assets before engaging in valuation. (OECD, 2009: 87)

While government institutions move towards accruals, independent government agencies such as FONATUR were reporting using accruals from the outset more than thirty years ago. In other words, these agencies must valuate and capitalize assets. The term capital assets includes land, improvements to land, easements, buildings, building improvements,

vehicles, machinery, furniture, equipment, works of art and historical treasures, infrastructure, and all other tangible or intangible assets that are used in operations and that have a normal life expectancy of more than two years.

Even though these public sector accounting changes are important for continued and future assessment, the accounts over the period of investigation (1970-2010) did not benefit from such harmonization. Therefore, the accounts in this research are often kept separate (e.g. FONATUR and Zofemat). Moreover, often the information is only available at the level of the state and not disaggregated for the municipalities within the state. To the extent possible, I provide all the annual data and itemized for the municipality. In either case, if extrapolation and consolidation are possible, my assumptions and calcuations are clearly identified.

Cancún's Public Sector Accounts

Cancún, now the municipality of Benito Juárez (hereinafter BJ), was selected because it was built as an integrated project in an area with little industry and population. Therefore the tourism effects over forty years since its inception can be isolated from other industries. To assess the full fiscal incidence of BJ, rather than tourism statistics that typically focus on the tourist, I use population and public finance data found in accounts collected from non-digitalized National Institute of Statistics and Geography (*Instituto Nacional de Estadisticas y Geografía*, herein INEGI) documents scattered across the country. Locations visited in order to compile that data include INEGI offices in Cancún and then QR's capital city, Chetumal. In Chetumal the state's planning office library was also explored. As the data in these offices were very incomplete, the library of the National Institute of Geography (*Instituto Nacional de Geografía*) in Mexico City was one of the most valuable and complete sources of INEGI documents that provided early public finance

information. As well in Mexico City, the library of the Centre for Economic Investigation (CIDE) was combed for data and missing INEGI documents. Another valuable library was that of INDETEC (the National Insitute for the Development of Public Finance - *Instituto para el Desarrollo Técnico de las Haciendas Públicas)* in Guadalajara that contained an almost complete set of INEGI's *Cuaderno de Información Regional* with municipal public finance dating from the early 1980s. Although QR is one of the least transparent states (IMCO, 2011; Sour, 2009)[6], through transparency laws I was able to obtain BJ's Statement of Income and Balance Sheets for 2000-2010. QR's public sector accounts audited by state authorities were available online covering most of the past decade. Much information was found thanks to conversations with INEGI and other librarians, hotel accountants, and academics working in the field of tourism and Quintana Roo. Last but not least, was my own personal experience of more than a decade working throughout Mexico as the owner-operator of an inbound tourism agency and hotel which gave me inside knowledge of Mexico's tourism structure and operations, and sparked my interest in better understanding the foundational role of Cancún.

The public finances used in the study are in the appendices in Mexican Pesos and in US dollars. For expediency, unless other specified, all the amounts indicated are in current US dollars based on the annual US dollar exchange rate provided by the Banco de Mexico and included in the appendices. Presentation in US dollars (current) is preferable to Mexican pesos because of periods of high inflation at the end of the 80s and the financial crisis in 1995 although current US dollars only partly compensates for inflation and volatility. While some argue that the amounts should be presented in the national currency,

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[6] IMCO rates QR low in terms of transparency at 20th out of 32 federal entities (IMCO, 2011).

presentation in US dollars is further justified by the fact that many goods are imported to satisfy tourists as well as the local population, e.g. hospital supplies.

As for the majority of graphs and tables, they were compiled by me from the above-mentioned non-digitialized primary data sources, manually captured in spreadsheets and indicated by 'own compilation'. From this captured data, some information was graphed as primary while some primary data were aggregated to make the information more meaningful. Unless stated as 'reproduced', the data compiled and aggregated are my own. The raw data are provided in the Appendices.

With this data amassed, I started with an assessment of tax collection followed by an expenditure incidence of the same period, otherwise said how government spending affects the economic position of families and individuals (Shah, 2005), and especially the outcomes of this expenditure (van der Berg and Moses, 2009). However, in order to understand the assessment, it is essential to begin with a description of Mexico's fiscal federalism and its articulation with sub-national agencies and legislation all of which is rooted in Mexico's particular history.

Public Finance

Public Finance - General Introduction

Public finance is simplistically the taxing and spending activity of the government. Rosen (1995) argues that the use of the word 'finance' is misleading because the fundamental issue is not merely financial but more broadly one of overall resources. These resources are those goods and services to be paid for through taxation and made available free of direct charge to its citizens and other users, referred to as public goods. Interestingly, echoing the debate within sustainability, a major debate of tax literature is that of growth versus equity. While growth requires fomenting capital investment, equity is the redistribution (transfers) of resources to redress imbalances in disposable income and access to services. The sum of expenditures on public goods and transfers (plus the costs of administration and inefficiencies) determines the size of local, regional and national budgets. Budgets are financed through a combination of four mechanisms: asset sales, user fees, borrowing and taxation. Of the four mechanisms, taxation and borrowing are the two most important sources.

As to borrowing, good practice dictates that it is appropriate only when at least some benefits accrue to future generations. Depreciation is deducted according to generational usage. When benefits accrue to current generations such as ongoing administration, taxation is the ideal method for (re)current expenses. One of the crucial roles of government at all levels (national and sub-national) is to decide which goods and to what extent expenditure is current and which are those benefits that accrue to future generations. Decisions such as these are one of the many topics addressed by public finance theory.

Public finance theory is broadly divided into normative and positive. Normative theories provide a general framework for governments to assess the desirability of undertaking various government actions (Rosen, 1995). For example, should the government tax users of environmental assets? Positive theory complements normative theory in that it seeks to explain and predict the outcomes of collective decision processes (Buchanan, 1999). In other words, how will a population behave following the change to or introduction of a tax such as an environmental tax? These behavioural changes are the subject of empirical investigations into the real effects of government policies (Quigley, 2008). Positive analysis complements normative studies by estimating and assessing the direction and size of the effect of government policy changes on behaviour. As economists cannot perform controlled experiments with the economy or sections of it prior to the introduction of policies, ex-post empirical evidence of economic policy is an important source of information for future decision-making (Auerbach, 2009; Rosen, 1995). As such this study is an empirical investigation of policies to date that could prove useful to the analysis of allocative and distributive decisions of dedicated tourism sites.

Distributional and allocative effects refer to differing goals of tax collection. Distributional goals are those transfers to redistribute wealth that includes, among others, low-income tax credits, healthcare and public schools. The main debate within distributional effects is the progressivity (regressivity) of differing actions to improve equity (Auerbach, 2009). Progressivity (regressivity) refers to reducing (increasing) the tax incidence on those individuals and families with a lower ability to pay as taxes represent a larger portion of their income. The other key decision, allocation, is the starting point here and is defined as those expenditures to encourage investment (Shaviro, 2008). Although heuristically separate, allocation and distribution overlap. Policymakers often justify

allocative expenditure such as construction of tourism infrastructure based on arguments of employment creation which are said to have distributional benefits.

The goal of this study is to analyze the sources and uses of public funds in the construction and maintenance of Cancún, and any subsequent tax burden, poverty reduction and social protection achieved. Although positive prescriptions may emerge, this study is empirical focusing on tax collection, municipal budgets and expenditure incidence within the municipality of BJ following the major capital outlay for the construction of Cancún. The strategy should have guaranteed at least intergenerational equity and ultimately economic development. Yet in 2011, of the 2,464 municipalities in Mexico, BJ, one of the five richest municipalities in terms of revenue sources, was declared insolvent and its credit rating downgraded due to excessive debt (Cruz and Ruiz, 2011; Cruz Serrano, 2011; IMCO, 2011). Moreover, the Gini coefficient (income disparity), for Mexico which was at 0.57 in 1970, had descended to only 0.54 by 2000 (see the section The Gini Coefficient, page 194 for more information). Simultaneously, the Gini for BJ was 0.55 and QR 0.59 in 2000. In order to explicate these less than stellar financial and social outcomes, it is important to understand Mexico's particular system of public finance.

Public Finance in Mexico
Fiscal Federalism in Mexico's History

Taxes and public expenditure are indicative of social arrangements between populations and their governments. These social arrangements, rather than static, are historically defined, negotiated and enacted. Historical antecedents partially determine the range of future action. Mexico's past century of history has been written mostly by one political party, the *Partido Revolucionaria Institucional* - PRI which held power for seven decades until 2000. For this reason, analysts argue that the country has little experience

with federalism (Cabrera Castellanos and Lozano Cortés, 2010a, 2010b). Thus, to understand current institutions it is important to appreciate the history leading to certain political constraints.

Mexico's turbulent history is well reflected in its power structure that explicates equally turbulent changes in fiscal federalism. From very decentralized prior to 1960 to highly centralized in the 1990s, Mexico is returning to more decentralization. Currently Mexico is in an intermediate stage whereby tax powers continue to be centralized federally while spending administration is mostly devolved to subnational governments. The path to this current arrangement can be divided into three stages: 1917-1947, 1947-1970 and post-1970 (Broid Krauze, 2010).

From 1917 to 1947, following the revolution and despite efforts to the contrary, the states had more power than the weak federal government. By 1940 there were 80 different business taxes and 32 taxes on capital among all three levels of government, a disincentive to business. Moreover, the federal government was too frail to impose agreements on centralization and harmonization (Broid Krauze, 2010). In the second stage from 1947 to 1970 a stronger federal government pushed for centralization although some states resisted. To pressure the states, in 1953 the federal government introduced the *Ley de Coordinación Fiscal* (Law of Fiscal Coordination) by which income taxes became the sole province of the federal government with redistribution to the states. Even if the states refused, federal taxes would be collected but not transferred back to the state. Despite this threat, one half of the states remained fiscally independent. By 1972, all the states had ceded to the central government's tax authority and by 1978, the federal government and the sub-national governments created a new fiscal federalist framework. States and municipalities renounced their right to impose certain local taxes in exchange for a share of all taxes

collected by the federation. With the new agreement 458 sub-national and 18 federal taxes were revoked. The new framework established two types of transfers from the federal government to the states: non-earmarked *participaciones* (hereinafter non-earmarked) based on the portion of federal taxes collected within the state corresponding to the federal budget line *Ramo 28*. The other was earmarked *aportaciones* or *Ramo 33* (hereinafter earmarked) also named for its federal budget line which are transfers to the states for federal social programs. In 1990 the federal government assumed full control of value added tax (VAT, in Mexico *IVA*) collection, considered the historical pinnacle of centralized tax collection. However, with states absolved of tax collection while demanding a greater portion of taxes collected, in 2000 the federal government began devolving tax collection in order to improve sub-national governance (Broid Krauze, 2010: 91-93).

Mirroring collection, spending demonstrates a similar but much accelerated devolution of powers. With increasingly centralized collection, the federal government invested in social security, low-income housing and universities in the 1970s and 80s, especially in the area of Mexico City (Federal District and State of Mexico). However, a rapidly growing population nation-wide required more and more basic services. Rather than implement projects nation-wide from Mexico City, the federal government legislated the devolution of education expenditure in 1992 and health services in 1996 to the states and municipalities. Although legislated six years earlier, only with the 1998 federal budget was money channelled through several ear-marked funds for education (FAEB and FAETA), health (FASSA), and security (FASP), among others. As a percentage of total transfers, earmarked funds transferred back to the states have grown faster than non-earmarked transfers. Currently, earmarked represent 30 percent or more of the transfers received sub-nationally. And of budget totals, most states receive 90 percent or more from the transfers

(earmarked plus non-earmarked). QR is not an exception by locally generating less than 10 percent of its annual budget and therefore heavily dependent on transfers. Following is a more detailed explanation of current fiscal arrangements.

Mexico Fiscal Federalism from 1980 onward

The Mexican public sector is divided into institutions under direct control and those under indirect control (see chart in Appendix 1: The Public Sector in Mexico). Direct budget control includes central administration and several parastatals such as social security (IMSS and ISSTE), the national electrical company (CFE) and the national petroleum company (Pemex). Under indirect budget control are certain financial institutions that exercise greater administrative autonomy and budgetary independence. The federal government alone employs 2.6 million people or approximately 2.3 percent of Mexico's population of 112.34 million (INEGI, 2011b)[7]. The federal government consists of the Office of the Presidency, the Attorney General's office, eighteen central government ministries and 77 coordinated agencies. Outside the central government there are 210 federal entities including decentralised agencies/institutions (98), public trusts (21), and public enterprises (91). Most public enterprises, trusts and agencies are organized under the authority of a corresponding ministry (*Secretaría*) (OECD, 2009). For example, FONATUR, the tourism investment public trust is under the authority of the Tourism Ministry (see Part I for a more detailed explanation of public trusts and the history of FONATUR). Sub-nationally, the 31 states and Federal District (32 sub-national entities)

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[7] As a comparison, Canada and the USA employee one-half or less. In 2006, federal employees to population in Canada was 1.15 percent excluding the RCMP, the military and specialized agencies such as the Canada Revenue Agency (Stats Canada). The USA, including the US postal service, went from a high of 1.44 percent in 1970 to a low of 0.8 percent in 2010 (http://voices.washingtonpost.com/federal-eye/2010/09/how_many_ federal_workers_are_t.html)

that make up the Mexican federation mirror the political structure of the central government with an elected governor and an elected state legislature.

As pertains to public finance, and specifically to accounting, budgeting and reporting, these ministries are subject to more than twelve laws, regulations and decrees at the national level and at least six at the sub-national level (IMCP, 2000). While federal, state and municipal, referred to as central government, historically used cash accounting with a capital account (modified cash accounting) for both budgeting and accounting, parastatal enterprises, trusts and agencies are legally required to report using accrual accounting. This renders impossible the consolidation of parastatal accounts with central government ministries responsible for their oversight. Otherwise said, the total budget and efficacy of program delivery under each ministry is impossible to measure.

Federal Budget Procedure

The budget cycle consists of six steps: Revenue, Budget, Approval, Expenditure, Evaluation and Public Accounts. The first step, revenue, consists of estimating the revenue from sources legislated in the Revenue Law or *Ley de Ingresos*. The next step, the Budget, is to estimate expenditure for public goods such as education, health, housing, security and infrastructure. By September 8th of each year, budgets from all government levels are integrated and sent to the *Cámara de Diputados* (Chamber of Deputies) for debate and approval by November 15th. Expenditure, step 4, covers the calendar year from 1 January to 31 December. Throughout the year, expenditure is evaluated to ensure that the budget objectives are met as well as to improve future planning. Last but not least the financial statements are given to the *Cámara de Diputados* to report on resource use and the objectives achieved (SHCP, 2010). Currently, the statements take 14 months to compile for Congress rather than the six months recommended by the OECD (OECD, 2009).

In the past decade, the federal government has introduced important changes including a legally enforced balanced budget (OECD, 2009) and growth-based performance (INAFED, 2008b). Although the federal government has made important strides, many states and municipalities, in particular QR and BJ, have yet to implement performance-based programming and budgets that clearly link programs' outcomes with expenditure. To better understand the move to balanced budget and performance measures, it is necessary to understand how national administration articulates with sub-national governments.

National and Sub-National Fiscal Relations

Calculation of non-earmarked funds transferred back to the states has changed substantially over the past three decades. In the 1980s the percentage was based on tax and non-tax revenues which strongly favoured oil-rich states. In the 1990s a population factor was added to the calculation of revenue collection. However, oil-rich states continued to unfairly benefit. In 2007, the calculation was again changed but this time to recognize those states with the greatest economic growth and increased performance in collections (INAFED, 2008b). With this calculation, the federal government sums all the federal taxes collected with non-tax revenue especially from petroleum to arrive at the *Recaudación Federal Participable* (RFP). Of the total RFP to be redistributed, only one fifth is based on collections. In 2008, of the total RFP for the 32 sub-national entities, QR received more than 4.5 percent of the approximately US $260 billion RFP (CEFP, 2011; INAFED, 2008b) although the state has 1.1 percent of Mexico's population and only 1.63 percent of GDP (for more details, see Table 4 on page 145).

Ramo 33 or earmarked transfers are allocated for teachers' salaries, health care workers and federal highways, federal responsibilities administered by state and municipal governments. To the original five funds of 1) primary and secondary education, 2)

healthcare, 3) basic infrastructure, 4) municipal reinforcement and 5) other, three have been added in the 1990s: 6) adult and technological education, 7) public security and 8) state institutional reinforcement. There are now a total of eight funds comprising *Ramo 33* (INAFED, 2008b).

Even prior to the decentralization of federal responsibilities under budget line *Ramo 33*, the government was decentralizing programs to combat poverty using budget line *Ramo 26* called Regional Development and Solidarity (*Solidaridad y Desarrollo Regional*, often referred to as simply *Programa Solidaridad*). In 1998 *Programa Solidaridad* was divided into two funds: municipal social infrastructure (FAISM) and municipal reinforcement (FORTAMUN). Of these two federal transfers the municipalities receive 87 and 100 percent respectively. As an example of the importance to municipalities, just FAISM and FORTAMUN alone have grown ten-fold for BJ in terms of constant dollars (1980) from US $5 million in 1995 to US $50 million in 2010 (Broid Krauze, 2010).

The combination of FAISM, FORTAMUN, and the legislated twenty percent transfer of non-earmarked funds from the states to its municipalities now account for more than 80 percent of municipal budgets, up from 60 percent in 1985. The national average of revenue from property taxes, licensing and other sources accounts for less than 20 percent of municipal resources, down from 40 percent fifteen years ago (Broid Krauze, 2010: 95). The cycle of tax collection, redistribution and expenditure to the municipalities is visualized as follows:

Figure 2: Muncipal Budget Cycle
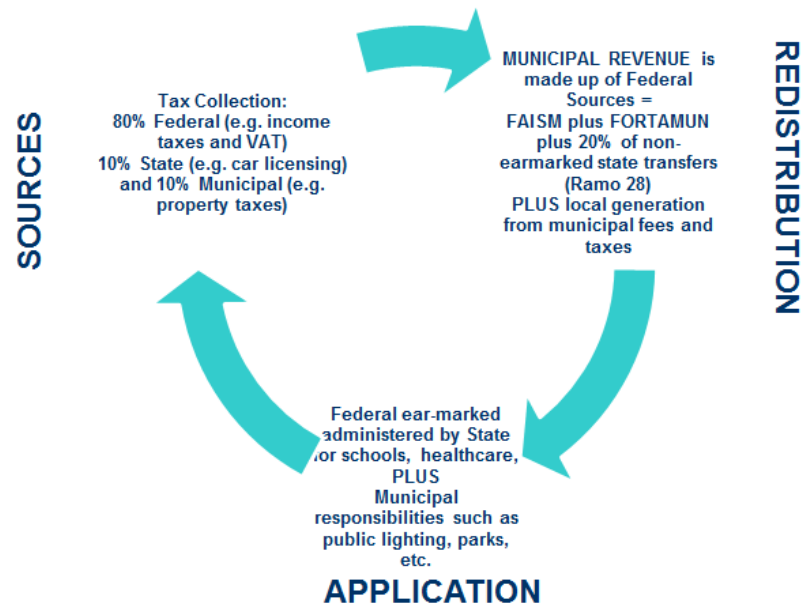
To summarize, a distinctive framework has evolved which is currently highly centralised in terms of revenue collection and decentralised in terms of spending. Public expenditure on ear-marked programs has rapidly devolved to deployment at the sub-national level especially in the areas of education and health. Currently upwards of 30 percent of federally available earmarked funds are now transferred to the states to be administered within the region (OECD, 2009). As for non-earmarked resources, in the late 1970s federal transfers and municipally-generated revenue represented equal portions of municipal budgets. Twenty years later nation-wide more than 65 percent of municipal revenue comes from federal transfers via the state while only 20 percent or less is collected in sub-national taxes and non-tax revenues (INAFED, 2008b; OECD, 2009). Why tax effort is so low at sub-national levels is the topic of the next section which addresses the tax structure, tax collection and tax evasion.

Sources of Revenue

As with all countries, government receipts can be generated by tax revenues and non-tax revenues. Non-tax revenues come from the sale of goods and services as well as through loans to the government, i.e. borrowing. In Mexico there are three main fiscal rules: a balanced-budget rule and two debt rules, one of which specifically addresses state debt. States are prohibited from acquiring foreign debt but may borrow from domestic institutions such as local banks and the federal government. State debt is usually guaranteed with non-earmarked funds although it can be guaranteed with earmarked funds. All borrowing must be approved by a state's legislature and when non-earmarked funds are affected, as is usual, they must be registered in the obligations and borrowing registry maintained by the Ministry of Finance (OECD, 2009).

As for federal tax revenues, there are income taxes as well as sales taxes plus customs, excises and licensing fees such as payment of petroleum extraction rights to the government. These tax revenues are divided into direct taxes and indirect taxes. Direct taxes are those that tax directly the income (wealth) of individuals and enterprises. Examples include personal income taxes (PIT) and corporate income taxes (CIT). Indirect taxes affect the patrimony of persons and corporations but are not designed to be proportional to wealth. The most important example is Value Added Tax (VAT), charged to the buyer as a percentage of the purchase but remitted by the seller.

Tax and non-tax revenues are designed to achieve a variety of goals. These goals include increasing revenues, overcoming problems of tax avoidance and evasion, and modifying behaviour (e.g. high 'sin' taxes on products such as alcohol) (Hernández Trillo et al., 2000). Moreover, differing levels of government are differently attributed with taxing

powers. For central government in Mexico the most important sources of tax revenue are income taxes and VAT, for states it is auto licensing and for municipalities it is property taxes. The tax and non-tax revenues of three levels of government are the topic of the following starting with the federal government.

Federal

At 30 to 40 percent of annual overall revenue, it is generally agreed that Mexico relies disproportionately on oil revenues. Over-dependence on oil revenue combined with the lowest tax effort of the all OECD members (and one of the lowest in Latin America) at 20 percent of GDP[8] for combined tax (12 percent) and petroleum revenues (8 percent), means that fiscal revenues in Mexico are insufficient, volatile and vulnerable to economic downturns (OECD, 2009). To understand the challenges faced to improve tax effort it is necessary to understand Mexico's indirect and direct tax structure.

Direct taxes include five major categories which are: corporate income taxes (CIT), private individuals with business activity (PIBA), primary sector simplified regime (*simplificado*), micro/small business regime (*REPECO*), and personal income taxes (PIT) (Fuentes Castro et al., 2010). As for indirect taxes, the most important are VAT and an excise tax on alcohol, tobacco products and gasoline called Special Tax on Goods and Services (*Impuesto Especial sobre Productos y Servicios* - IEPS). Although the rates are now similar to many OECD countries, tax evasion in the formal and informal sectors combined with numerous VAT exemptions, erode a potentially well-constructed system (Fuentes Castro et al., 2010; Hernández Trillo and Zamudio Carrillo, 2004). The USA and Canada with a similar income tax structure to Mexico's, collected 15.1 and 17.5 percent of

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[8] To compare total tax revenue as a percentage of GDP, Canada collects more than 30 percent and many European countries more than 40 percent (OECD, 2009: 34).

GDP in 2000 while Mexico's collection was only 4.7 percent. South Korea has similar VAT exemptions to that of Mexico and collected 4.4 percent GDP in 2000 with a general rate of 10 percent VAT while Mexico collected 3.3 percent of GDP at a general rate of 15 percent VAT (Hernández Trillo and Zamudio Carrillo, 2004). The official rates and the estimated evasion are:

Table 1: Mexico's Tax Rates and Evasion Rates 1980-2010

In percent	1980	1985	1990	1995	2000	2005	2010
CIT - Rates					40	28	28
CIT - Evasion					*48*	*32*	*13*
PIBA - Rates					40	30	30
PIBA - Evasion					*84*	*74*	*77*
Simplificado-Rates					35		21
Simplifco - Evasion					*90*		*90*
REPECO-Rates					2.5	17.5	18.5
REPECO-Evasion					*86*	*99*	*96*
PIT - Rates (highest)			55	55	40	40	28
# Tax Brackets		28	28	28	10	10	8
PIT - Evasion					*31*	*19*	*15*
INDIRECT TAXES							
VAT - Rates	10	15	10	15	15	15	16
VAT-*Fronteriza* Rates	6	6	10	10	10	10	11
VAT - Evasion				*47**	*23 - 35**	*26*	*18*
IEPS - Rates	Var	Var	Var	Var	Var	Var	Var
IEPS - Evasion (not including petroleum)					*9*	*9*	*9*

(Own compilation from: *Hernández Trillo & Zamudio Carrillo, 2004 and Fuentes Castro et al., 2010. These authors based their calculations on Potential VAT minus Collected VAT, the former calculated using the System of National Accounts while the latter is based on data from the revenue agency.)

The sum of income taxes, VAT and excises are the three most important sources of tax revenue. And of these three, income taxes plus VAT made up 85 to 90 percent of taxes collected (SCHP, 2011). Despite numerous tax reforms over the past 20 years, the proportions remain constant (Hernández Trillo et al., 2000: 11) while evasion has been

sharply reduced from an overall average of 35 percent in 2000 to 15 percent in 2010 (Fuentes Castro et al., 2010).

In 2000, Mexico's population was over 100 million with 40 percent or 40 million economically active. However, only an estimated 20 million 'persons' (*personas físicas y morales*) paid taxes: 13 million salaried workers plus 7 million large companies, small businesses and professionals. Of the total taxes collected less than 10 percent came from PIT and the remainder from CIT and VAT. Moreover, 65 percent of combined CIT and VAT were collected from just 2000 companies, less than 0.028 percent of those subject to CIT. In short, tax effort was (and still is) focused on a minority of captured individuals and corporations (Hernández Trillo et al., 2000).

To improve progressivity and collection, tax regimes since 2000 have been modified as follows:

➢ Flat-rate CIT has decreased from 40 percent of taxable revenue in 2000 to 33 percent in 2004, 30 percent in 2005, 29 percent in 2006 (CEFP, 2005). Although the rate was to be 28 percent in 2007 onward (CEFP, 2005) the economic downturn in 2010 forced the government to apply 30 percent until 2012 when it decreases again to 29 percent in 2013 and 28 percent in 2014. This rate applies to corporations as well as independent persons with business activities. The complexity of Mexico's tax structure is such that avoidance and evasion are major problems. Nonetheless, with increased online declarations directly through the banking system to the treasury, evasion is calculated to have dropped sharply from 48 percent in 2000 to 13 percent in 2008 (Fuentes Castro et al., 2010).

➢ The regime called 'simplificado' applies only to primary sector activities (e.g. agriculture and fishing) and transportation. Rather than net taxable revenue, tax is calculated as a percent of average cash flow. The rate has decreased from 35 percent in 2000 to 21 percent for 2011. This tax is one of the lowest sources of tax revenue and easiest to evade (Hernández Trillo et al., 2000) because most transactions are in cash and without documentation. Evasion is calculated at an estimated 90 percent (Fuentes Castro et al., 2010).

➢   The micro-small business regime was introduced in 1998 to encourage informal sector vendors and independent professionals to pay a portion of taxes. On gross income of less than MXP 2 million (US $165,000, 2010) a flat rate of 2.5 percent was calculated prior to 2004 and the businesses exempt from paying VAT. In 2004, the VAT exemption was cancelled which bumped the rate to 17.5 percent (2.5 percent plus VAT of 15 percent) and to 18.5 percent as of 2010 (2.5 percent plus VAT of 16 percent - see following). However, the introduction has had the unintended consequence of shifting some taxpayers from general CIT to this less onerous regime rather than capturing more taxes from the informal sector (Hernández Trillo et al., 2000). For this reason, the regime also contributes minimally to overall revenue.

➢   Last but not least are personal income taxes (PIT) calculated on a scale with sharply increasing marginal tax rates. The highest rate was 55 percent in 1987, then 40 percent in 1999 and now 28 percent as of 2010. The number of tax brackets decreased from 28 in 1985 to 10 in 1999 to only 8 currently (Ley de Ingresos, Arts. 10 and 177). Consequently, evasion declined from 31 percent in 2000 to 15 percent by 2010 (Fuentes Castro et al., 2010).

To put these tax and evasion rates in perspective, previously the formal sector and especially formal employment was unattractive compared to the informal sector since small contributors (REPECO) were taxed at only 2.5 percent and now 17.5 percent up to MXP 2 million (US $165,000, 2010). At this salary level in the formal economy the employee was already in the highest marginal bracket previously as high as 55 percent. With changes to the tax code, the average effective tax rate now approximates the REPECO rate. Even with a rate 10 percent lower in the informal economy, evasion is almost 100 percent in REPECO. Although tax collection in the small-contributors' regime is small and argued by some to be insignificant, notable is the proportion of the workforce in the informal sector, an estimated one-third of all workers (Leal Ordoñéz, 2010). In short, the loss from the non-capture of the informal is significant and proof came with a new tax of 2 percent for 2008

and 2009, and 3 percent as of 2010[9]. In an effort to capture part of the cash flow from the informal sector, the government introduced a tax (*Impuesto sobre Depositos en Efectivo – IDE*) on cash bank deposits in excess of MXP 25,000 (US $2000, 2010) in one bank. By law, the bank remits the taxes on these unsourced deposits to the federal treasury. In the first year this tax netted the government six times the amount predicted (US $ 1.35 billion instead of US $ 218 million) and in 2009 three times the amount estimated (US $1.6 million instead of US $600 million) (Buenrostro Bermúdez, 2010). The decrease between estimated and actual is due to better estimates but also clients that now disperse their cash deposits among a variety of banks to elude IDE.

For indirect taxes, the two most important are VAT and Special Tax on Goods and Services (IEPS - *Impuesto Especial sobre Productos y Servicios*). In the 1990s, with the exception of the states considered *Zona Fronteriza*[10], VAT increased from 10 to 15 percent and then in 2010 to 16 percent. In the *Zona Fronteriza* VAT increased from 7 percent to 10 and is now at 11 percent. Similarly, VAT evasion declined as a percentage of total VAT but increased as a proportion of total taxes due to its importance as a revenue source.

Inexplicable VAT exemptions combined with tax evasion seriously erode capture and reduce collections by an estimated 5.5 percent of GDP (Fuentes Castro et al., 2010: 102). Zero VAT and exemptions apply to all food products, even processed foods, as well as medication. QR was declared a duty-free zone in 1973 by President Luis Echevarría for no obvious reason. In 2003, for the state of QR alone the Fronteriza rate cost the federal government an estimated US $68 million in lost revenue of US $11.5 billion (Hernández

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[9] In the same year, the federal government replaced an asset tax on corporations to a cash-flow based floor tax called IETU. See Private Investment and Effective Tax Rates for more explanation.
[10] Referred to as *Zona Fronteriza* are the northern and southern border states of Baja California North and Baja California South, Quintana Roo and Sonora.

Trillo and Zamudio Carrillo, 2004: 34). Exemption of all foods, not just basic goods, as well as luxury goods in unjustifiable duty free zones not only reduces government revenue but makes VAT highly regressive (Cabrera Castellanos and Lozano Cortés, 2010a). As for evasion, one-quarter to one-fifth of VAT is uncollected. Evasion and avoidance mean that key programs are not able to be properly funded.

To estimate budget shortfalls from non-capture (avoidance and evasion), Hernández Trillo et al (2000) compared Mexico's tax capture to that of the USA which has a similar regime. In the USA income tax capture was 11 percent of GDP in 1993 while Mexico was only 4.8 percent (Hernández Trillo et al., 2000). Taking into account special treatments and subsidies, non-payment cost Mexico US $30 billion in 1993 alone. The authors estimated that combined income tax and VAT evasion reduced tax contribution to GDP by 5 percent throughout the 1990s. In other words, a 15 to 16 percent tax capture (CIT, PIT and VAT combined) rather than 10 percent would have been sufficient for all social spending and infrastructure programmed in 1999 (Hernández Trillo et al., 2000).

Over the past decade, there was little improvement. A later study conducted by Hernandez Trillo and Zamudio Carrillo compared Mexico's VAT capture in 2000 to that of all OECD countries and found that OECD countries capture 6.9 percent of GDP while Mexico is exactly one-half at 3.5 percent. Mexico falls short even compared to other Latin American countries that capture on average of 5.5 percent. In 2003, the authors estimated that the numerous special treatments combined with evasion cost the government US $11.5 billion in 2003 or 1.9 percent of GDP (Hernández Trillo and Zamudio Carrillo, 2004).

The main reason behind low tax effort is the combination of decentralized expenditure with centralized collection that confounds the sources and uses thus allowing state and municipal politicians to take credit for ear-marked federal program funds while

slackening sub-national collections to appease the local electorate (Ahmad et al., 2007; Broid Krauze, 2010; Lozano Cortés and Cabrera Castellanos, 2010; Martinez-Vazquez, 2008; Sour, 2007). Accelerating this imbalance is the relative ease of borrowing from the federal government and/or local banks against future non-earmarked and earmarked funds again with little accountability. For example, in 2011, it was reported that the Benito Juarez (BJ) municipal government added debt of US $75 million of which US $29 million was contracted in two years between 2008 and 2010 under Mayor Gregorio Sanchez (Cruz and Ruiz, 2011). Of that US $29 million more than US $1.8 million is unaccounted for and much of the remainder had been used for current expenditure rather than infrastructure as stipulated by law and best practice. The national/sub-national fiscal relations that allow such independence and lack of accountability are the topic of the next section after addressing tourism taxation in general and the special levies in Mexico for tourism-based regions.

Special Levies: Tourism Taxation and ZOFEMAT

In addition to general taxes (CIT, PIT, VAT), countries and localities levy directed taxes such as those on tourism in order to raise revenue, to pay for local public goods and services and as a rent for unpriced amenities. Unpriced amenities include, for example, wildlife and historic buildings while public goods include roads and security. The latter are indivisible and no one can be excluded from benefiting from them, hence are provided by the government at a very low price or for free. However, the influx of tourists may impose extra public costs relating to the provision and maintenance of some amenities. As non-residents, tourists do not pay direct taxes to finance these extras. An indirect tax may redress the balance so that the burden falls on those who are responsible for increasing the costs of provision (Gooroochurn and Sinclair, 2005: 482).

Gooroochan & Sinclair (2005) identified 45 different types of taxes that are applied to the tourism industry in both developed and developing countries, some of which are paid by businesses (indirect) and others directly paid by the tourists. Indirect non-specific taxes are levied through mechanisms such as differing rates of VAT on tourism services, e.g. hotels and restaurants. As to indirect targeted tourism taxes the most common are hotel tax, visas and departure tax (Gago et al., 2009).

The majority of the research in the area of tourism taxation discusses the advantages and disadvantages of varying forms of taxation to model the most effective form of taxation in terms of revenue-generation and administrative costs (Bird, 1992; Dwyer and Forsyth, 1997; Gago et al., 2009; Gooroochurn and Sinclair, 2005). Most agree that the indirect specific hotel and the direct airport taxes are the least distorting in terms of tourism competitivity. As to the amount, tourism should pay for its costs and provide a return of benefits to the local population over and above business profits in order to offset some of the costs of public goods. The measurement of the tourism impact to the local economy is referred to as tourism yield. Otherwise said it is the "net benefit accruing to a host country from international visitors" (Dwyer and Forsyth, 1997: 224). Net benefit is the net of marginal revenue from tourism less the costs of providing necessary services. The complexity in determining 'yield' is more than tourist arrivals and foreign exchange. It is also the social and environmental impact on the destination (see Part III – An Accounting Proposal). In Mexico, there are three taxes that are levied on tourism. Two are levied on tourists (hotel and departure) and the third is a resource fee applied to beach front properties called ZOFEMAT.

 Federal Zone Concession - ZOFEMAT

Zona Federal Marítimo Terrestre, (Federal Maritime Land Zone, hereafter ZOFEMAT) is not tourism-specific but is tourism-related. ZOFEMAT is a special fee on water-front properties levied by the federal environment ministry, SEMARNAT. The federally owned water-front land is high-tide plus 20 metres and the fee is levied as a form of rent charged to those properties on the waterfront. The amount of rent is a function of the use: undeveloped land, developed land without a dock, developed land with a dock, etc. Although a federal tax, it is now collected by a branch within the municipal government. Thanks to the high-density, intense use of the waterfront in BJ, the 57 km of coastline allowed the municipality to collect an average of US $7 million per annum as follows: in 2007, US $7.10 million; in 2008, US $7.17 million; in 2009 US $6.74 million; in 2010 US $7.50 million.

Although ZOFEMAT is federal, the municipality retains the ZOFEMAT funds collected which are then applied against non-earmarked transfers owed to the state and municipality in the next budget cycle. Therefore, unlike most Mexican states that must wait for funds to be transferred following budget negotiations, the states with coastline in general but especially densely-populated tourism-dedicated areas like Cancún, have early access to these funds and should suffer fewer budget bottlenecks.

Federal - International Departure Fee

Departure taxes are ad quantum (per unit tax independent of value) and therefore regressive. However, the tax is generally exportable (i.e. does not fall on local residents except those who use the airport for international travel), easily collected and relatively non-distorting in terms of destination selection (Gooroochurn and Sinclair, 2005). The departure fees levied by the Mexican federal government are the sum of three components:

a tourism tax, an airport facility-use tax and most recently, a bag-handling tax. Throughout Mexico the amounts depend on the airport and ranges between US $18 to $29 per passenger. In Cancun, the taxes on tourism, airport-facility and baggage handling are currently US $21.79, US $26.37 and US $4.26 respectively. Of airport arrivals in the past decade, the Cancun airport received more than one-third of all international tourists arriving to Mexico making it the most important airport for international arrivals. Of those arriving to Cancun, more than two-thirds vacationed in Cancun in 2000 (OECD, 2001).

Figure 3: Cancún International Airport Passenger Departures 1975-2010
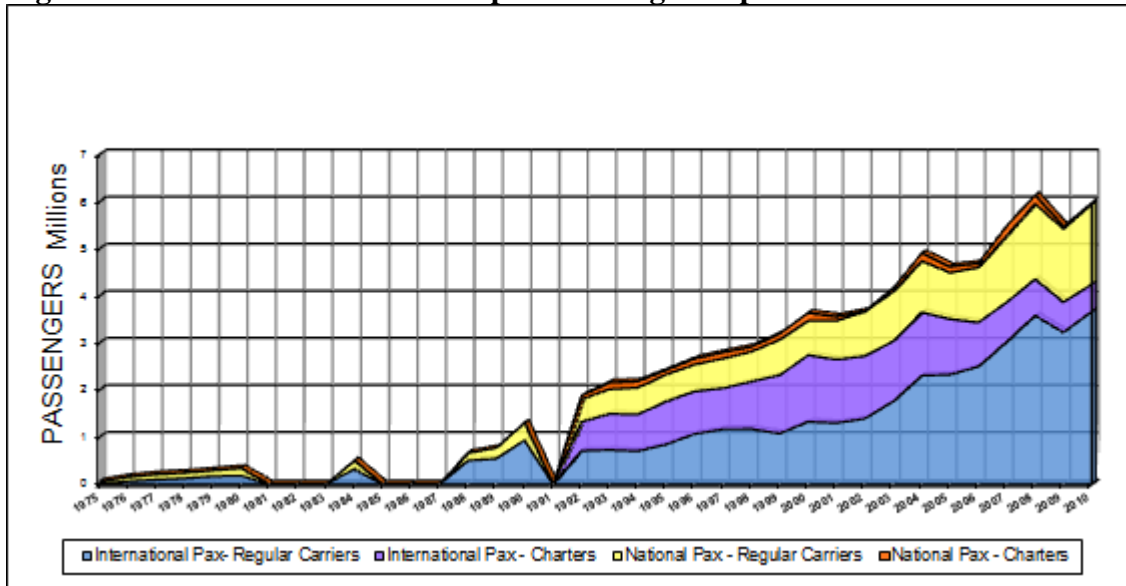
(See Appendix 2 for more details. 1992 to present compiled from: SCT, 2011)

Although the number of passengers fluctuates (Figure 3), the number of flights arriving to Cancún has been a perfect increase of 1400 flights per year for the past two decades[11] now topping 50,000 flights per annum (Figure 4).

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[11] The R^2 provided by the trendline shows a very strong correlation between the trendline (formula) and the data. An $R^2 > .64$ (R > 0.8) is considered a statiscally strong.

Figure 4: Cancún International Airport Flight Departures 1990-2010
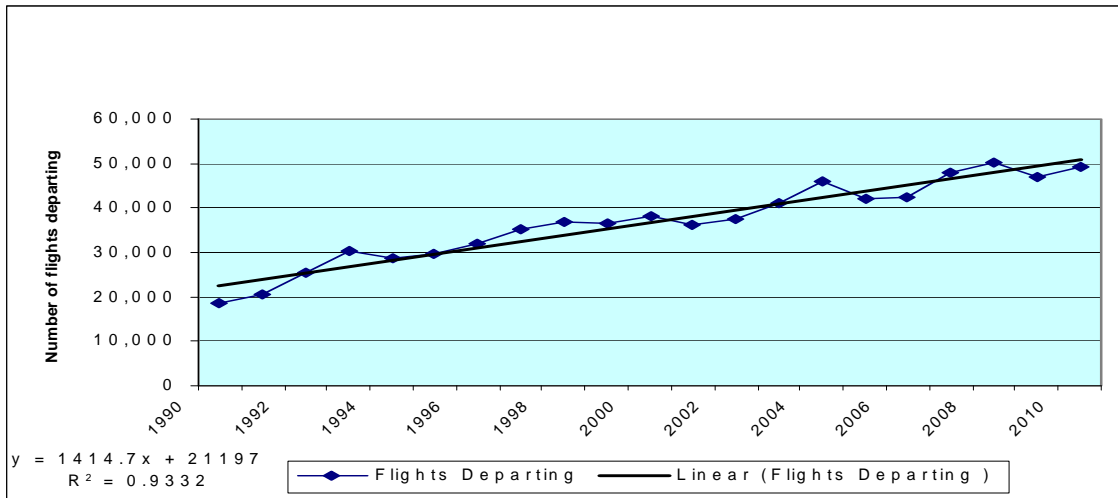
(See Appendix 2 for more details. 1992 to present compiled from: SCT, 2011)

Both domestic and international passengers pay VAT on their tickets but only international passengers are subject to a departure tax of approximately US $20 per person. As the information is sporadic, I estimated that international departure taxes attributable to the Cancún airport have risen from $15 million per annum to over $70 million annually (see Figure 5). Otherwise said in two decades since 1992, the federal government has collected an estimated US $678 million.

Figure 5: Cancún International Airport Estimated Annual Departure Taxes Collected 1992-2010
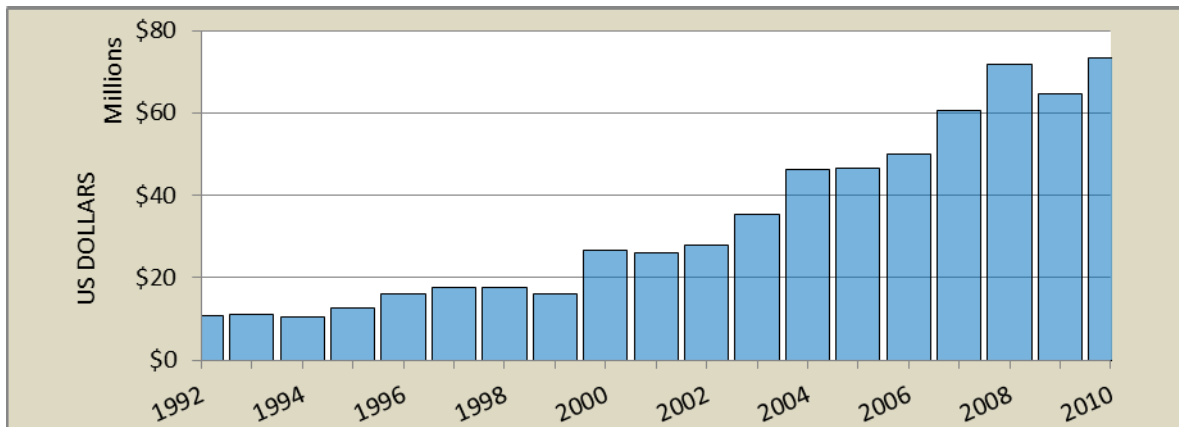
 (See Appendix 2 for more details. 1992 to present compiled from: SCT, 2011)

This important source of federal revenue is earmarked since 2002 with 20 percent to *Secretaría de Inmigración* (Ministry of Immigration) for the ministry's administration (*Ley*

Federal de Derechos, Art. 18-A) and the bulk, 80 percent, to the *Consejo de Promoción Turístico* (Council for Tourism Promotion). From 2005 to 2010 the Cancún airport traffic alone provided an estimated total of US $300 million for national tourism promotion. Although the above is estimate, the amounts correlate to a study of real budgets of three key federal tourism offices: BMO, FONATUR (see Revenue Source: FONATUR) and the Council:

Table 2: 2001-2006 Annual Budgets of BMO, FONATUR and the Tourism Council

Millions	MXP	2001	2002	2003	2004	2005	2006	TOTAL
	TOTAL	$879.30	$1,282.70	$1,598.60	$1,690.90	$502.90	$502.20	$6,456.60
	BMO	$10.20	$8.70	$113.20	$74.60	$60.70	$60.70	$328.10
	Consejo	$532.80	$889.90	$1,004.70	$1,070.60	$267.70	$267.00	$4,032.70
	Fonatur	$336.30	$384.10	$480.70	$545.70	$174.50	$174.50	$2,095.80
Millions	USD Exch	9.34	9.67	10.79	11.29	10.89	10.90	USD
	TOTAL	$94.18	$132.63	$148.14	$149.81	$46.18	$46.06	$617.00
	BMO	$1.09	$0.90	$10.49	$6.61	$5.57	$5.57	$30.23
	Consejo	$57.07	$92.01	$93.10	$94.85	$24.58	$24.49	$386.11
	Fonatur	$36.02	$39.72	$44.55	$48.35	$16.02	$16.00	$200.66

(Source: CEFP, 2006)

Moreover, real figures obtained through transparency laws and only made available for the last five years indicate amounts 25 percent lower than the above estimates (Figure 5) but still demonstrate the importance given to tourism as a development strategy. Eighty percent of international passenger fees are allocated to tourism promotion and the QR airports alone provided US $35 to 40 million per year of which 95 percent from the Cancún airport.

Figure 6: Airport Fees Collected in QR and legislated uses

in USD	REVENUE	EXPENDITURE		
Year	in USD (current)	Immigration Administration	Tourism Council for Promotion	FONATUR
2006 (Mar to Dec)	$10,023,644	$5,011,822	$5,011,822	$0
2007	$26,004,559	$7,801,368	$18,203,191	$0
2008	$43,217,666	$8,643,533	$30,252,366	$4,321,767
2009	$45,168,887	$9,033,777	$31,618,221	$4,516,889
2010	$48,280,283	$9,656,057	$33,796,198	$4,828,028
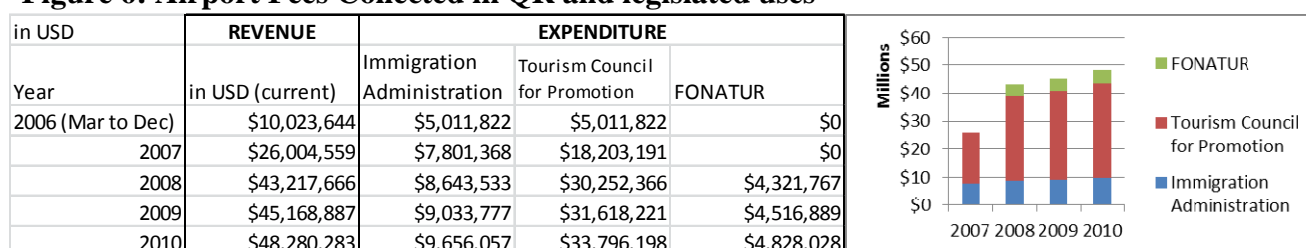
(Source: Courtesy of biologist Albert Franquesa Rinos of QR´s Ministry of the Environment who obtained the information through Mexico's Freedom of Information Act)

State - Hotel Tax

Targeted tourism taxes on hotels are said to be equitable, neutral, cost-effective and just. They are equitable because it is ad valorem (percentage of price) so the more expensive the room, the larger the amount of tax that is paid. They appear to be neutral as lodging decisions (behaviour) seem to be unaffected by the additional tax if relatively modest (Gooroochurn and Sinclair, 2005; Tisdell, 2000). They are also cost-effective in that compliance falls on the hotels. Last but not least, the burden falls on non-residents of the locality and is, in essence, a rent on the local resources (Tisdell, 2000), if used as such.

In Mexico, hotel tax is now levied by 30 of the 31 states and was introduced in QR in 1996. In 2010, the ad valorem lodging tax (*Impuesto Sobre Hospedaje* – ISH) increased from 2 to 3 percent of the room rate. Rather than a payment for public goods or environmental protection, the QR hotel tax, is legislatively earmarked for tourism promotion only[12]. The tax provided QR coffers with some US $20 million in 2007, over US $25 million in 2010 at 3 percent (Sipse, 2010), and the continues to climb with hotel construction.

In the 1990s, two out of every three tourists arrived by plane and the vast majority lodged in Cancun hotels. Although the number of hotel rooms in Cancún continues to grow, it is not growing as quickly as the adjoining Rivera Maya area (Solidaridad municipality) as the following graph demonstrates.

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[12] Some funds were used exceptionally for beach nourishment following Hurricane Wilma - personal conversation SEDETUR July, 2011.

Figure 7: Available Hotel Rooms BJ and Solidaridad 1975-2010

	1975	...	1985	...	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Playa del Carmen & Tulum	0		200		1470		4918	10095	12653	15297	18731	21014	22624	23215	26980	31397	34718	0	0	0
Cancún	1322		6591		20278	20197	21683	23581	24610	25434	26194	25829	26404	27522	11192	23824	27075	27880	28537	28050
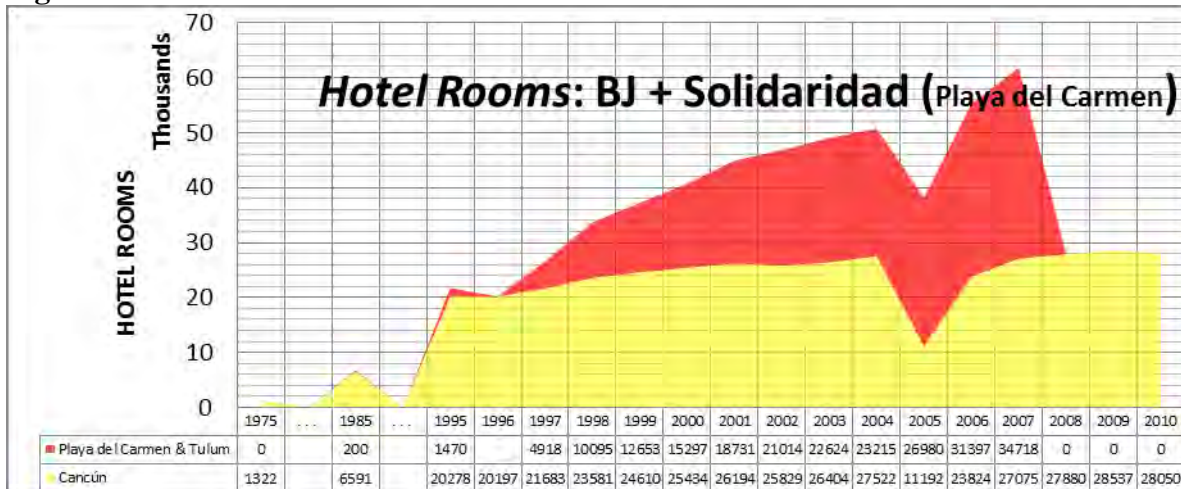
(Own compilation from: AHC, 1995-2012; Jiménez Martínez, 2010)
See Appendix 3: 1974-2010 Benito Juarez Hotels,Hotel Rooms, Occupancy, Average Stay and Average Room Rate for more information.

This change in behaviour modifies the taxes attributable to BJ but not the total to QR. From 80 percent of total hotel tax in 2000, BJ now accounts for less than 45 percent of hotel tax collection as the following chart shows.

Figure 8: QR Collections of State Hotel Tax (ISH) 2000-2010
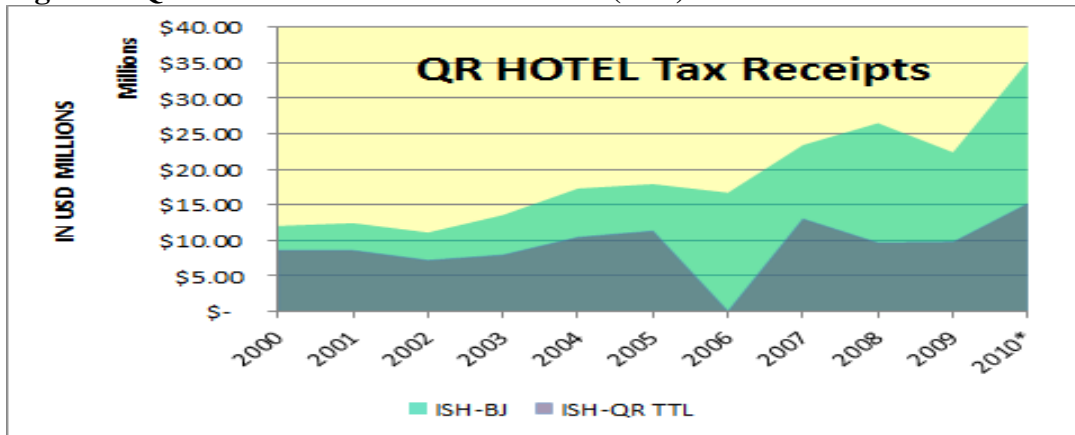
(Own compilation from: QR, 2004, 2005, 2006, 2007, 2008, 2009; QR, 2010)

In addition to the hotel tax legislatively earmarked for tourism promotion, there is 10 percent (11 percent since 2011) VAT on each room which translates in to an average of $50 million per annum for the federal government from BJ hotels (see Figure 9). Notable is the estimated loss of federal revenue of $25 million per annum because QR enjoys a VAT rate reduced from 15 to 10 percent (16 to 11 percent as of 2011).

Figure 9: Estimated Federal VAT and State Hotel Tax Collections from BJ Hotels 1995-2010
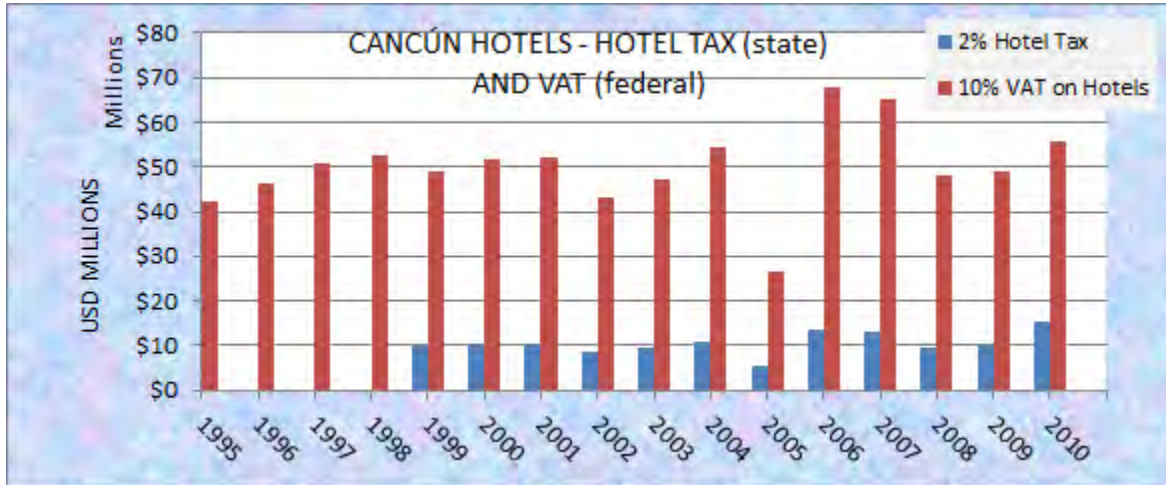
(Own estimations of VAT based on: QR, 2004, 2005, 2006, 2007, 2008, 2009; QR, 2010)

Having addressed non-earmarked federal taxes, especially income tax and the reduced VAT, the specific tourism taxes of international airport departure and hotel tax earmarked for tourism promotion, and the federal resource tax of ZOFEMAT that accelerates transfers to the municipal government, the subject of the following section is the transfers to and among sub-national governments to better understand the important resources under the control of the BJ municipal government.

Sub-National: State and Municipal

Of Mexico´s 32 sub-national entities QR state occupies a curious position within the country of high activity yet low federal tax effort. The state covers 2.16 percent of the surface area and houses 1.1 percent of Mexico's population, one-half of which live in Cancún. QR has the highest level of working-age adults (over 14 years of age) in the country at 67 percent of the state's population. Of those of working age, 95.5 percent are employed. This high level of economic activity translates into an average of 1.5 percent of Mexico's GDP over the past decade and an average ranking of 5th in terms of per capita productivity (INEGI, 2011, Sept). Yet all this activity has only produced less than one-half

of one percent of federal revenues, an average of 0.45 percent over the past decade (INEGI, 2009). To understand the privileged position of the state in terms of economic activity and expenditure without the concomitant revenue, first is an explanation of the federal-state articulation followed by the state to municipal cascade.

QR State

In 1982 with the creation of the National System of Fiscal Coordination, agreement was reached centralizing tax collection and redistribution in order to avoid double taxation and evasion. From 1978 when transfers were almost nil, over 90 and 75 percent of state and municipal income respectively are now federal transfers (Ahmad et al., 2007), the highest of all OECD counties with the exception of Chile (INAFED, 2008a).

The federal revenue collected nation-wide combines in a fund called Participable Federal Receipts (*Recaudación Federal Participable - RFP*). Of the total RFP, 20 percent is redistributed to the 32 federal entities as non-earmarked transfers based on a published formula that has changed over time. Prior to 2008, 20 percent of RFP was redistributed based on a simple formula of 45.17 percent population, 45.17 percent local federal tax collection and then the inverse of the above criteria for the remainder (9.66 percent) as an equalization to poorer, more populated states.[13] There were three small contingency funds additionally that totalled 2.25 percent of the RFP (INAFED, 2008b; Sobarzo, 2003). Of this 20 percent non-earmarked transfer, at least one-fifth (or 4 percent of the total sub-national funds) must be transferred to the municipalities. Despite the attempt to equalize states, petroleum-poor, densely-populated states remained at a disadvantage. Therefore the formula was drastically modified in 2007 and applied as of 2008. The new formula is based on state GDP growth (60 percent), improvement in local tax effort over three years (30

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[13] Some funds were used exceptionally for beach nourishment following Hurricane Wilma (pers. comm. SEDETUR July, 2011).

percent) and local tax collection (10 percent). And again, one-fifth must be transferred to the municipalities. However, some states still remain at a disadvantage. Transfers are insufficiently progressive because poorer states, mostly agricultural, require more resources for water and roads but cannot simply increase taxes on an already marginalized population. Moreover, sub-national taxes such as property and car licensing are income inelastic and if unaffordable promote urban migration (Quigley, 2008) increasing pressure on densely populated urban areas. One attempt to redress the imbalance is a special compensation fund (*Fondo de Compensación*) in which only the poorest states participate. For example, the state of Chiapas, the poorest in terms of GDP per capita, received 13.1 percent of this fund in 2008 (INAFED, 2008b: 62- 63).

Despite economic wealth, the rich states like QR are as highly dependent on federal transfers as poor, disadvantaged states like Chiapas. Excluding the Federal District[14], the national average between 1998 and 2004 is 6 percent state generation and 94 percent transfers. Relatively wealthy QR had the third highest 'independence' at 11 to 12 percent state generation to 89 percent federal transfers (Cabrera Castellanos and Lozano Cortés, 2010b: 31-32) compared to a national average of 8 percent local and 92 percent federal transfers (IMCO, 2011).

Otherwise said, even relatively independent QR finances 90 percent of its budget from federal transfers because of insufficient sub-national taxes[15] and local low tax effort. The following table better illustrates the sources and cascading of the all-important federal revenues to state to municipal levels.

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[14] The concentration in the Federal District of population and taxes, distorts national averages when DF is included.

[15] As a comparison, Mexico collects 0.6 percent of GDP in subnational taxes while the OECD average is 6 percent of GDP, ten times that of Mexico (IMCO, 2011: 24).

Table 3: Revenue Sources from Federal to State to Municipal

REVENUE		
FEDERAL	STATE	MUNICIPAL
Corporate Income Tax	<u>TRANSFERS</u> from Federal Government:	<u>TRANSFERS</u> from FEDERAL Govt.
IETU - control tax (from 2008)	➢ Federal Transfers Non-Earmarked	VIA THE STATE:
Personal Income Tax	➢ Federal Transfers Earmarked	➢ Federal Transfers Non-earmarked
Value Added Tax	➢ Federal Incentives *Incentivos*	➢ Federal Transfers Earmarked
Asset Tax (1989- 2007)	<u>LOCAL GENERATION</u>:	<u>LOCAL GENERATION</u>:
Petroleum Extraction Tax	Payroll Tax (2%)	Property Tax
Excise Tax	Property Transfer Tax	Property Transfer Tax
Custom Duties	Tax on Vehicles > 10 yrs old	Fees for water
Tax on New Cars	Hotel Tax (2-3%)	Local licensing and permits
Tax on Car Licenses	Land Use Tax	Indirect Tax on Commerce & Industry
Misc.	Education Tax	
	Rates and licensing of public services	
	Indirect Tax on Commerce & Industry	

(Reproduced and translated from Lozano Cortés and Cabrera Castellanos, 2010: 104-106)

The above mentioned incentives (*incentivos*) are federal taxes that are wholly administered and retained by the states that collect them. These include federal tax on new cars and car licensing, the portion of the excise taxes on petroleum products consumed within the state, and the small and medium business corporate income tax and VAT. For states on the coast the federal concession on oceanfront property, ZOFEMAT, is also a local and important incentive especially for states like QR which has 865 km of coastline.

<u>Federal Taxes and Transfers</u>

Considering the enormous dependence on federal transfers for the bulk of sub-national budgets, the real question is whether the economic activities, such as commerce and tourism, within a locality such as the state of QR, generate and collect sufficient federal taxes, especially CIT, PIT and VAT, to cover or exceed the amounts returned to the locality in earmarked and non-earmarked transfers. Otherwise said, in the years following the massive economic expenditures for infrastructure, has there been a return on the initial and ongoing capital expenditure allowing for development of other industries and/or regions?

To answer this question, I analyzed federal tax collections within the state and then federal transfers.

As to federal tax collections, they have lagged far behind growth of QR population, GDP and even state tax collections.

Table 4: QR Population, GDP, State Tax Collection and Proportion of Federal Tax Collection to National

Quintana Roo	Population to Total Popn	Per-centage Natl GDP	QR's Proportion of Total State-Generated Revenue nation-wide.	Percentage Federal Collection to Total
1970	0.19%	0.18%	0.46%	
1975	0.25%	0.34%	0.47%	
1980	0.34%	0.40%	0.46%	
1985	0.47%	0.51%	0.73%	**0.14%**
1988		0.72%	0.75%	**0.27%**
1990	0.59%		0.81%	
1995	0.77%	1.23%	0.92%	**0.31%**
2000	0.90%	1.40%	1.29%	**0.42%**
2005	1.10%	1.63%	1.46%	**0.47%**

(See Appendix 4 for more information. Own compilation from various INEGI sources such as INEGI, 1985a, 1996, 2011b)

While QR population and GDP rose from 0.50 percent of national and QR provided 0.73 percent of all state-generated revenue in 1985, the state provided only 0.14 percent of all federal taxes – less than one-third of its GDP contribution. Notably the disparity in proportion has remained constant at one third for more that two decades. Otherwise said, the gap between potential collections to actual while gross amounts of lost revenue increases as Figure 10 below clearly demonstrates.

Figure 10: QR's Federal Tax Collection to State GDP and Population 1970-2010
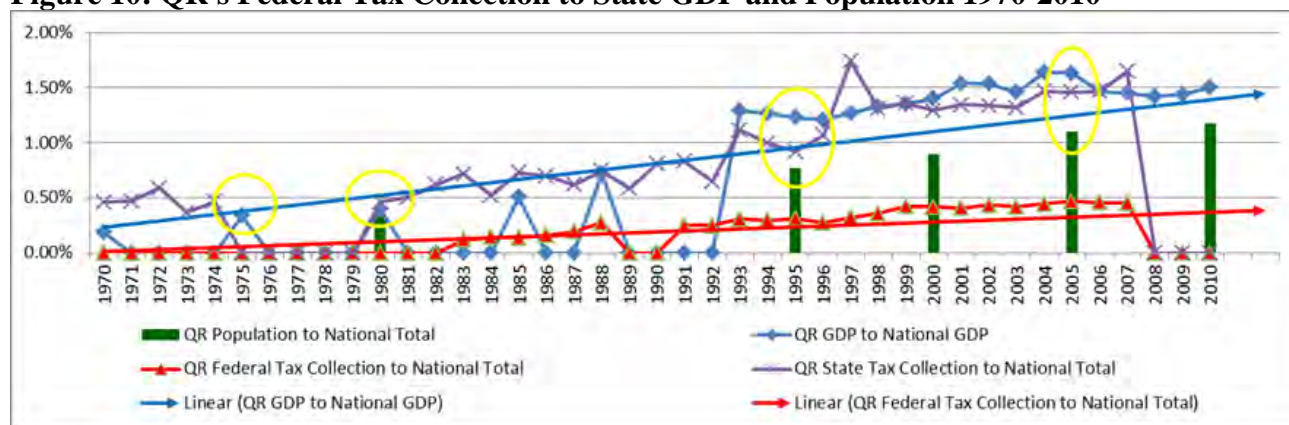
(See Appendix 4 for more information. Own compilation from various INEGI sources such as INEGI, 1985a, 1996, 2011b)

Federal collections (Figure 10 in red lines) are one-third of GDP and population (Figure 10 in blue line). In 2007, the federal tax collection within QR state of US $750 million was arguably one-third of potential federal taxes. This finding is also supported by a study of state tax effort. Sobarza (2003) conducted an important study using census and household data to estimate state effort in terms of both federal and state tax collection. CIT generated per state was estimated based on state GDP and calculated back to the state's estimated corporate tax base. The ranking of QR for the most important federal and state taxes based on tax collection to GDP per state for each major tax was as follows:

Table 5: QR's Ranking in Federal Tax Effort

	QR	National Ave	QR Rank
FEDERAL			Out of 32
PIT	5.46%	3.38%	8
CIT	**2.41%**	**3.56%**	**18**
VAT	**9.39%**	**10.20%**	**15**
Excise tax	596.72%	66.10%	2
New Vehicles	0.11%	0.08%	4

Note: Baja California Sur is #1

Reproduced from Sobarzo, 2003. Calculations based on the difference between actual tax base and collections.

Table 5 shows that although QR ranks above the national average in the collection of PIT, it is 18th in terms of CIT and 15th in terms of VAT, the two largest sources of federal

revenues. This low tax effort is important considering that nationally federal taxes have provide 91 to 95 percent of the non-petroleum revenue (SCHP, 2011) and for the past two decades despite new forms of sub-national revenues such as hotel taxes (Figure 11).

Figure 11: Revenue Generation by Government Level 1995-2009
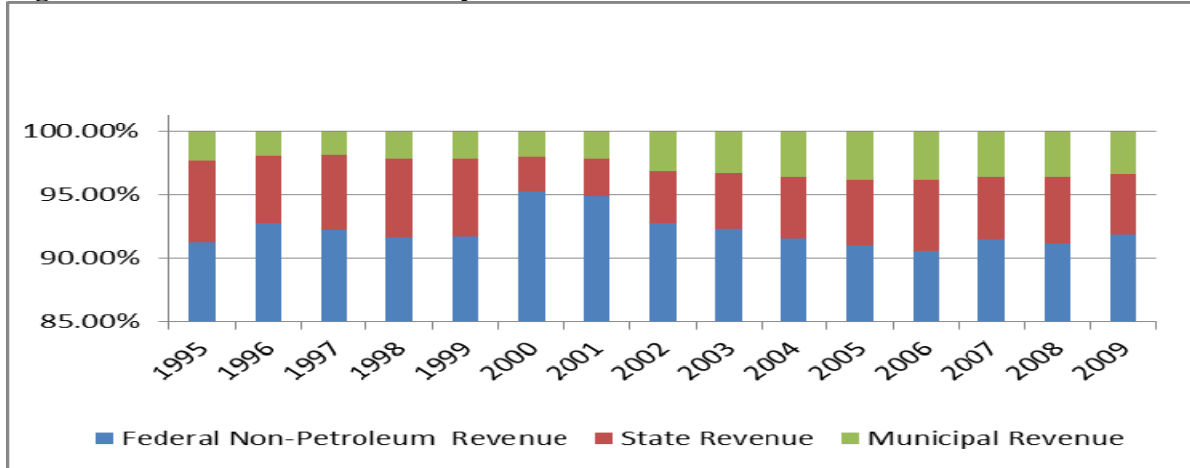
(See Appendix 5 for more information. Own compilation from: INEGI, 2001; INEGI, 2005b, 2006, 2010b, 2011a, 2011b).

Federal transfers then provide the bulk of each state's budgets (Figure 11) even for QR where the proportion transferred to the state represents 90 percent of its annual budget. Deconstructing QR's public accounts over three decades (Figure 12) demonstrates the fluctuation in revenue sources that has stabilized since 1995 when the inter-governmental transfer formulas and earmarked transfers became more transparent.

Figure 12: QR's Sources of Revenue 1970-2007
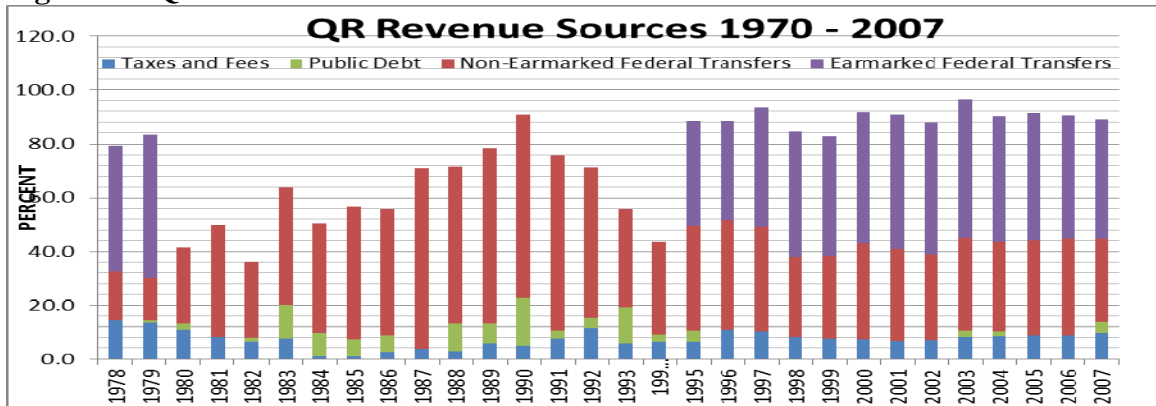
(See Appendix 6 for more information. Own compilation from: INEGI, 2001; INEGI, 2005b, 2006, 2010b, 2011a); * 1994 shows an odd third-party account with 43 percent of 1994 revenue.

QR Net Revenue: Federal Collections less Transfers

      Since QR´s tax effort is notably low (an estimated one-third of its potential) and the

state is highly dependent on federal transfers for 90 percent of its budget, do collections at

least cover transfers? Although the findings in Figure 13 must be treated with caution

because of income tax jurisdictions, it is notable that relatively wealthy QR is a net per

capita beneficiary far above its collection.

**Figure 13: QR's Total and Per Capita Federal Tax Collections Minus Federal
Transfers 1984-2007**
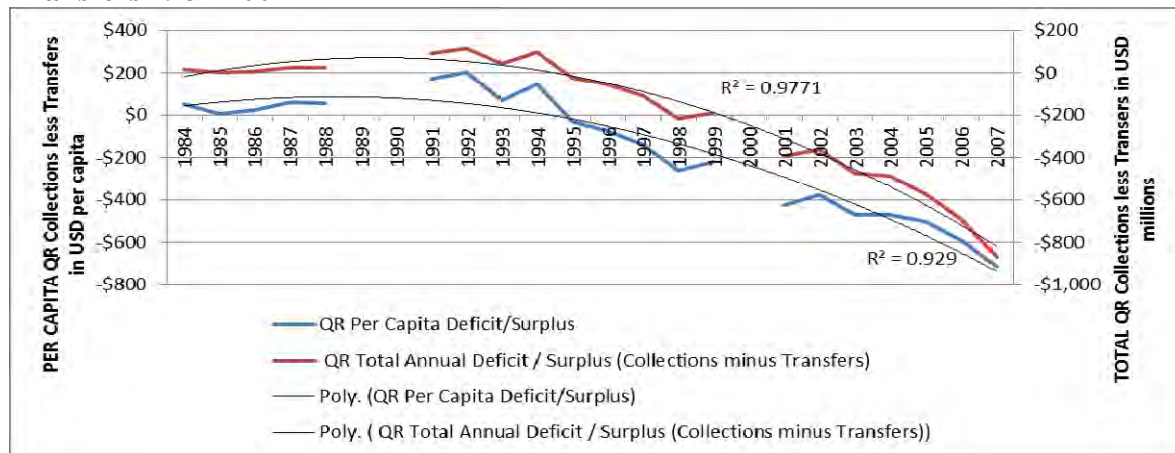
(See Appendix 4 – Part A for more information in Mexican pesos and US Dollars as well as data
sources.)

As CIT is paid in the jurisdictions of corporate head offices, it is fair to assume that when

collections minus transfers near zero, QR is returning some of its wealth to the rest of the

country for further projects[16]. In other words, QR is reimbursing initial and ongoing

tourism infrastructural investment and 'turning a profit' per se, when the graph is greater

than zero (although the exact amounts cannot be known). If this assumption is fair, the

numbers demonstrate that QR was profitable per capita until 1995 and in gross terms until

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[16] Because CIT is accounted for in the federal entity where it is paid, the taxes generated in locations such as
Cancún are not reflected within the state if the head office is located elsewhere. For example, in 2000 the
Federal District had a GDP of 23 percent yet collected 54 percent of nationwide PIT and 47 percent of VAT
according to official public finance documents. Adjusting for these distortions DF is estimated to have
contributed 15 percent and 7 percent respectively (Sobarzo, 2003).

2000. As illustrated in Figure 14, QR and its mono-industry tourism are now a drain on critical federal resources to the amount of $712 per capita in 2010 and growing.

Figure 14: QR Per Capita Net Deficit or Surplus Payments from Federal Tax Collections and Transfers 1983-2007
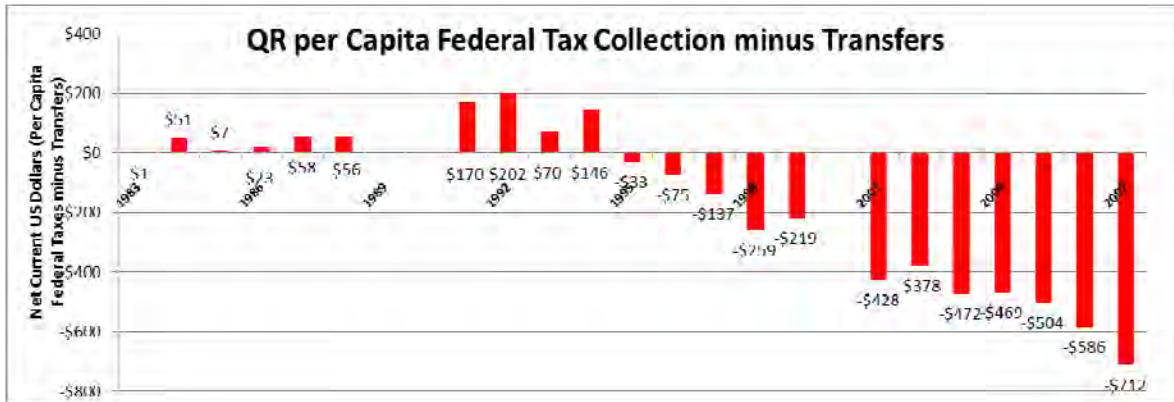
(See Appendix 4 – Part A for details on the calculation in Mexican pesos and US Dollars as well as data sources.)

In short, QR is highly dependent on federal transfers to the finance 90 percent of its budget yet collects only one-third of its productive capacity. Two possible explanations could be transfer pricing agreements and low tax effort because of centralized collection.

> Even when tourist services are provided by large, easily taxable organizations (e.g., deluxe hotels), it is often difficult to levy taxes effectively in part because of the usual problems developing countries encounter in taxing international businesses (e.g., transfer pricing) and in part because all too often governments have granted such organizations generous tax incentives. (Bird, 1992: 1149)

To the ease of eluding taxes through transfer pricing agreements is added the centralized tax collection combined with decentralized program delivery which allows local governments to take credit for services provided by ear-marked federal program funds. Slackening sub-national collections appeases the local electorate and helps to ensure re-election of members of their own parties (Ahmad et al., 2007; Broid Krauze, 2010; Lozano Cortés and Cabrera Castellanos, 2010; Martinez-Vazquez, 2008; Sour, 2007). These two explanations will be explored further in Expenditure Analysis and in Private Investment.

QR State Public Finance

      The Fiscal Coordination Law prevents double taxation by indicating what taxes and rates the states are authorized to collect. Although the law authorizes more than ten possible state taxes, QR only collects four: payroll taxes (*impuesto sobre nomina*), hotel tax (*impuesto sobre hospedaje*), tax on the sale of properties (*enajenación de bienes inmuebles*) and professional services (*servicios profesionales*) (Cabrera Castellanos and Lozano Cortés, 2010b). Of the 32 federal entities, QR ranked one of the lowest in terms of application of sub-national taxes. The highest ranked was Guerrero state (Acapulco and important industrial cities) applying as many as nine of the ten plus taxes allowed. Conversely, the lowest ranked were the states of Guanajuato and Campeche that only apply three (Sobarzo, 2003). The most important state taxes for all states are payroll taxes and hotel tax.

      Payroll taxes were first introduced in 1975. Since 1975 when only two states collected payroll taxes, by 1995 twenty-two states were collecting payroll taxes. Although hotel taxes were legislated in 1995, few states introduced them that year. QR started collecting hotel taxes in 1999. And by 2005, thirty of the thirty-one states were collecting both payroll and hotel tax[17] (Cabrera Castellanos and Lozano Cortés, 2010b: 35). As pertains to QR, from an average of US $12 million, QR's income from hotel tax has tripled within a decade to US $35 million as the following chart shows:

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[17] Vehicle tax (*tenencia*) is one of the most important sources of state revenue but is officially a federal tax which is granted 100 percent to the states. Therefore the sum of all *tenencia* collected is noted in the federal budget but neither collected nor received at the federal level. On 1 January, 2012 *tenencia* becomes another state tax.

Figure 15: 2000 – 2010 QR Cumulated Hotel and Payroll Taxes 2000-2010

(Own compilation from sources QR, 2004, 2005, 2006, 2007, 2008, 2009, 2010)
*As of 2010, hotel tax increased from 2 percent to 3 percent and VAT from 10 to 11 percent; in 2005 there was a drop following the destruction caused by Hurricane Wilma.

Continuing with Sobarzo´s (2003) analysis (Table 6), he demonstrates that unlike federal tax collection, QR state is highly effective in terms of hotel, payroll and excise taxes (IEPS).

Table 6: QR's Rank in State Tax Effort

	QR	National Ave	QR Rank
Vehicle Licensing	0.85%	0.50%	3
Payroll Taxes	1.02%	0.66%	2
Hotel Tax	2.01%	1.10%	4
Entertainment	0.00%	0.02%	15
Lotteries	Municipal		
Other	0.01%	0.05%	27

Note: Campeche is #1
Note: Baja California Sur, Coahuila, Nuevo Leon are 1,2 and 3 respectively

(Reproduced from: Sobarzo, 2003)

Although effective in hotel tax collection, it is notable that QR with the most important beach resorts in the country and the world only ranks fourth in hotel taxes behind other states and even industry-focused states such as Nuevo Leon (Monterrey), the most important northern industrial city attracting mostly business travellers.

However, it could be argued that QR with its numerous hotels and personnel, does not require other taxes as these two alone account for 90 percent of all QR state taxes

collected (QR, 2010). But payroll taxes cover less than 5 percent of QR´s annual budget and the combination of these two taxes as a proportion of total state-generated revenue has been extremely volatile as Figure 16 shows:

Figure 16: 1970-2006 QR state taxes as a proportion of total state-generated revenue
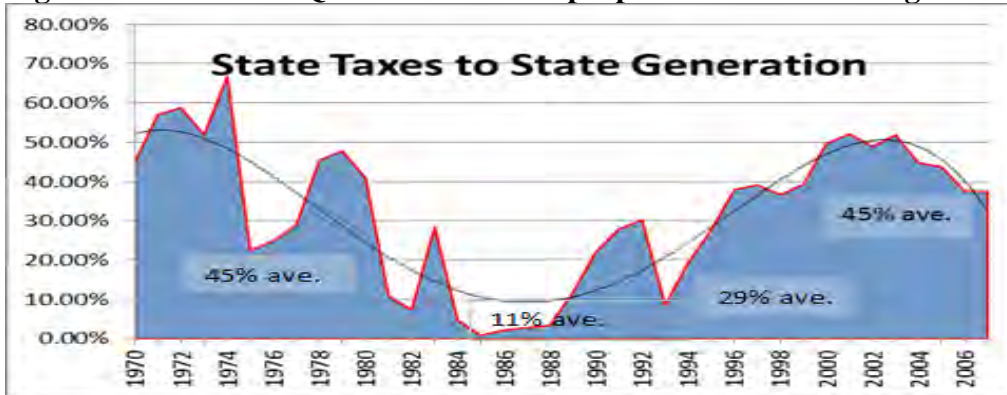
(See Appendix 6 for more information and data sources.)

From an average of 45 percent of total state generation in the 1970s, state taxes to total state-generated revenue descended to an average of 11 percent in the 80s, returned to 29 percent in the 90s and now, with the introduction of lodging taxes in addition to payroll taxes, has returned to 45 percent but appears to be declining again as Figure 16 shows. The steady rise over four decades in population, employment, hotel rooms and tourists makes the observed volatility and renewed decline incongruous with this growth and requires more detailed analysis of politcal pressures and investment incentives that are outside the scope of this study.

While payroll taxes are not earmarked, hotel taxes are legislated to be used for state tourism promotion administered by the state tourism ministry and five tourism promotion trusts corresponding to the five key municipalities: Othón P. Blanco, Cozumel, Isla Mujeres, Solidaridad and BJ. Because of the location of the majority of the hotels, the last two trusts receive 85 percent of the hotel taxes collected for tourism promotion.

To summarize, federally QR is now a net beneficiary per capita of federal funds. As BJ houses 50 percent of QR's population, it receives a large proportion of the funds. At the state level, payroll taxes are volatile and hotel taxes are ear-marked by the state for tourism promotion and services through the ministry of Tourism Development (*Secretaría de Desarollo Turístico - SEDETUR*). The total received by the municipality is the topic of the next section, the most populous and economically active municipality in QR, and one Mexico´s wealthiest municipalities.

Benito Juarez (BJ) Municipality

Within QR, the municipality of BJ is the most economically active yet is geographically small. It is located in the north of the state, bounded by the municipality of Isla Mujeres to the north, Lázaro Cárdenas to the west, Solidaridad (Playa del Carmen) to the south, and the Caribbean to the east. BJ covers 2,100 km² of the state's 42,361 km² therefore is less than 5 percent of QR state. BJ now houses 49.9 percent of the state's population, offers 30 of the 44 public markets, and consumes one-half of the state's electricity (INEGI, 2011b). The Cancún airport is the second busiest airport in Mexico after Mexico City and the busiest in terms of international passengers. This high level of activity and population growth is reflected in BJ's overall budget. From an average per annum of US $7 million ($76 per person) in the 1980s to US $40 million ($140 per person) in the 1990s to US $123 million ($221 per person) between 2000 and 2009.

Figure 17: BJ Annual Budget 1980-2010
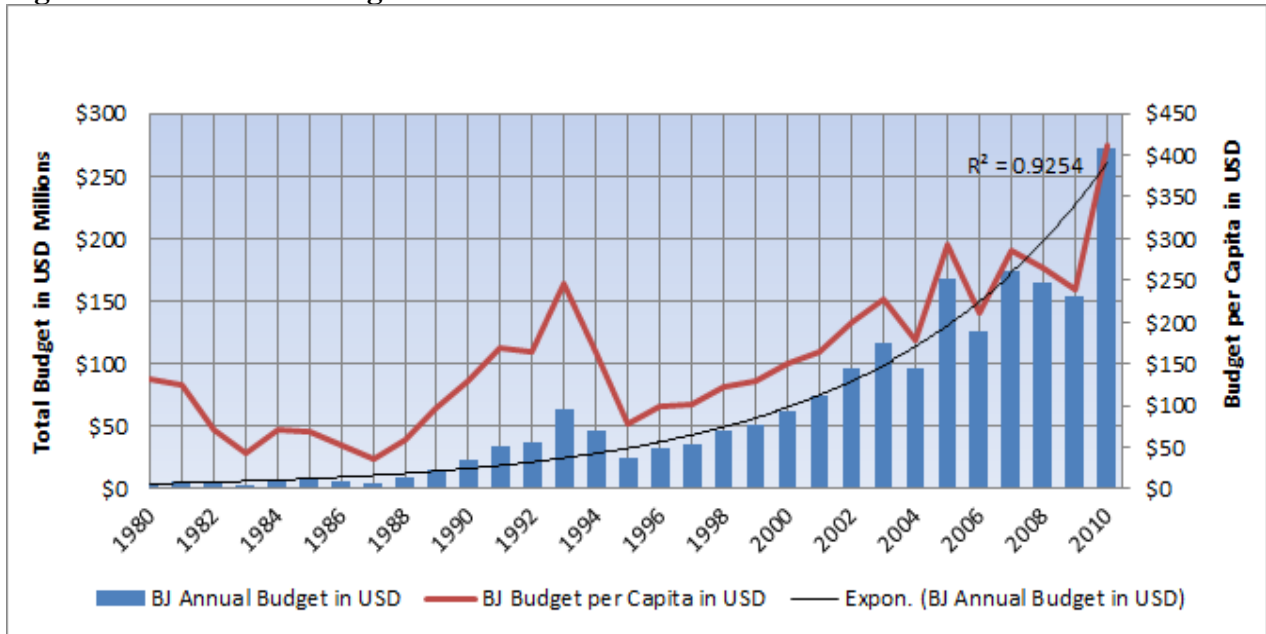
(See Appendix 7 for more information and data sources.)

Table 7: BJ Budget Per Capita 1980-2010

Benito Juarez	1980	1985	1990	1995	2000	2005	2010
Annual Revenue (US millions)	$ 4. 88	$ 7.256	$ 22.79	$ 24.39	$ 62.74	$ 167.97	$ 266.59
Population (thousands)	37.19	100.0 (estd)	176.8	311.7	419.8	573.0	661.2
Revenue per Capita	$131	$ 73	$ 129	$ 78	$ 149	$ 293	$403
Percent Change		- 44%	102 %	- 40%	91%	97%	36%

(See Appendix 7 for more information and data sources.)

Despite high levels of economic activity and being one of the five richest municipalities in the country in terms of locally-generated revenue (Livier de la O, 2011), BJ declared bankruptcy in 2011. To understand the events that lead to bankruptcy, it is important to understand how municipal resources are generated through a combination of transfers, taxes and borrowing, the last of which explains the sharp rise in the 2010 budget and subsequent bankruptcy.

Revenue Source: Transfers

Of the RFP apportioned to the states, each state has its own formula to subdivide federal transfers between the state and municipal coffers. Prior to 2008, over 90 percent of the formula for the federal transfers to municipalities was based on population plus property tax collections (INAFED, 2008a). However, this formula favoured already wealthy, well-developed states such as Nuevo Leon with labour-intensive industries and QR with high relatively high property taxes. Of the RFP, federal law requires that 20 percent minimum be transferred to the municipalities but Campeche state transfers 24 percent for example. As for QR, since 2008 the municipal participable fund (MPF) in QR is calculated as follows:

Table 8: Division of State and Municipal Transfers to determine the total MPF for distribution

Name	Allotted to MPF	Detail
Fortamun	100%	Municipal strengthening
FGP	20%	Non-earmarked funds returned to the states from federal taxes. In other words, QR retains 80 percent to fulfill its obligations.
IEPS	20%	Excise taxes on alcohol, etc. Again, the state government of QR retains 80 percent transferred from the federal government
FOFIE*	20 %	*Fondo de Fiscalización* is a reserve fund of 1.25% of all taxes collected federally. It is to be used to encourage tax compliance. Although 100 percent is to be transferred to the municipalities, the states receiving FOFIE only transfer 20 percent (INAFED, 2008a).
ISAN and Tenencia	20% each	Taxes on new vehicles and auto licensing. QR retains 80 percent of this federal tax and redistributes 20 percent among the municipalities

(Sources: INAFED, 2008a; Lozano Cortés and Cabrera Castellanos, 2010)
* Another example of differences is that the adjoining states of Campeche and Yucatan do not have a reserve fund FOFIE.

In addition to differing formulas in each state to determine its MPF, each state differs in its distribution formula of the MPF among the municipalities. In QR the division

amongst the eight municipalities[18] is based on population (45 percent); equal parts amongst municipalities (25 percent), property taxes (5 percent), inverse of surface area (15 percent), and inverse of water revenue (10 percent) (INAFED, 2008b: 119, 101, 127). Otherwise said, the municipality of BJ is hugely favoured by this formula because it contains one-half of QR's population, collects the majority of property taxes and is geographically small. As Figure 18 shows, in the early 80s BJ was equally dependent on transfers as the other municipalities with 70 percent of total budget. During those years, BJ received 38 percent of the MPF. In the late 80s, BJ received 55 percent of the MFP but those monies represented 44 percent of its budget. The height of BJ's wealth was in the early 90s when it received 61.5 percent of the MPF but that was only 31 percent of its budget as local tax collection peaked at 44 percent of overall budget. Observe also that in 1993, per capita budget peaked at US $150, a level revisited only in the past five years and now based on borrowing rather than tax effort. Since 1995, BJ´s tax efficiency has declined to 41 percent, then 37 percent and recently to 34 percent of overall budgets, while its proportion of the MPF remains stable at 34 percent over the past fifteen years (QR, 2004, 2010).

Figure 18: QR Municipal Revenue from Transfers, Tax Generation and Fee Collection 1980-2009
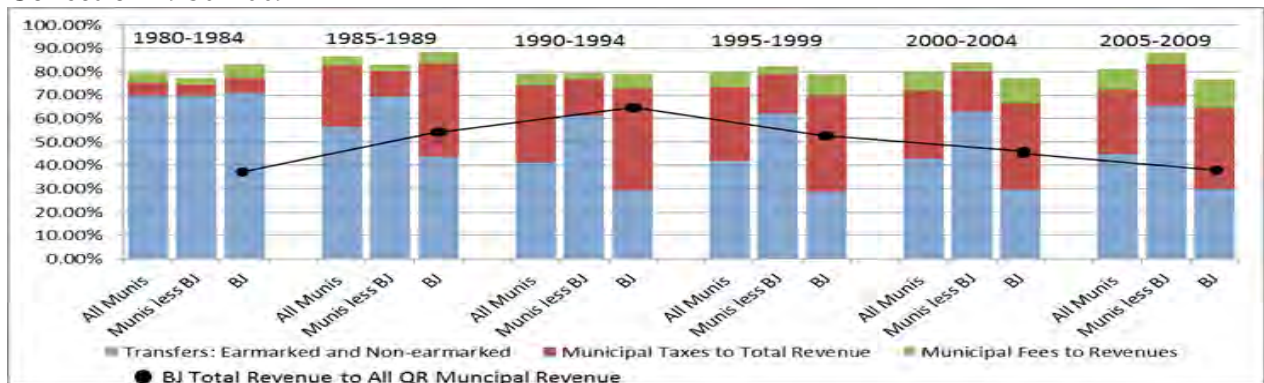
(Own compilation from INEGI, 1984a, 1986a, 1987a, 1993a, 1998b)

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[18] In 2011, QR subdivided two municipalities adding two new municipalities for a total of ten: Bacalar and Tulum.

Nationally, in 2007 the average amount of non-earmarked funds per capita transferred to the states was US $275 while municipal sources provided only US $58, less than 20 percent. Although BJ municipal administration appears to be less efficient than in the past, unlike 85 percent of Mexico's municipalities that depend on federal transfers for two-thirds or more of their revenue (INAFED, 2008a: 15), BJ depends on these transfers for only one-third of its budget. In contrast, seven other QR municipalities are still at over 60 percent. Although previously more favoured, it is notable that BJ is still favourably treated under the new formula thanks to its dense, generally high-income waterfront properties. This combined with the highest property taxes in the country after Solidaridad (Playa del Carmen) and numerous high-rise luxury hotels stretching along the 57 kms coastline (see ZOFEMAT above) makes BJ one of the five wealthiest of the 2,464 municipalities in Mexico.

Revenue Source: Taxes

Of locally-collected revenue, property taxes and water fees are the largest revenue sources. The municipalities that collect the most property tax are those that are densely urbanized, have high income levels and are located on the coast (Broid Krauze, 2010), as is the case of BJ. In contrast to almost all of Mexico's municipalities, since 1990 BJ generates 50 percent of its own budget through taxes (*impuestos*), permits and licensing (*derechos*), products (*productos*), charges (*aprovechamientos*) and other which are:

Table 9: Spanish-English Translation of Municipal Revenue Sources

Spanish	English	Detail
Impuestos	Taxes	Property: paid annually by property owners as a proportion of property value and property use (commercial, residential, land); new subdivisions and property registration.
Derechos	Fees, Permits and Licenses (shortened to	Water, both installation and consumption; Permits for building construction; Permits for Land Use: residential, commercial, markets, cemeteries and other public areas; Licenses: birth, death, professional, etc.; Vehicle Towing

	Fees)	and impound.
Productos	Sale of Goods and Services (shortened to **Products**)	Sale, rental or use of property or equipment belonging to the municipality such as markets, meeting halls, parks and cemeteries as well as the sale income from municipal dump waste products; Recuperation and sale of abandoned property; Returns on capital investment.
Approvechamientos: Recargos, Multas, Rezagos, Gastos	Fines and Penalties (hereafter **Fines**)	*Recargos* are interest payments on overdue accounts; *Multas* are fines; *Rezagos* are late fees and *Gastos* are collection costs.

Translation by the author.

Local taxes are comprised almost exclusively of property taxes and are the most important independent source of municipal revenue. However, the municipality is not independent of the state legislature as in some countries as municipalities require legislative approval of property tax rates.

The following graph shows the evolution of BJ revenue over thirty years.[19] Local tax collection is highly variable from a low of less than 10 percent in the early 80s, to a high of more than 50 percent one decade later, to 20-30 percent recently.

Figure 19: BJ's Proportion of Revenue from Taxes and from Fees 1980-2010
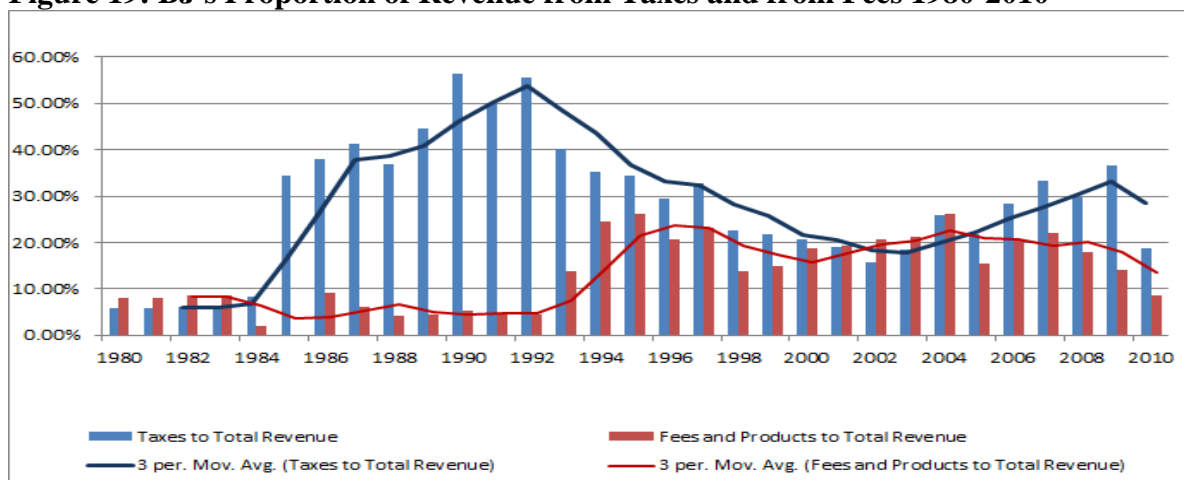
(See Appendix 7 for more information and data sources.)

Although some states introduced land registry laws more than one century ago, QR being a state only since 1972 introduced its land registry law (*Ley Catastral*) in 1975. The land registry indicates the property specifications including use, owner and valuation

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[19] QR state government began providing information on its municipal governments in 1978 but only itemized BJ municipality from 1980.

(INEGI, 2010a). Property listed at market value is relatively recent in QR. Previously property was taxed based on its location and use at rates determined by the QR legislature. In addition to one of the highest property tax rates in Mexico at an average of US $55 per resident (Broid Krauze, 2010).

An exceptional addition to BJ's tax collection is that from the hotels in the hotel zone. Unlike all other municipalities that must expend on municipal services in exchange for property taxes, BJ does not provide the infrastructure or maintenance in the 30 km hotel zone thanks to a special agreement with FONATUR (see following), yet can collect property taxes from the hotels. Despite these advantages and legislation total taxes to population show a serious drop from 1995 to 2005.

Figure 20: 1980 – 2010 BJ Tax Collection Total (mostly property) and Population Growth
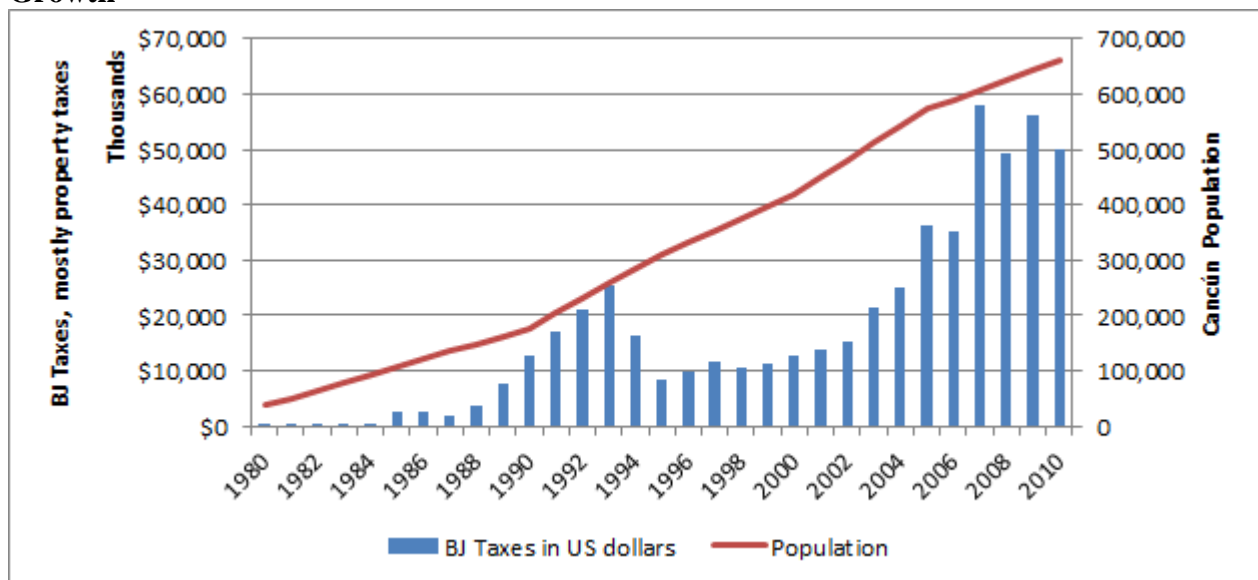
(See Appendix 7 for more information and data sources.)

During the decade from 1995-2005, in lieu of property taxes, fees contributed a larger portion of municipal revenue.

Revenue Source: Fees and Products

A recent newspaper article claimed that BJ´s most important non-tax municipal revenues come from building permits and increasingly land sales to cover immediate liquidity shortfalls (Martoccia, 2011b). This appears to be true for fees (water, etc.) but not for products (land rents and sales) as the following graph shows.

Figure 21: 1986-2010 BJ Collection of Fees and Products as a Percentage of Total Municipal Revenue
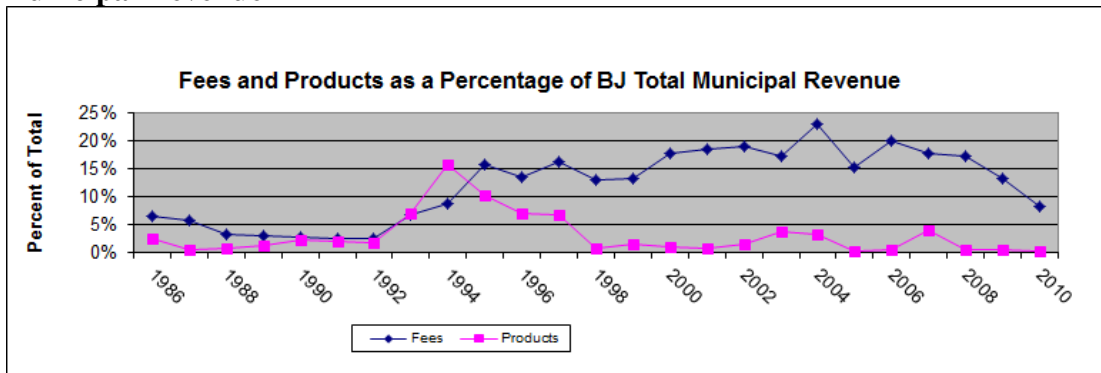
(See Appendix 7 for more information and data sources.)

Although products are historically a small portion of overall revenue, fees and licenses peaked at 25 percent of total revenue in 2004 but are now declining. The most important fees and licenses are those for construction. Therefore the growth in this revenue source corresponds to the construction of residences, badly needed in view of Cancún's population explosion and lagging far behind hotel construction. While this revenue helped to stabilize a drop in municipal revenue, an unreported revenue stream to the municipality worth the equivalent or more in property taxes was the maintenance of the hotel zone with federal funds by FONATUR. Since 1974, Cancún's 30 km. hotel zone maintenance is assured by by FONATUR with federal funds and therefore not accounted for in earmarked transfers or in the municipal budget. This is an additional expense for the federal government which eases pressure on the municipal budget.

Revenue Source: FONATUR

Cancún was built by Mexico's central bank, Banxico, between 1970 and 1974 through a trust fund called INFRATUR (see Part I). In 1974 INFRATUR was absorbed into the government as a government-owned corporation and renamed FONATUR to become the government's tourism investment arm, and in 1977, Mexico's tourism commission became a full ministry (CEFP, 2006). To ensure the maintenance of the integrally planned tourism centres, in 1976 FONATUR created Baja Mantenimiento y Operación, BMO S.A. de C.V. Maintenance of integrally planned centres such as Cancún's hotel zone includes roadways, water delivery, water treatment, rainwater runoff, gardens, public lighting, and security among others (FONATUR, 2011b). These responsibilities are usually the domain of municipalities and paid for from property taxes. Yet while the municipality of BJ collects property taxes, FONATUR with federal monies maintains the hotel zone. Following is a list of activities and approximations of investment at the expense of the federal government under the auspices of first INFRATUR and then FONATUR- BMO that have totalled US $1 billion or more (2010 dollars) to date:

Table 10: INFRATUR/FONATUR Investment in Cancún 1971-2010

1971-1973	In 2010 US (millions)	CANCUN PROJECT as follows:	
1972		IDB 21.5 million USD loan for infrastructure + 5000 hectares from feds	
1973	$255	CANCUN PROJECT Budget was MXP 469 million (1973 US $52 million) of which the IDB loan of US $21 million financed 40 percent and the federal government the remaining 60 percent or US $31 million. (2010 value is of initial investment is US $255 million, US Consumer Price Index.). See Part 1 for further explanation of the investment and Appendix for a copy of the Budgets from 1973.	
1974	n.d.	FONATUR is created from INFRATUR and Fogatur, and no longer under Banxico	
1975	n.d.	International airport opens	
1976	$77	Second IDB loan for USD 20 million for more infrastructure; Second	

		section airport-Kulkulkan road; Club Med built by INFRATUR/FONATUR opens
1977	$186	More credit for hotel construction, this time US $51.8 million
1982	n.d.	1st water treatment plant in Laguna Nichupté
1986	n.d.	Water treatment plant (El Rey) is completed; Treatment plant Pok Ta Pok is expanded
1987	n.d.	Gucumatz water treatment plant begins operation
1988	n.d.	FONATUR donates Convention Centre to QR government; Special fund for Cancun infrastructure reconstruction following Hurricane Gilberto
1990	n.d.	FONATUR sells the hotels Zazil-Há and Playa Linda as well as the golf course Pok Ta Pok
1991	n.d.	FONATUR sells the shopping centres Coral Negro and El Parian.
1993	n.d.	Dry waste plant is installed; FONATUR sells the dock terminal and dock at Playa Linda
1994	n.d.	FONATUR sells the hotel administered by Club Med
1996	n.d.	Identification of lagoon pollution; expansion of dry waste plant; 70 tonnes of daily waste is recycled into compost.
1997	n.d.	Completed Airport-Kukulcan avenue is donated to the city; Compost plant is built.
1999	$ 5	Bidding for Project Puerto Cancun (Tajamar); MXP 10.6 for University LaSalle and Tec overpass; MXP 26 million to complete 4 lane, 50 km. hotel zone - airport - city centre circuit (US $ 3.9 million)
1980-2010	$ 150	Estimated annual maintenance and (re)construction over thirty years (see below).
2000-2010	$56	Puerto Cancun - Tajamar construction - residential tourism infrastructure and other maintenance US$ 50
1970-2010	**$ 724 (2010)**	**Conservative estimate in 2010 US dollars (millions) of federal investment in Cancún by the federal agency of FONATUR.**

(Sources: Cuaderno Estadistico Municipal 1993; 1975 Figures from FONATUR historia in http://www.cancunlahistoria.org/cancun/fonatur_fechas.html; and(FONATUR, 2011a, 2011b).

BJ receives important unregistered benefits from a unique agreement with FONATUR through Baja Mantenimiento y Operación Ltd (BMO) that, with federal funds, maintains the 30 km hotel zone. BMO expends approximately US $5-6 million annually an unreported revenue stream equivalent to 10 percent of BJ's property taxes and 4 percent of total budget (see above Table 2 for BMO's budget). The municipality collects property taxes, water delivery fees and charges for construction permits without the concomitant

expenditure (with the exception of garbage collection) due to this special agreement dating back more than three decades.

Figure 22: FONATUR-BMO Annual Maintenance Expenditure in Cancún 2000-2006

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Fonatur-BMO Cancun Annual Maintence in US$	$7.17	$6.14	$7.03	$7.40	$5.53	$1.98	$4.39	$1.82	$6.48
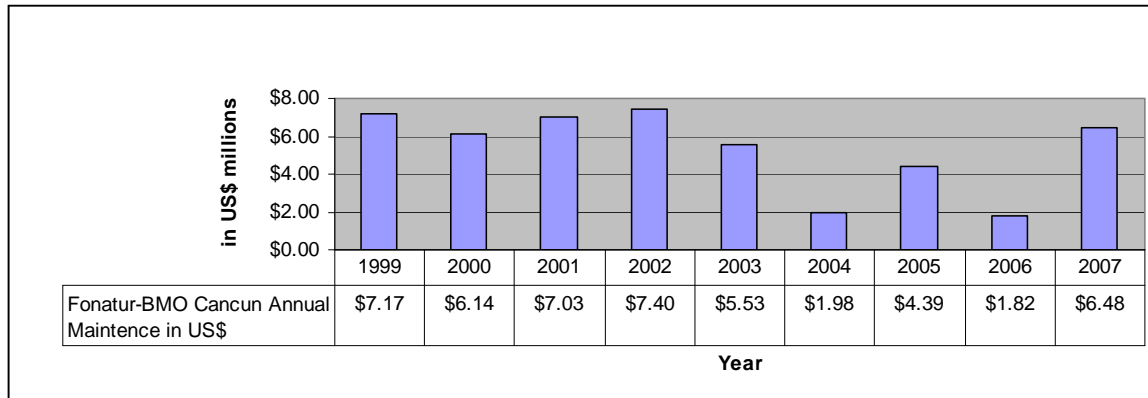
(Source: FONATUR, 2011a; FONATUR, 2011b)

Since 2000 FONATUR-BMO have invested more than US$ 50 million in the following projects in Cancún:

• Tajamar: Fifty hectare development of roads and utilities for an estimated 5,428 rooms of high density high-rise buildings (hotels and/or second residences) and an elevated water tank for 1400 m3 to serve over 16,000 inhabitants;

• Automatic sprinklers for hotel zone gardens;

• Repair of the four lane Nichupté Bridge between the hotel zone and the airport.

In short, the annual FONATUR-BMO maintenance needs to be added to the long-term capital investment for infraestructure of water, electricity, roads and airports. Irrespective of delivery, be it municipal, state or federal, all is paid for by taxes and fees, summarized following.

Summary
As I have shown, there are three levels that generate funds within the municipality of BJ:

✓ Federal taxes: Most important are income taxes and VAT, true for all the states. Exceptionally, BJ has three additional sources. First, it is the most important international airport and therefore generates the largest amount of departure taxes. Second, it has *Zofemat* resource tax on BJ's coast of 57 km of the 865 km in QR. Last but not least is the

FONATUR maintenance contribution which BJ does not need to disperse from municipal funds and therefore the equivalent of a revenue stream.

✓ State taxes: Most important are the payroll taxes and the hotel taxes which comprise more than 90 percent of state taxes collected and currently more than 40 percent of state-generated revenue. It is notable that the majority of hotel taxes were derived from BJ until 2000 as with much of the employment and therefore most of the payroll taxes. Payroll taxes have been volatile and hotel taxes are ear-marked for tourism promotion.

✓ Municipal taxes and fees: Local generation is derived from the four sources previously mentioned: taxes (mostly property), fees (mostly water), products including rental and sale of municipal property and *aprovechamientos* (fines, late fees and collection costs). Until 1998, federal earmarked funds were included in this last category and represented 85 percent or more of the amounts.

The above summary can be visualized as following:

Table 11: Summary of Tri-level Public Sector Revenue Generated in BJ

	FEDERAL GENERATION IN QR & BJ				QR STATE		BJ	
BJ to QR Popn	*Fed Taxes Collected* Ttl QR*	*Fed Taxes Attributable to BJ*	Est'd Dep Fees Cancun Airport	Zofemat	*Taxes, Fees, Products and other (net est'd earmarked 1970-1994)**	*QR REVENUE attributable to BJ*	Taxes, Fees, Products and other (net est'd earmarked 1970-1997)*	Public Sector Revenue attributable to BJ in USD MILLIONS

A <u>crude</u> estimate of the total of federal, state and municipal revenues attributable to BJ's resident population based on the aboved elements is as follows:

Figure 23: Estimated Federal, State and Municipal Revenues Attributable to BJ 1980-2010
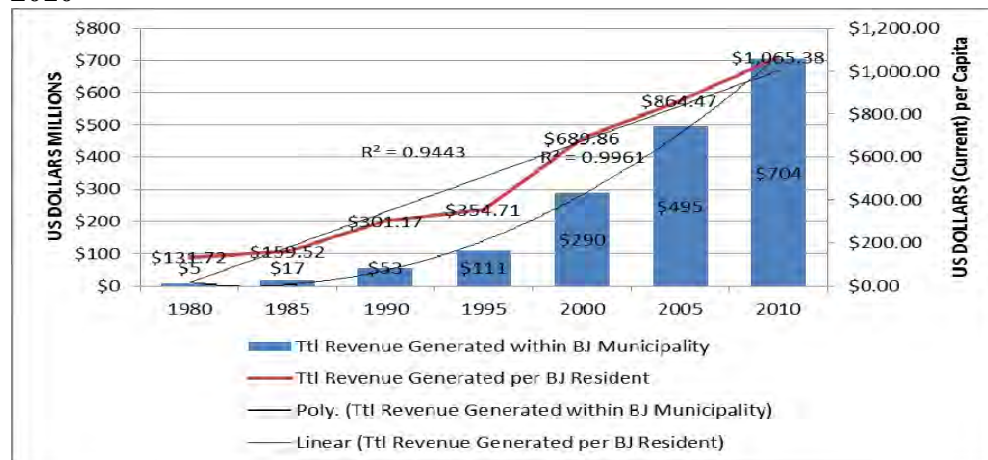
(Own compilation. See Appendices 6 and 7.)

Tax generated through federal, state and municipal taxes and fees as a gross amount is exponential. In addition to the municipal budget from property taxes, fees, licenses and transfers to the municipality, the state also has its own budget which is comprised of revenue from QR's portion of federal taxes (non-earmarked transfers); ear-marked transfers from federal government for federal programs to be administered by the state (earmarked transfers); state-generated revenue from state taxes, licenses and fees; and increasingly by debt. The average budget per QR resident was US $150 per year in the 80s, US $300 per year in the 90s and US $900 in the past decade. In simplistic terms, the sum of state and municipal budgets per BJ resident and per year was US $226 in the 80s, US $440 in the 90s and over US $1100 by the latter 00s. Although this appears a substantial amount per capita, it now is insufficient to pay for current services, capital infrastructure and social programs. Therefore debt is increasingly contracted which spirals the municipality into further financial difficulties as we will see in the next sections.

Expenditure Analysis

As is seen above, the municipality benefits from both obvious and obscure revenues and expenditures. The obvious include the annual municipal budget comprised of 45 percent federal funds plus the borrowing. The obscure and important unregistered revenues include FONATUR's investment and maintenance of the hotel zone worth $10 million per annum in the 90s and $5 million per annum since 2000. Also is the 2 percent hotel tax of which BJ can request one-fifth for local tourist infrastructure worth US $2 million annually. Last but not least, the airport, a federal responsibility, brings in more than 5 million passengers of which 35 percent still lodge in Cancún. So the question is the use of these fiscal resources. As with revenue which is generated by the three levels of government primarily from the tourism industry, the revenue is then expended based on legislated responsibilities which are as follows:

Table 12: Public Sector Responsibilities from Federal to State to Municipal in Mexico

FEDERAL	STATE	MUNICIPAL
RESPONSIBILITIES		
Federal Administration	State Administration	Municipal Administration
National Defence	State Infrastructure	Municipal Security
Communications	Public Security	Local Transportation, Roads, Parking
External Affairs and Commerce	Water Supply	Local Infrastructure
Irrigation	Public Libraries	Water Delivery, Sewage, Garbage
Motorways, Airports, Seaports	State Debt Service	Public Lighting
Federal and Border Policing	**Decentralized from Federal Govt are:**	Parks and Cemeteries
Internal and External Debt	• Health	Municipal Debt Service
	• Education	
	• Special Programs	
	• Anti-Poverty Program "Solidaridad"	
	• Other Development Agreements	
	• Special Police	
	• National Parks	

(Reproduced and translated from Lozano Cortés and Cabrera Castellanos, 2010: 104-106).

All three government levels have similar expenditures and among the states in Mexico show a similar distribution of expenditures which are: ear-marked federal programs (40 percent on average), personnel (25 percent on average), and public works with social programs (less than 8 percent) (Cabrera Castellanos and Lozano Cortés, 2010b: 38). Specifically, the state of QR is governed through a series of 16 main government ministries, 24 decentralized agencies and eight municipalities. The ministries range from planning to tourism. The decentralized agencies include post-secondary education such as the Universidad de Quintana Roo, adult literacy programs (IEEA) and social programs for women, children and housing (Lozano Cortés and Cabrera Castellanos, 2010). As with revenue, expenditures are increasingly decentralized and in fact have decentralized faster than revenue generation.

Figure 24: Change in Relative Federal, State and Municipal Expenditures 1997-2003
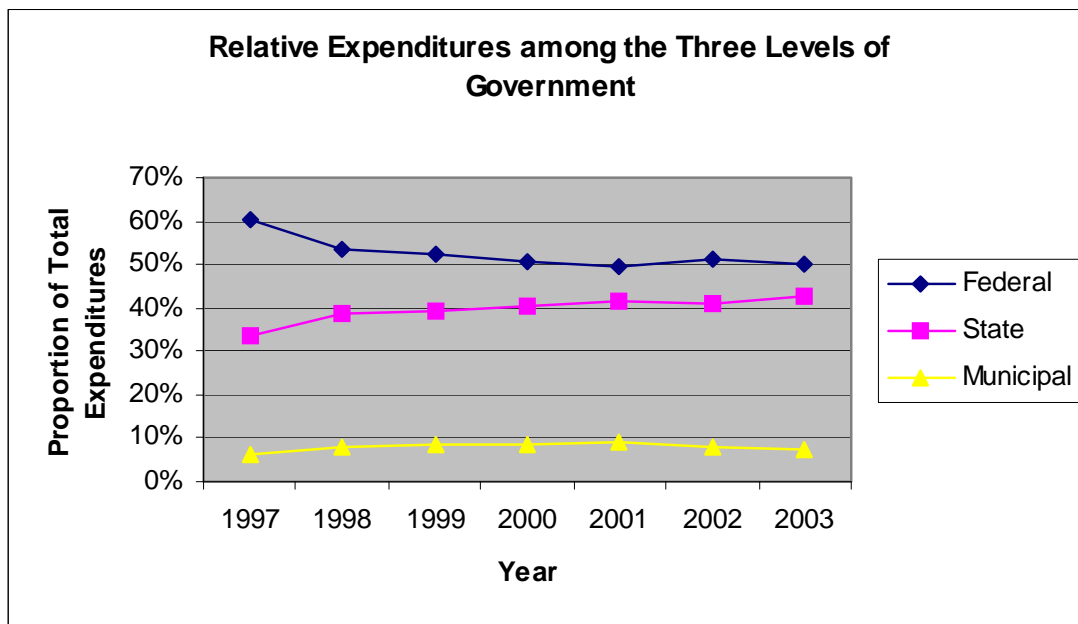
(Reproduced from data provided in Lozano Cortés and Cabrera Castellanos, 2010: 106-107)

Although federal and state are each at 45 percent of expenditure, and municipalities at 10 percent, as the overall resources are generated from federal taxes (90 percent for QR state and 60 percent from BJ municipality), the federal tax collection is a measure of self-

reliance. Rather than overlaps and overestimates, these amounts have gaps and are underestimates. However, the amounts approximate the level of overall direct and indirect resources received by tourism-dependent municipalities to promote the industry and assist their populations, the topic of the next section.

Federal

Federal taxes are returned to the state based on a formula to divide the federal participable fund (RFP). Part of these funds stay with the state and a portion flows to the previously eight, now ten, municipalities based on a formula particular to each state. Funds remain with the state to provide state level services that benefit the municipalities. In addition to a small portion of state taxes, mostly payroll and hotel, there are local taxes, mostly property, and fees. Cash flow for expenditure is augmented through debt to be used theoretically for capital, not current expenditure. Of interest here are the earmarked (*aportaciones*) and the non-earmarked (*participaciones*) funds from the federal government that flow back through the state. As can be seen in the following graph, the total returning to the state from federally-generated revenue is increasing exponentially. Returns to QR in earmarked and non-earmarked funds now far exceed the federal revenue generated. QR was self-reliant until the mid-90s but since then QR (with 80 percent of indirect and direct economic activity based on and around tourism) is now a drain on critical federal resources which means that BJ with 90 to 95 percent of tourism activity is more so. However, to be conservative, I continue with the estimate of 50 percent returns to the municipality as BJ houses, services and employs that proportion of QR's population.

Figure 25: BJ's Total Federal Burden 1983-2007
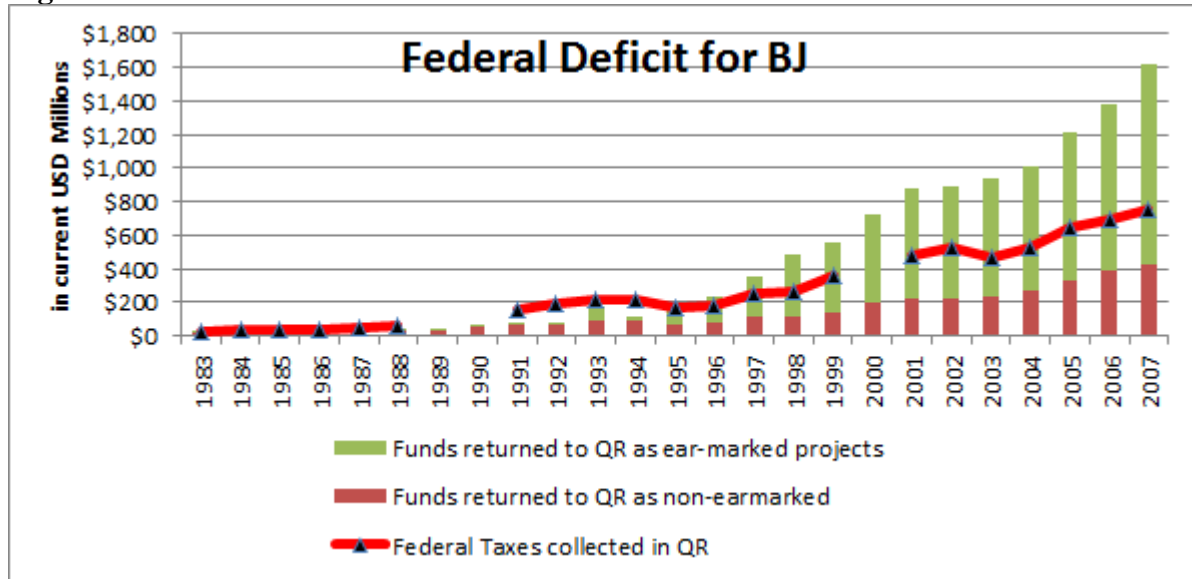
(See Appendix 4 for more details and data sources.)

The amount of federal resources the municipality absorbs is now double revenue generation[20]. Although this is a rough estimate of the BJ deficit caused by tourism, it is important to repeat that tax effort has increased, evasion and elusion have decreased, and new taxes such as a new tax floor, IETU, have been introduced. Hotel room-occupancy and tourism in BJ have flattened to 3 million tourists per year yet room construction continues although much slower. Moreover, tourism promotion remains the 'sacred cow' of Mexican commerce financed by 80 percent of the international departure taxes (the majority now generated by the Cancún airport), the totality of the hotel tax and a portion of the federal transfers based on economic growth. Equally important to stress is that the strongly correlated trend ($R^2 > 0.64$, see Footnote 11) is one of increasing transfers over and above federal tax collection year upon year at the rate of US $40 per BJ resident or an additional of $1.5 million per year.

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[20] Federal taxes collected per state are published to 2007. As of 2008, this information is now confidential and not available to the public.

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Figure 26: BJ's Total and Per Capita Per Net Deficit or Surplus Payments from Federal Tax Collections and Transfers 1983-2007
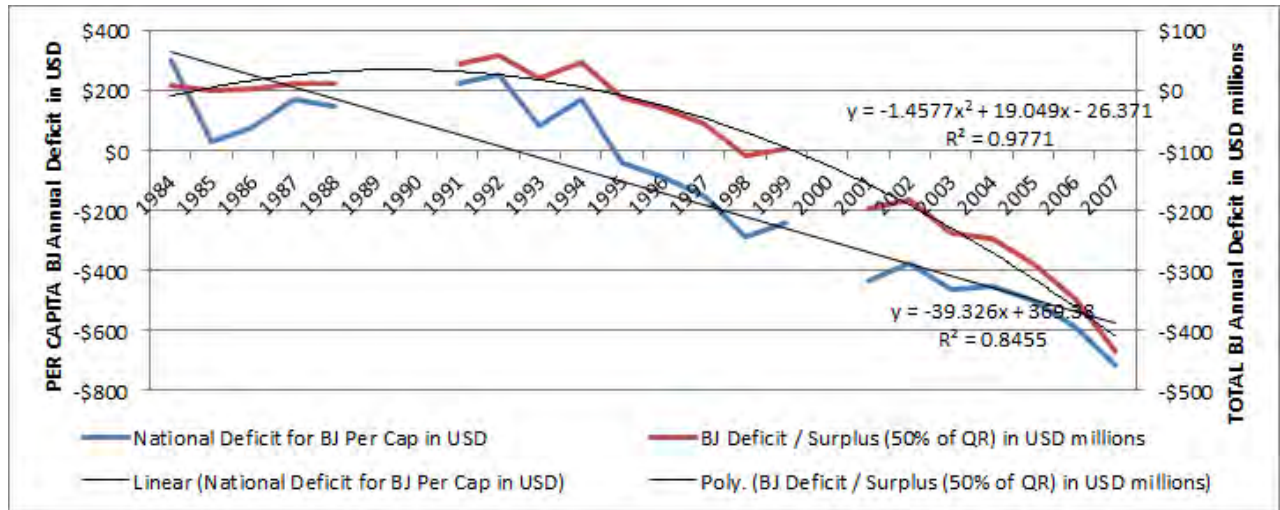
(See Appendix 4 for more details and data sources.)

Although many argue that Cancún is in the decline phase of its life cycle based on Butler's (1980) tourism area life-cycle (e.g. Moncada Jimenez, 2008; Vanegas Pérez, 2009), data and indicators outlined above demonstrate differently[21]. The average room rate and occupancy do not demonstrate signs of severe competition and eventual degradation as in the case of Acapulco. Instead, rates and occupancy are stable, airport arrivals continue to grow, and hotels are remodelling their installations, changing their business models to all inclusive and even building. Arguably Cancún is maturing and stabilizing as a destination and a major city but certainly not declining. The maturity and stability should make the area self-reliant, but this is not the case. Rather than spurring development through surplus tax revenue for other projects, tourism appears to be a severe burden and retarding development. To determine the veracity of this premise, it is important to analyze social outcomes especially in terms of the greatest contribution to well-being: housing, health and

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[21] Cancún does not demostrate Butler's Tourism Area Life Cycle Butler (1980) hypothesized that a destination is discovered and explored, and then develops slowly until maturity when it stagnates if not rejuventated. Although not the topic of this dissertation, Cancún demonstrates a different path. Firstly there was meteoric increase in rooms and occupancy from the mid-70s to the mid-90s. Rather than stagnation, Cancún shows tremendous resilence in terms of construction, occupancy and room rates, rather than decline as the theory would suggest.

education in BJ. But first is a look at BJ's municipal expenditure over the past three decades.

Municipal

In a recent and award-winning study, Broid-Krauze (2010) found important correlations between property tax and medium-term municipal human development. Federal transfers didn't appear to be significant in terms of well-being. However, federal transfers did impact the type of expenditure with ear-marked transfers correlating to changes in public works and property tax correlating to municipal administration, especially increases in personnel. Of note is the finding that the larger the revenue, the more spent on public works - especially in election years[22]. With the exception of 1993 and 2005, these results do not hold true for BJ as we will see.

Compared to other QR municipalities, the administration of BJ appears superior. From a high of 80 percent in current expenditures of personnel and materials in 1980-1984, BJ now spends 40 percent on personnel.

Figure 27: Comparison of QR's Municipalities Expenditure Dispersion 1980-2009
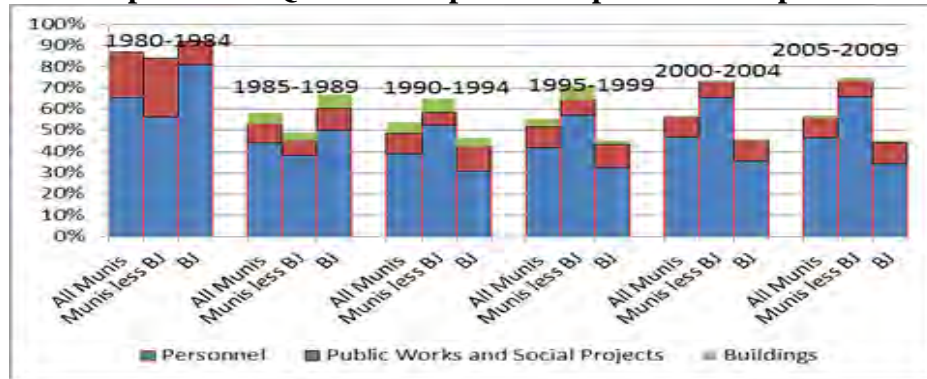
(See Appendix 7 for more information and data sources. Own compilation from INEGI, 1984a, 1986a, 1987a, 1993a, 1998b)

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[22] Municipal presidents change approximately every three years and consecutive re-election is prohibited. BJ municipal president election years were 1978, 1981, 1984, 1987, 1990, 1993, 1995, 1996, 1999, 2002, 2005, 2008 and 2010.

However, on closer scrutiny BJ spends the same on current expenditures when materials and 'general' are added (Figure 28). Very little is spent on capital expenditure that adds to overall patrimony, and this is true of all QR's municipalities.

Figure 28: Comparison of QR's Municipalities Expenditure Dispersion when Materials and General are summed 1980-2009
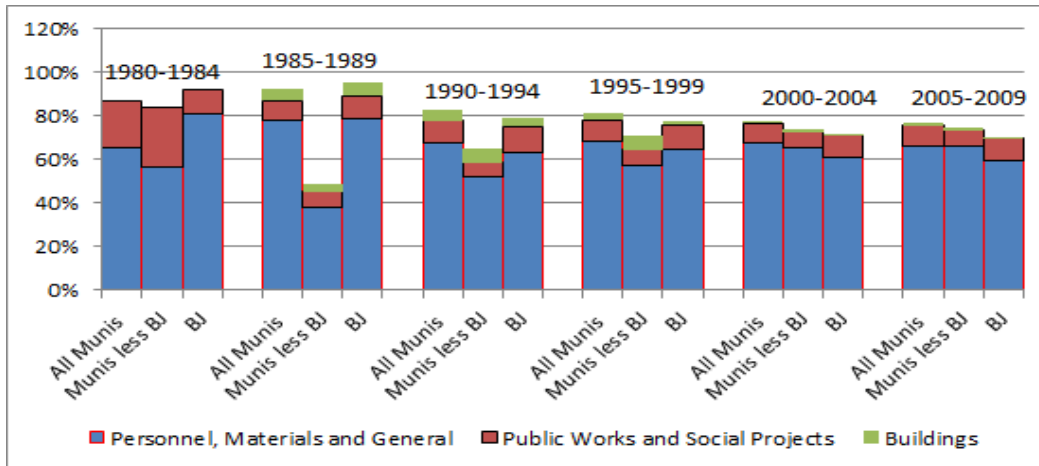
(See Appendix 7 for more information and data sources.)

When viewed in greater detail (Figure 29), personnel and materials were always the largest

proportion of the municipal budget as follows:

Figure 29: BJ Proportional Annual Expenditure by Current, Financing and Capital Expenditures 1980-2010
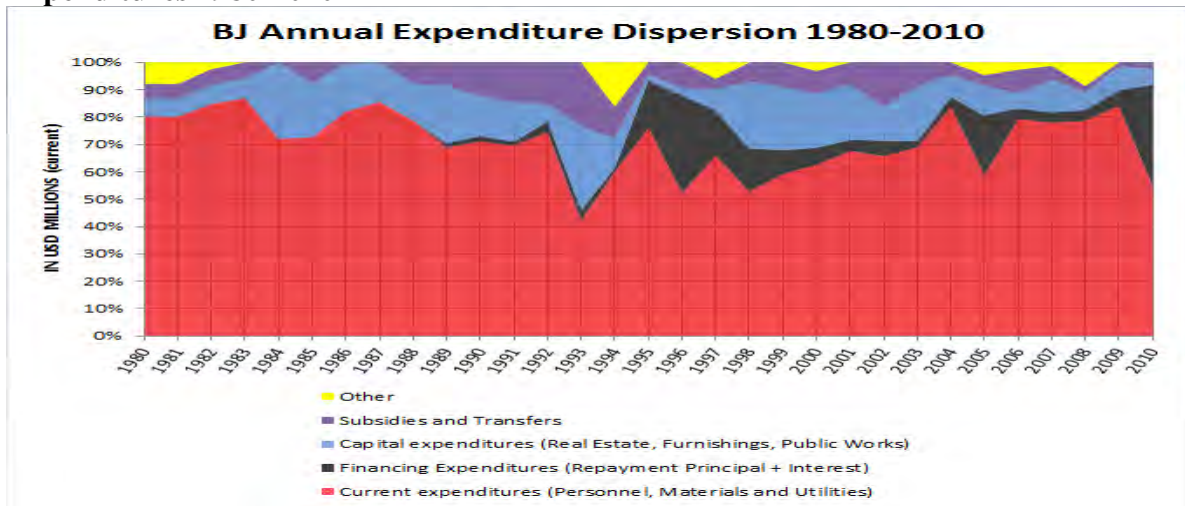
(See Appendix 7 for more information and data sources.)

From a high of 80 percent in 1990 to a low of 45 percent in 1993, current expenditure for municipal administration has rebounded to 80 percent (Figure 29). If debt repayment is added, BJ is at the highest levels of current expenditures in its history and heavily subsidized by the federal government. The total budget has catapulted from US $23 million in 1990 to US $153 million in 2009, 600 percent[23] (Figure 30). Over the same two decades, BJ's population grew almost fourfold from 177,000 to 644,000 inhabitants, but most of that growth was in the 1990s when population increased 2.5 times from 177,000 to 450,000 inhabitants. In that decade the budget was stable around US $40 million per year[24].

Figure 30: BJ Total Annual Expenditure by Current, Financing and Capital Expenditures 1980-2010
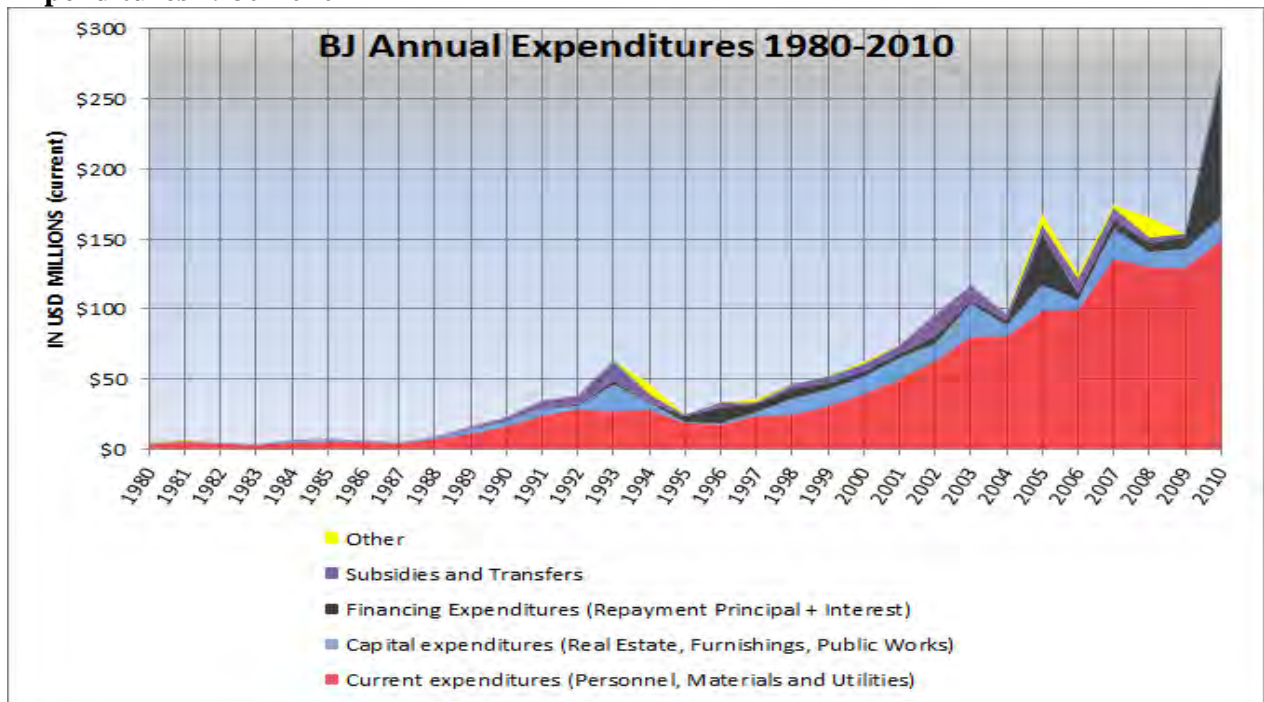
(See Appendix 7 for more information and data sources.)

Although personnel is 50 percent of the budget, this expenditure averaged US $78 million per year over the past five years up from an average of US $38 million in the 90s.

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[23] From 1990 to 2009, the US consumer price index shows 64.14% inflation in US dollar terms. Otherwise said, in constant 1990 dollars the 2009 budget is US $70 million or triple the 1990 budget.
[24] The period with largest budget and asset increment is 2001 to 2009 when total US inflation is 21.14 percent for those nine years (http://www.bls.gov/cpi/).

The new government is now purging the ranks of phantom employees, estimated to be at least 15 percent of the municipal payroll (Martoccía, 2011a). Also, notable is how materials have increased to an average of US $20 million while public works remain stable. Meanwhile the municipality is now strapped with more than US $9 million in financing charges from 2009 forward. Also interesting is that while security is the greatest concern of the population, in assets it is only US $26 million of the US $663 million total, less than 4 percent of the balance sheet. Not only small in proportion, these assets are almost fully depreciated which indicates their age.

Figure 31: Evolution of BJ´s Fixed Assets as a Proportion of Total 2001-2010
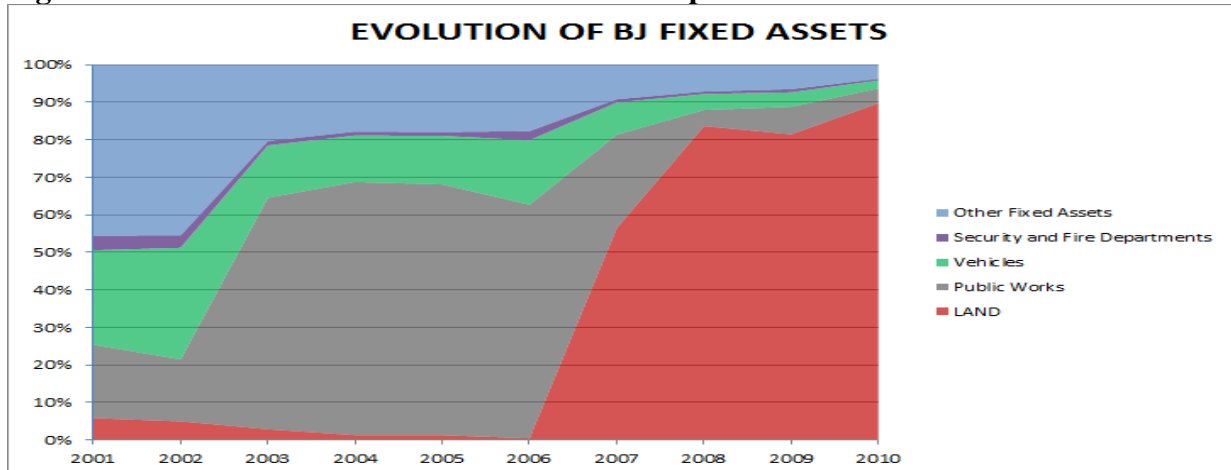
(See Appendix 8, Part A for more information. Sources: BJ, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011)

Most alarming is land (Figure 31). Over the period from 2001-2006, land represented 2 percent of fixed assets. Inflated land values account for 82 percent of the fixed assets between 2007 and 2010. In 2010, land values accounted for 90 percent of fixed assets, from a low of US $0.5 million in 2006 to US $600 million in 2010 with no apparent land purchases.

Figure 32: Evolution of BJ´s Total Fixed Assets 2001-2010

BJ FIXED ASSETS IN CURRENT US DOLLARS	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
■ Other Fixed Assets	$14,023,657	$15,996,785	$17,889,985	$17,391,794	$18,304,061	$19,372,505	$24,926,946	$25,194,369	$21,622,820	$24,650,588
■ Municipal Security and Fire Equipment	$1,211,330	$1,169,321	$1,047,967	$1,001,941	$1,038,520	$2,661,305	$2,399,625	$2,372,461	$2,796,323	$3,004,697
■ Vehicles	$7,749,948	$10,460,754	$12,282,375	$12,120,771	$13,216,233	$18,804,089	$23,296,027	$14,934,523	$12,820,394	$14,285,328
■ Public Works	$6,013,068	$5,804,534	$54,307,347	$65,854,020	$68,258,243	$68,171,418	$67,536,033	$15,272,482	$24,304,260	$25,977,858
■ Land	$1,801,271	$1,749,142	$2,520,444	$1,264,165	$1,310,318	$491,586	$153,225,714	$295,173,459	$270,383,783	$594,865,712

(See Appendix 8, Part A for more information and sources.)

To summarize, current expenditure on municipal administration, mostly self-perpetuating rather than productive, is at an all-time high of 90 percent when debt repayment is added to the total. As for assets, land is inexplicably overvalued having gone from less than 2 percent of fixed assets to 90 percent of total fixed assets in five years. Much of the remaining assets are depreciated. In sum, in addition to subsidizing tourists, municipal monies appear to be poorly administered with unnecessary debt and now repayments, the next topic.

Debt and Municipal Performance

In the early 1980s BJ was the same as all QR municipalities depending on transfers for the bulk of their revenue and received 37 percent of the MPF. The late 80s and early 90s at the height of BJs dominance, BJ generated 40 percent of its own revenue but absorbed 61 and then 51 percent of MPF. With more population and economic activity in neighbouring Solidaridad (Playa del Carmen) since 1995, BJ has now fallen back to the early levels of 38 percent of MPF despite housing 50 percent of QR's population. Although this reduction in MPF could pressure BJ's administrative capacity, BJ benefits from two important federal sources: *Zofemat* which facilitates and accelerates federal transfers (US $7 to 8 million per year), and from FONATUR (US $5 to 6 million per year) while collecting property taxes on the more than 140 hotels and charging for construction permits. As for expenditures, unlike the other QR municipalities that have spent an average of 17 percent of municipal budgets on capital expenditure of public works and social actions, BJ spent 10 percent between 1980 and 2009. Conversely while BJ spent an average of 50 percent on personnel, the other municipalities averaged 44 percent. And despite a variety of healthy revenue streams BJ's administration consistently increased debt.

Indebtedness

Although BJ is favoured in the transfer formula, has the second highest per capita property tax collection without concomitant expenditure in the hotel zone thanks to BMO maintenance and the second busiest airport in Mexico, BJ is bankrupt (Informativo, 2011). In September 2009, BJ was the fifth most indebted municipality in the country owing US $67.26 million (MXP 908 million), more than the sum of the five international tourism-dependent municipalities of Acapulco, Ensenada, Los Cabos, Manzanillo and Mazatlan

(Cruz and Ruiz, 2011). And the situation is worse in 2010 as the following graph shows. One-half is owed to commercial banks and one-half to the federal government's development bank (Cruz and Ruiz, 2011), both guaranteed by non-earmarked funds. The total amount owed is double annual transfers, i.e. the equivalent of two years' worth of non-earmarked funds.

To the burden of municipal borrowing is added that of QR state. Over the past decade QR regularly exceeded its budget. The state was over budget by 32 percent in 2006, 28 percent in 2007 and 62 percent in 2008 for an average deficit of 41 percent in three years (IMCO, 2011). The overspending would explain the need for borrowing which was higher than the national average of 1.9 percent of GDP at 2.2 percent in 2010. In QR, debt per capita is now 40 percent higher than the national average (IMCO, 2011). The debt is held 69 percent by the national development bank and 31 percent by commercial banks. Ninety percent of the debt is guaranteed by non-earmarked transfers (IMCO, 2011). And this after fifteen years of relatively responsible borrowing at both state and municipal levels (Figure 33).

Figure 33: Indebtedness - Sum of QR State and Municipal Borrowing 1993-2010
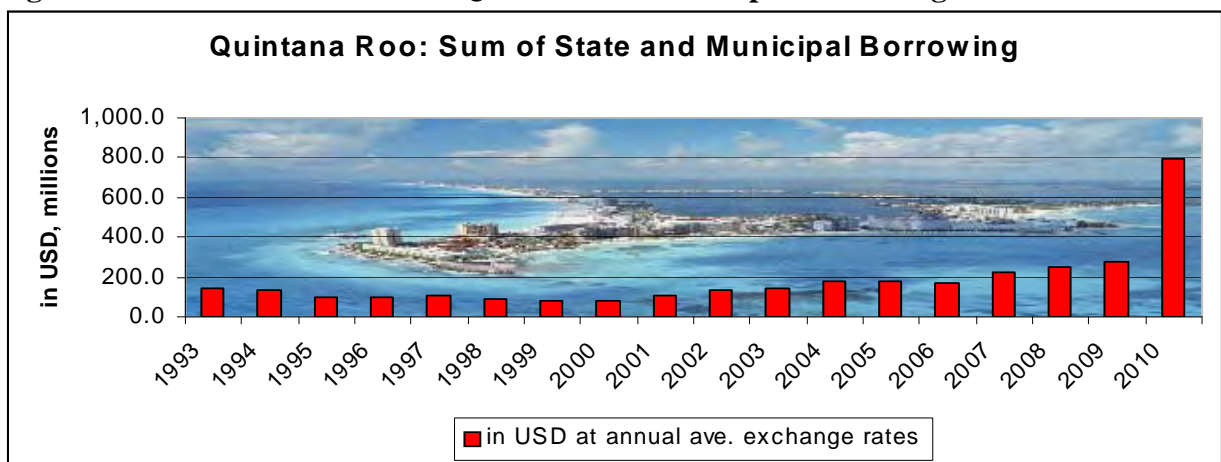
(Own compilation from www.shcp.gob.mx. See Appendix 9 for data.)

It is notable that among all of QR's municipalities, BJ represented almost all of municipal borrowing until 2007 (Figure 34). Moreover, of total borrowing by governments within QR, the state government has increased from an average of 70 percent of total borrowing until 2007 to more than 80 percent (Figure 34). The official loan repayment period for both levels of government has doubled from six years in 1994 and again in 2006 to now twelve years (IMCO, 2011; SHCP, 2011).

Figure 34: Indebtedness: QR State and Municipality Debt Increase 2005-2011

TOTAL INDEBTEDNESS OF STATE and MUNICIPALITIES IN QR

	2005	2006	2007	2008	2009	2010	2011 MAR 31
Indebtedness of all other municipalities	$2.48	$-	$17.92	$17.28	$18.18	$27.38	$38.43
Indebtedness of BJ Municipality	$52.04	$51.43	$49.44	$46.29	$36.05	$110.76	$115.21
Indebtedness of QR State Government	$122.51	$120.99	$154.81	$183.77	$223.08	$656.65	$708.96
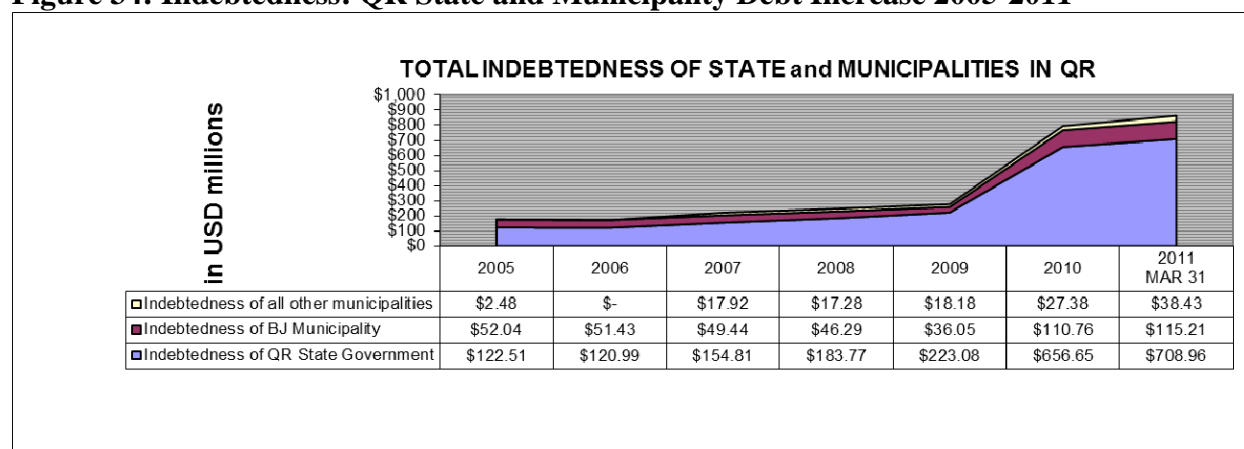
(Own compilation from www.shcp.gob.mx. See Appendix 9 for data.)

The debt is guaranteed with earmarked funds which, at an annual average over the past five years of US $31.4 million of earmarked transfers, represents more than two years of funds for BJ. As for local generation, the financing margin (property taxes divided by population) is US $77 per capita in BJ (See Appendix 10). Otherwise said, the accumulated debt of both QR and BJ represents more than eight times the government's ability to finance future services through taxes.

Figure 35: Indebtedness: BJ's Per Capita Debt based on State and Municipal Borrowing 2005-2010
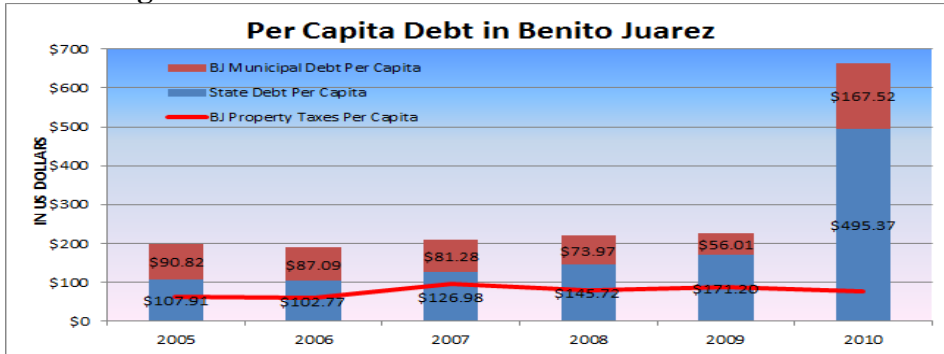
(Own compilation from www.shcp.gob.mx. See Appendix 9 for data.)

As to why the sudden increase in loans and how the loans were used. Some of the answers are provided by the balance sheets and the following indicators.

Performance Indicators

Debt is to be used only for the purchase of capital assets according to Mexican law and general public sector accounting standards. This is because debt requires interest and principal payments which are to be paid by current and future generations. Therefore the benefits of the expenditures from the debt should correspond to those generations repaying the debt. Otherwise said, future generations should not bear the burden of current repayments that finance expenditures such as personnel, materials and security of previous generations. Contrary to law and accounting standards, BJ's municipal governments have acquired significant debt which I investigate in greater detail following the indicators.

As both BJ and QR use cash accounting and historically report a balance between revenue and expenditure many indicators cannot apply. For example revenues over expenses called intergenerational equity is always equal to one. Another example is self-sufficiency which is business-type revenues divided by business-type expenses. The expenses for these activities are not itemized. Moreover, the balance sheet, an essential element in many indicators, is not typically published for municipalities. Having obtained

BJ's 2000-2010 balance sheets, I was able to calculate some indicators. The most intriguing was a year-on-year write-up of land values between 2005 and 2010 (See above Figure 32: Evolution of BJ´s Total Fixed Assets 2001-2010).

According to public sector accounting standards, lands are to be accounted for at cost, written down if there is no economic value and never reversed. This latter is contrary to private sector accounting standards which allows for write-ups when held for sale "but not in excess of the cumulative loss previously recognized for a write-down" (PSAB, 2009: 21). Therefore, the write-up of land is not only a violation of public sector accounting standards but also generally accepted accounting principles. The Quick Ratio (current assets over current liabilities) demonstrates a spike in cash in the years of 2001, 2008 and 2010.

Figure 36: BJ's Financial Performace - Quick Ratio and Reserves 2001-2010
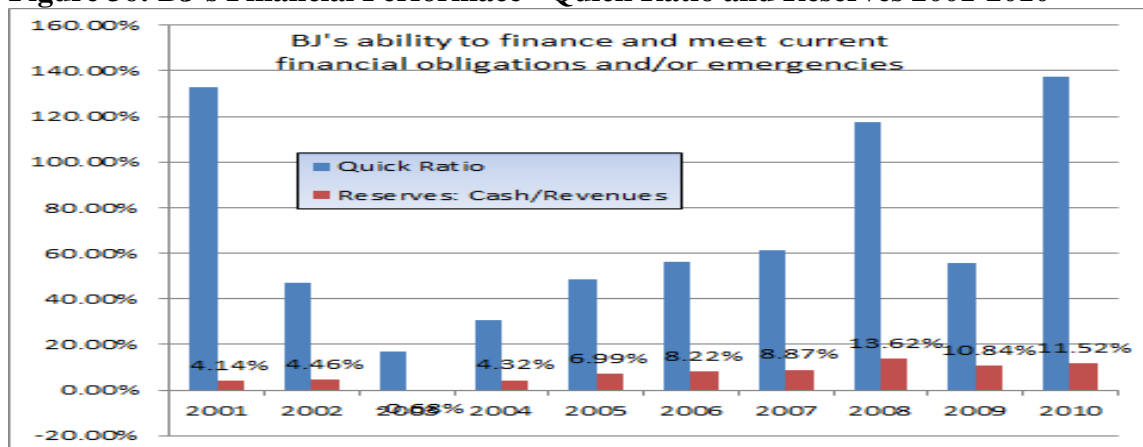
(See Appendix 10 for data, calculations and definitions of indicators.)

While 2008 can be explained through better tax collections (see above Figure 20) which is also confirmed by reserves on the balance sheet, it is notable that 2010 reserves are flat (i.e. tax collection fell) while the Quick Ratio spikes. This spike is due to newly contracted long-term debt. A change in asset dispersion shows how public works made up

the bulk of fixed assets until 2007 when land started to be written up and now represents 90 percent of fixed assets.

Figure 37: BJ's Financial Performance: Change in Asset Dispersion 2001-2010
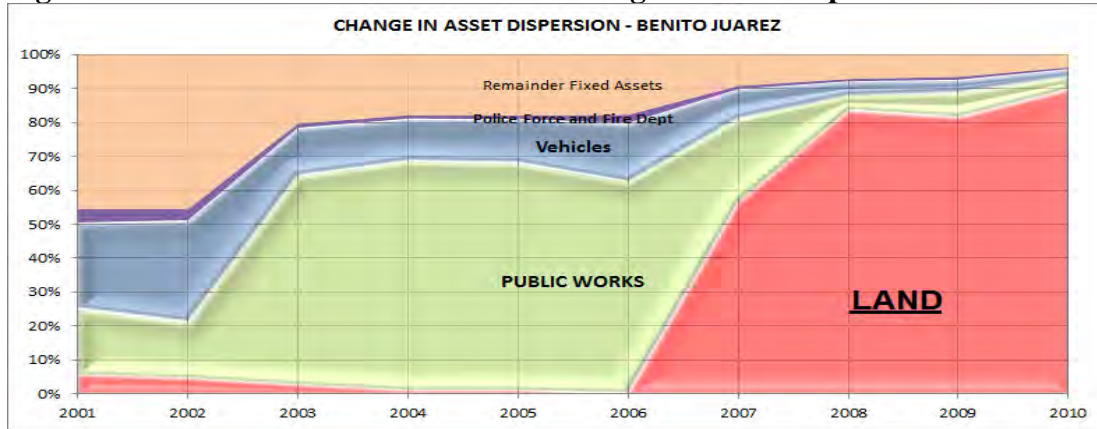
(See Appendix 10 for data, calculations and definitions of indicators.)

The land write-up distorts indicators of financial performance as the following chart shows:

Figure 38: BJ's Financial Performace: Change Per Capita in Overall Financial Position Adjusted for Land Inflation 2005-2010

Benito Juarez Change in Overall Financial Position Per Capita	2005	2006	2007	2008	2009	2010
Per Capita Adjusted for Land	$32	$15	$18	-$333	-$462	-$203
Unadjusted Change Per Capita	$32	$15	$267	$136	-$44	$695
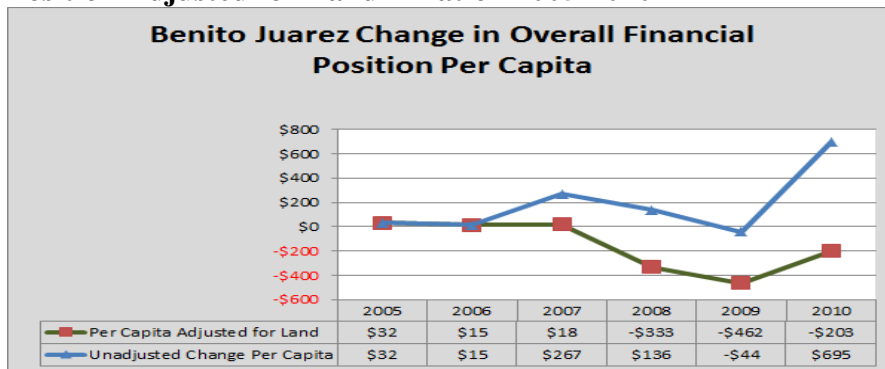
(See Appendix 10 for data, calculations and definitions of indicators.)

Figure 39: BJ's Performance: Debt to Asset Leverage Adjusted for Land Inflation 2005-2010

Benito Juarez Debt to Asset Leverage (Total Debt / Total Assets)	2005	2006	2007	2008	2009	2010
Debt-Asset Leverage Adjusted for Land	41.35%	38.18%	34.00%	52.28%	42.41%	50.35%
Unadjusted Debt-Asset Leverage	41.35%	38.18%	16.64%	12.11%	10.19%	13.62%
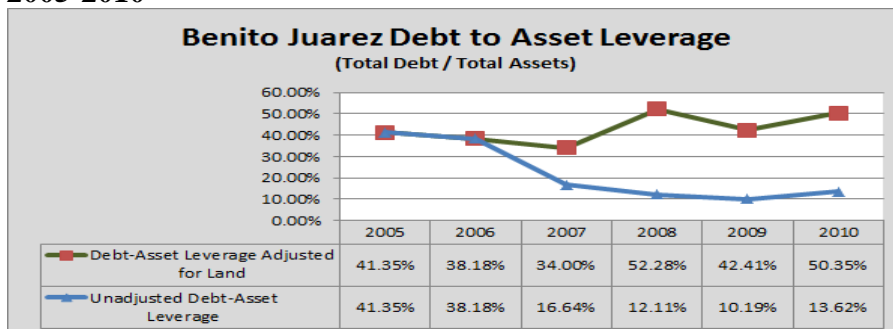
(See Appendix 10 for data, calculations and definitions of indicators.)

Both graphs (Figure 38 and Figure 39) show that the true performance of BJ is poor with adjusted leverage at 50 percent (not 10 percent) and current residents worse off by a total of $1000 per person between 2008 and 2010 when total assets (net of inflated land) actually declined in value. Cash to annual debt payments are now at 70 percent, the highest since 1996 (Figure 40).

Figure 40: BJ's Financial Performace: Debt Service Load 1995-2010
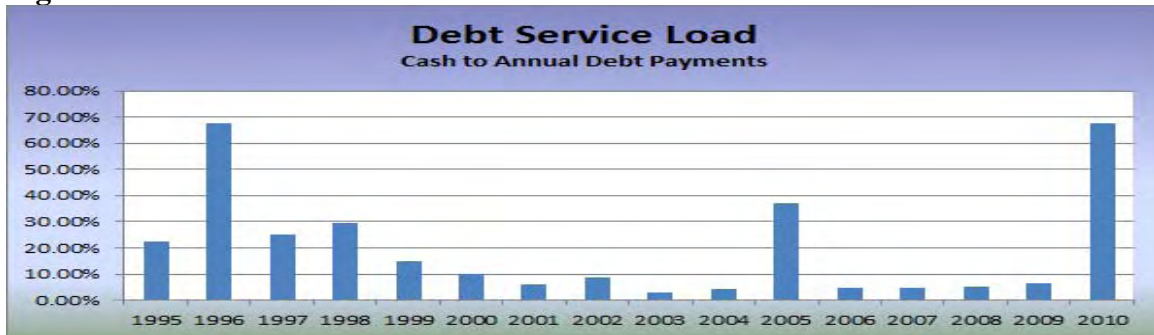
(See Appendix 10 for data, calculations and definitions of indicators.)

All of this speaks to weak institutions, possible fraud and poor oversight. Over and above the question of corruption, our question is about the overall resources available to BJ residents derived from the mono-industry, tourism.

Benefit Analysis

Private Investment and Effective Tax Rates

Broadly defined, the study of tax incidence is the study of the effects of tax policies on the distribution of economic welfare, a combination of who pays and who benefits. Illustrated above is that BJ does not appear to generate enough taxes, especially federal taxes. Although the growth in tourist visits to Cancun is flat, hotel construction continues putting downward pressure on occupancy. From 15 hotels (1322 rooms) in 1975, growth in hotel construction climbed to 110 hotels (17,470 rooms) in 1990, 142 hotels (25,434 rooms) in 2000 and up to 148 hotels with a total of 28,218 rooms in 2007 (Jiménez Martínez, 2010). The number of tourists for the same period climbed from 0.1 million in 1975, to 1.6 million in 1990 and to 3.0 million in 2007 (Moncada Jimenez, 2008). However, these growth figures illustrate a trend: in the past thirty-plus years growth in tourists and rooms are closely matched and continue to grow contrary to the predictions of Butler's Tourism Area Life Cycle.

Figure 41: Supply and Demand of Hotel Rooms 1976-2008
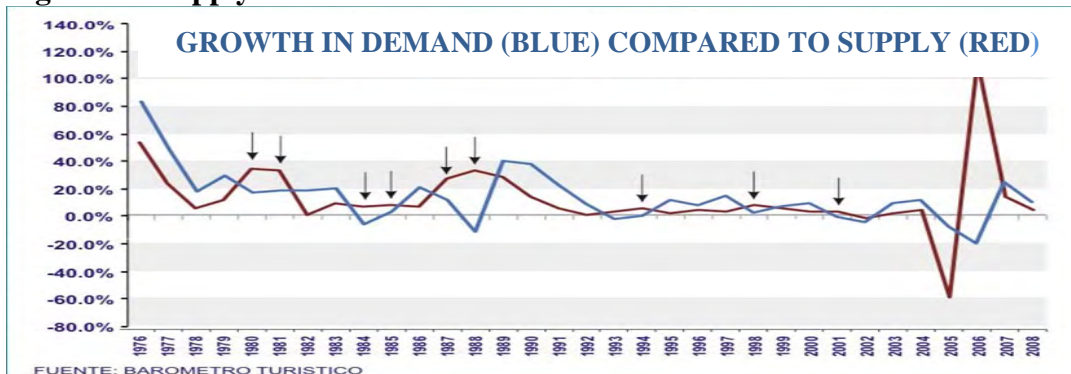
Source: Asociación de Hoteles de Cancún, Barometro Túristico in Vanegas Pérez, 2009.

And in 2011 with rising violence and headlines such as 'Sun, Sea and Severed-Heads" (The Economist, 25 Nov. 2010) tourist numbers are stable but construction forges ahead.

Therefore, one might well question why hotel, and now second-residence, construction persists under such circumstances.

In order to understand business decisions, tax specialists often employ effective tax rates (ETRs). Studies using these measures are called positive in that they seek to explain investment ex-post decisions. ETRs can be calculated as Average Effective Tax Rates (AETR) or Marginal Effective Tax Rates (METR). The AETR is defined as the tax paid divided by the income from capital invested plus/minus adjustments such as inflation, GDP and international openness (Altshuler et al., 2000). This calculation measures the average tax burden on income from previous investment plus tax credits on current investment. In an international comparison using the AETR are for US multinationals based on US definitions of taxable income, Mexico´s AETR was perfectly aligned with other countries and even lower than that of Canada. Otherwise said, the US tax code and the the bilateral tax treaties made Mexico a competitive country for investment.

Figure 42: Mexico's Average Effective Tax Rate Compared to Select Countries 1980-1992
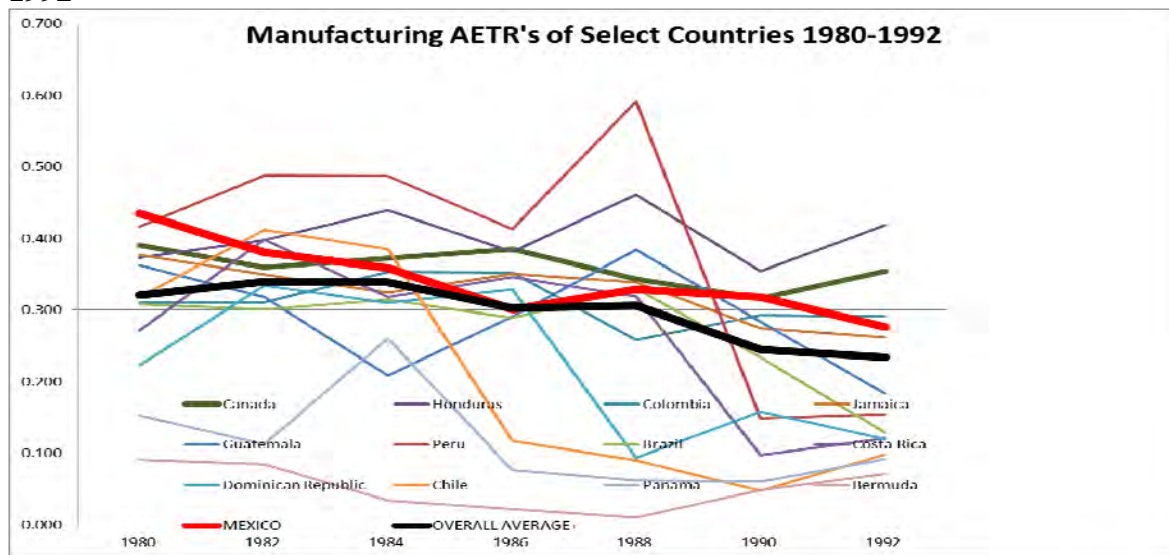
(Source: Altshuler, Grubert, & Newlon, 2000: 29)

In view of Mexico's declining CIT rate from 40 percent in 2000 to 28 percent in 2010, it is likely that Mexico continues to be competitive. As mentioned previously, it is not so much a question of tax regime design but one of tax evasion and effort which means that METR may offer more explanation.

While the AETR measures the tax impact on existing investments, METR is more forward-looking in that it helps to understand new investment decisions. As the name suggests METR measures the burden faced on each additional dollar of new investment. It is based on the logical assumption that an investor seeks to maximize profits and will continue to invest until the marginal cost equals or exceeds the marginal benefit (FIAS, 2007). Rather than total taxes paid divided by total revenue, METR assesses CIT rates as well as base effects such as VAT on capital purchases to the extent it is not refunded to businesses on purchases and depreciation. It also incorporates other capital related taxes such as those on interest, dividends and capital gains. Last but not least, it considers to the extent possible tax advantages given to certain sectors. A cursory study of the elements of the METR as applicable to Mexico and the hospitality industry in general:

Table 13: Mexico's Marginal Effective Tax Rates with reference to Tourism 2000-2010

MARGINAL EFFECTIVE TAX RATE in Tourism	2000	2005	2010
Statutory Income Tax rate			
Income Tax	40%	28%	28%
Consumption Tax - QR	10.00%	10.00%	11.00%
Rates of depreciation for different capital assets			
Land	0	0	0
Building	5%	5%	5%
Plant and Equipment	25%-30%	25%-30%	25%-30%
Other (e.g. Inventory)	10%	10%	10%
Office Equipment	10%	10%	10%
Inflation rate (December)	8.96%	3.33%	4.16%

Domestic tax rate on other investment income			
Tax rate on Interest & Royalties - normal	25-40%	25-40%	25-40%
Tax rate on Interest & Royalties – tax treaty	15%	15%	15%
Tax rate on Dividends (Multiplication Factor)	1.1905	1.5385	1.4286
Tax rate on Capital Gains	5%	2%	30%
Tax benefits given to certain sectors (see below)			
Implicit VAT on Capital			
International Real Interest Rate	4.30%	4.90%	0.90%
Hospitality Debt-Equity ratio	2:1	1.5:1	1:1
Hospitality composition of capital assets	30-45%	30-45%	30-45%

(Sources: Banco de México, 2001, 2006, 2011; Hernandez-Pulido, 2008; INSEAD, 2006; Madan, 2007)

These results show that the government is encouraging productive assets (CIT decrease from 40 to 28 percent) while discouraging the sale of assets (increase in capital gains tax) unless the proceeds are reinvested in which case the capital gains paid are recuperated in deductions allowed under the new tax IETU. As of 2011, Mexico´s tax regime is summarized as follows:

Table 14: Summary of Mexico´s Tax Regime as of September 2011

Corporate Income Tax	30%
Capital Gains Tax	30%
Branch Tax	30%
Withholding Tax	
Dividends	0%
Interest	
Paid on Negotiable Instruments	10%
Paid to Banks	10%
Paid to Machinery Suppliers	21%
Paid to Others	30%
Royalties	
From Patents and Trademarks	30%
From Know-how and Technical Assistance	25%
Branch Remittance Tax	0
Net Operating Losses (Years)	
Carryback	0
Carryforward	10

Withholding tax on interest is a final tax applicable to nonresidents. Payments to tax havens are generally subject to a 40% withholding tax.

A reduced rate of 4.9% withholding tax on interest paid to
banks is granted each year to banks resident in treaty
countries.

(Source: Ernst & Young at http://www.itrworldtax.com/Jurisdiction/83/Mexico.html)

In short, Mexico's tax regime does not appear to offer special advantages or be particularly onerous. In fact, authors argue that the 28-30 percent CIT is more competitive than many of Mexico's neighbours, e.g. Argentina (35 percent), Colombia (33 percent), Venezuela (34 percent) and the US (35 percent) (Montemayor et al, 2009). However, many hotels are owned through Real Estate Investment Trusts (REITs) which are allowed special treatment that includes:

➢ Tax deference on earnest money (deposits) paid during a pre-sale phase of real-estate;

➢ Contribution of property with a depleted or low tax basis to a REIT "causing a step us in basis to the fair market value without recognizing the gain until a future sale of the property or of the contributor's interest in the entity" (Hernandez-Pulido, 2008: 4).

Notable is the the new IETU tax floor (control tax) which promotes new investments by allowing full deduction of initial investment to calculate the control amount during construction periods. The replaced asset tax was levied on taxpayers' productive assets, a disincentive to investment (SCHP, 2011). IETU is calculated based on cash flow of cash receipts minus allowable cash payments including lease payments by residents and permanent establishments. To the net is applied the rate of 16.5 percent for 2008, 17 percent for 2009 and 17.5 percent as of 2010 and subsequent years. Excluded from cash deductions are interest and royalties paid. Therefore, companies may start restructuring payments to a fee for services and a rent on equipment and property (Hernandez-Pulido, 2008; Montemayor and Olvera Salcedo, 2008). However, as mentioned previously, ocean-

front properties on federal concession land (those paying ZOFEMAT rent) benefit from a deduction of "improvements to federal concession land" which year-on-year reduces shoreline hotels' floor to zero (pers. com.).

In the 80s and 90s many hotel chains focused on more lucrative managerial contracts rather the high risk of owning real estate. Counterintuitively, in QR most hotels are owner-operated not managed under contract. Moreover, of foreign direct hotel investment in Mexico, 75 percent are beach resort properties and 72 percent is direct investment from Spain (Jiménez Martínez, 2010: 177). These Spanish companies invested almost exclusively in QR. Jimenez Martínez (2010) suggests that Spain banking system and network facilitates money laundering which may explain some of the direct investment. However, the growth in Spanish investment also correlates to the growth in all-inclusive properties. The explanation for all-inclusives is that the price charged to the tourist includes a variety of taxable items at different tax rates. This allows the hotels to adjust for tax purposes the portion attributable to each line item. For example, a smaller proportion of the total is attributed to highly taxed rooms and alcohol while a higher proportion is attributed to lower-taxed foods and entertainment. Tips included in the package price are not taxable but the employees sometimes do not receive the full amount stipulated due to deduction for uniforms and other items (pers.comm).

In addition to these investment attractions, the QR state government offers important benefits offered to the tourism investment (Vazquez, 2011) that include on land, construction, operation and promotion:

Land

➢ Assistance with finding land, land titles and special land prices;
➢ Relief of property transfer registration up to 100 percent;

➢ Reduction up to 75 percent of tax on property aquistion (*Impuesto sobre Adquisición de Bienes Inmuebles*)

➢ Subsidy of up to 50 percent on property taxes.

Construction

➢ Relief of payroll taxes for up to three years;

➢ Discounts on water connection fees and construction permits;

➢ Installation, sometimes free of charge, of electricity;

➢ Assistance with environment impact studies; modifications in zoning laws to commercial property, sometimes high density, within the municipality and if necessary with the federal ministry of the environment;

➢ Participation (economic and physical) in the construction of water treatment facilities.

Operations

➢ Training programs of employees for up to 60 days including salaries.

Promotions and Publicity

➢ National and international promotion programs including printing, travel expenses to and booths at national and international trade shows, among other.

As is observed, the hospitality industry is not only favoured in the tax regime through REITs and federal concession land deductions, the QR government offers a myriad of benefits to further offset what little burden there is, in a state that collects one-third of its potential federal taxes based on productivity. As Bird (1992) observed two decades ago, the government gets the burden while private industry gets the benefits.

> Should government subsidize private investment in the tourist industry, as so many countries have done? The correct general answer is almost certainly "no" …If private investors are not willing to risk their own funds in the tourist business, it is not clear why public money should remove the risk and leave them the profit, as has been the case in too many "sun and fun" countries. Bird, 1992: 1155

Social Outcomes

As concluded above, public money is increasingly used to remove risk, leaving the profit to the private investors. In other words, public money is reduced to pay for necessary public goods. These goods were the focus of much of economic tax theory but more and

more theorists are turning to the analysis of taxation and targeted projects, and most importantly the redistributive impacts of income taxes (Musgrave, 2008). To arrive at redistributional impacts, I analyzed above the returns to the federal government from tourism. If QR is any example, federal tax collection within QR is extremely low (one-third) compared to QR's proportion of national GDP. Of the locally-generated revenue plus non-earmarked transfers to QR and BJ, 40 to 50 percent is spent on current expenditures of personnel and materials. Otherwise said, of discretionary funds both QR and BJ spend one-half or more on personnel and materials. And although these two sub-national governments receive an excess of transfers over federal tax collection, the state and municipality systematically over-spend and then contract debt to cover the gaps. This suggests that sub-national governments exist increasingly to ensure their own continued governance evidenced by bloated administrations and low tax effort to ensure continued local political victories. The muncipal administration of 2007-2009 accelerated this process by inflating land values and contracting inexplicable debt further eroding resources available for public works and social projects. As local administration is crucial to the delivery of services that improve wellbeing I focus on the outcomes of this expenditure in terms of success at improving services and social outcomes. As tri-level tax collection occurs within the locality, these same three levels are responsible for delivery irrespective of how the funds cascade. I will now examine the main human development indicators as specifically applies to all residents of BJ and their evolution over thirty years under more than ten local administrations with one important caveat. It is recognized that the link between social spending and social outcomes is tenuous because of the important role of efficiency in social delivery (van der Berg & Moses, 2009). One example is the heavy current expenditure of personnel and materials. Another example is the proportion spent on

education, the bulk of which is spent on salaries. In other words, a shift in resources may not improve effective resources and thus leave outcomes the same.

The United Nations Human Development Index

A recent UNDP report analyzed the proportion of overall spending on social programs, economic infrastructure and 'other' over forty years. From a low of 20 percent in the late 70s, Mexico now spends an average of 36 percent of federal ear-marked funds on social projects such as health, education, social security and poverty alleviation (UNDP - PNUD, 2011a).

Figure 43: Mexico's Social Performance - Sectoral Composition of Public Investment in Mexico as a Percentage of Total Public Investment 1965-2006
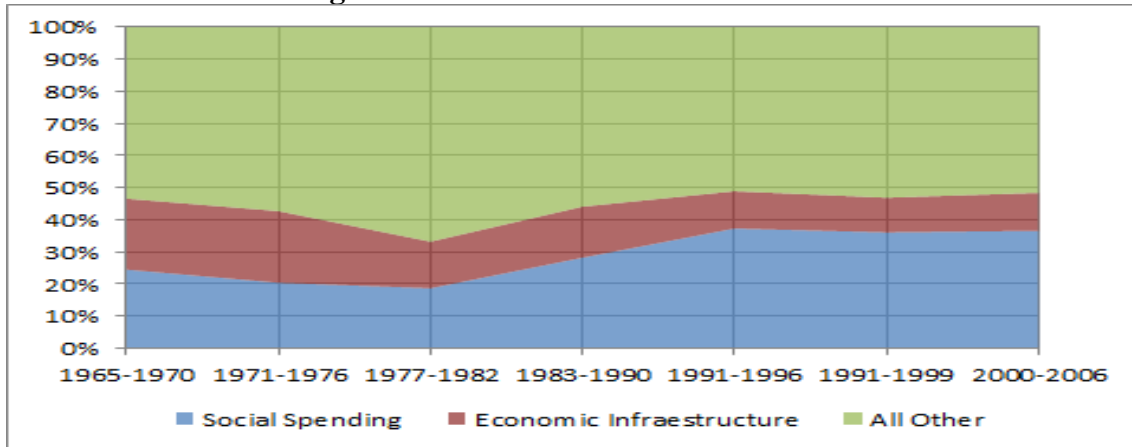
(Source:UNDP - PNUD, 2011a: 57)

Social spending refers to programs directed to health, education, social security and poverty alleviation. Economic infrastructure includes programs dedicated to the construction of roads, airports and seaports required for economic growth.

The UN's Human Development Index (HDI)[25] has been calculated for Mexico at the municipal level for three periods: 2000, 2005 and 2010. The UN HDI weighs three indicators: health (life expectancy), education (literacy) and income (GDP per capita)

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[25] HDI approximates human development by measuring life expectancy, knowledge and access to resources as its basic dimensions. In each dimension the average is compared to benchmarks to arrive at a value where one represents maximum development while zero represents no development. For more information about the HDI and its calculation, refer to Part III – An Accounting Sustainability Proposal.

(UNDP - PNUD, 2011a). Although Mexico's overall Human Development Index (HDI) puts the country in 56th position out of 179 (high development), if one looks at education alone, Mexico declines to 76th position below countries such as Bolivia, Peru and Panama (UNDP - PNUD, 2011b). Yet Mexico spends 9.7 percent of GDP on education while Canada, for example, spends 5.6 percent of GDP.

Figure 44: Mexico's Social Performance - HDI 1980-2010
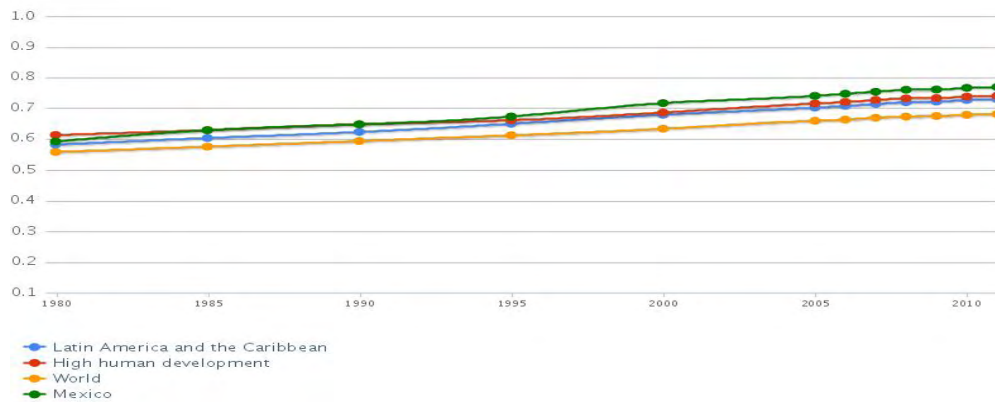
(Reproduced from: UNDP - PNUD, 2011b)

As specifically applies to tourism, between 1970 and 2000 states dedicated to tourism initially received above-average transfers. Although declining, tourism-dedicated states of QR and Baja California Sur are still near national average in social spending (UNDP - PNUD, 2011b).

Figure 45: Mexico's Social Performance - Comparative Social Spending by State 1971-2006
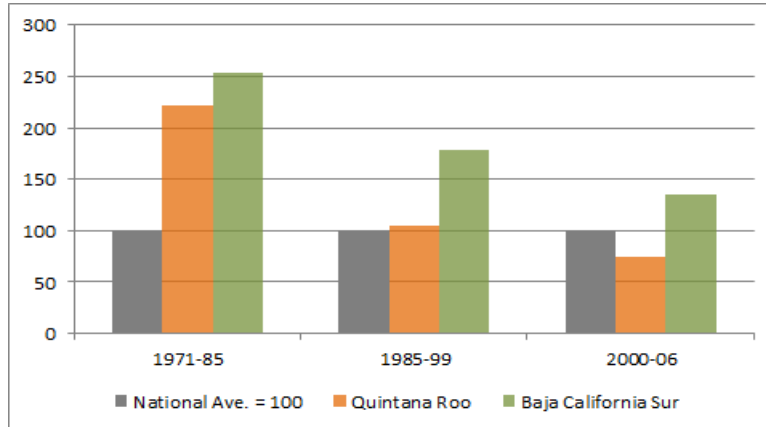
(Source:UNDP - PNUD, 2011a: 56)

Considering the locally-generated wealth combined with above average targeted transfers, we could expect that dedicated tourism sites would also demonstrate above average development (Figure 46).

Figure 46: QR's and BJ's Social Performance - HDI QR and BJ 2000-2006
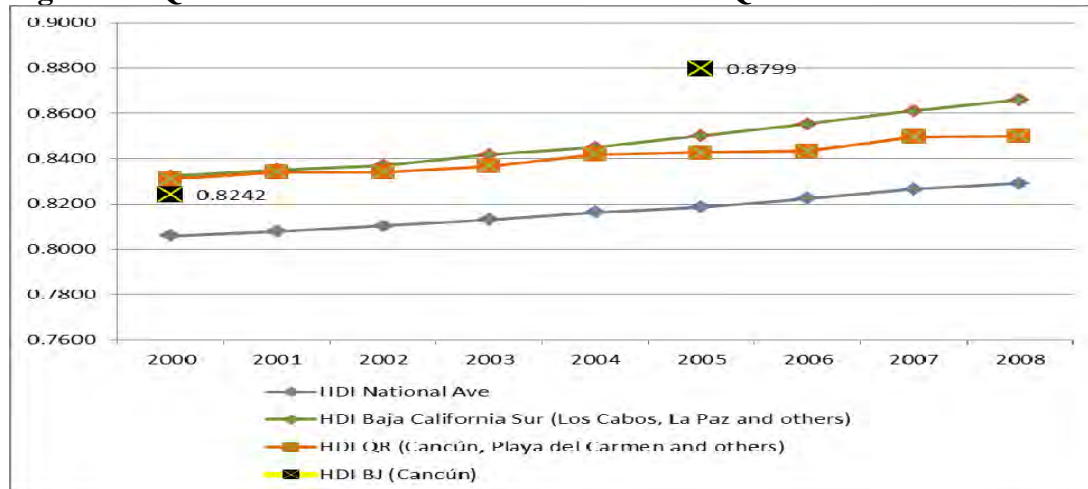
(Source:UNDP - PNUD, 2011a; INAFED, 2012)

It is notable that in 2000, BJ is between QR state and national HDI (Figure 46) despite major per capita public investment. Moreover, QR as of 2008 occupies the 8th position within the nation having moved down from 7th position (UNDP - PNUD, 2011a). Notably Baja California Sur historically and continuously occupies third place.

The Gini Coefficient

Another important important indicator is that of income disparity measured by the Gini coefficient. While HDI measures well-being, the Gini indicates inequality and income disparity. It measures income concentration of the wealthiest population deciles based on a measure from zero to one. The higher the value, the more concentrated in higher income brackets is economic wealth. Otherwise said, while a higher HDI means greater development, a higher Gini means greater inequality and reduced access to resources.

Figure 47: QR's and BJ's Social Performance - Gini Coefficient Household and Per Capita 1992-2010
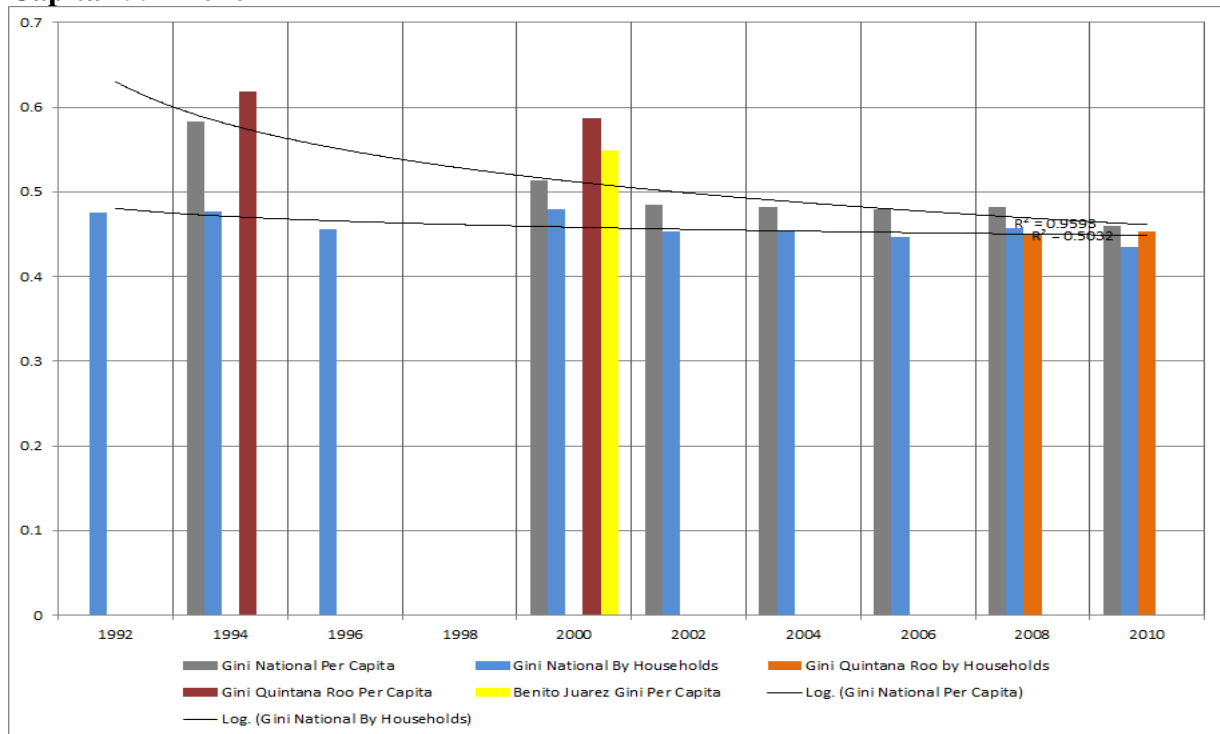
Graphs produced from data provided in CONAPO, 2005 and (Aguilar Gutiérrez, 2009).

Mexico's Gini coefficient per capita remained high at over 0.50 since the 1950s. By some measures it was as high as 0.58 in 1994 (Aguilar Gutiérrez, 2009) and others averaged it at 0.54 throughout the 90s (Scott, 2001). By some measures the national Gini per capita only declined to 0.535 in 2005 (Aguilar Gutiérrez, 2009) and by other measures to around 0.50 (CONAPO, 2005). Household Gini remains over 0.40, averaging around

0.45. This Gini is much higher than Canada's which historically is in the low 0.30s and European countries which are also in the mid 0.30s. Mexico's Gini in the past decade, although declining, is now approaching that of the USA of 0.45. Observe that QR's Gini is historically higher than the national average, both household and per capita. The only Gini to be calculated for BJ is higher than the national average and with nearby Solidaridad it is unsurprising that income inequality for the state is consistently over 0.50 due to the greater number of wealthy individuals and households with mobility to areas within the country considered safer. As for tourism providing prosperity for all (see Part I), a study found the Gini from tourism activities is no better or worse than other industries in Mexico (SecTur, 2003). In short, tourism has not provided the equity promised evidenced by a Gini that is approximately 5 percent higher than the national average in those states heavily dependent on tourism such as Quintana Roo.

Mexico's Own Indicators - CONEVAL

While both the Gini and the HDI allow for interesting observations and international comparisons, it is not specifically linked to Mexico's social programs paid for by ear-marked funds. In keeping with the new trend of basic social needs and capabilities over and above income (Ahmad et al., 2007; Ahsan and Oberoi, 2003), the National Council for the Evaluation of Social Development Policy, CONEVAL, is an autonomous government agency that monitors government programs and the success of these programs to alleviate poverty. CONEVAL is charged with identifying and measuring poverty nationally and sub-nationally every two years and providing disaggregated municipal data every five years. CONEVAL provides two categories of indicators: income lag and social lag. To determine income lag, CONEVAL calculates three key indicators on a sliding scale from absolute poverty to borderline insecurity. The first indicator within income lag is called food poverty

where the family lacks resources to guarantee even regular sustenance. As can be seen QR is just below the national average while BJ is well below both the national average and that of QR showing that absolute poverty is low in BJ.

Figure 48: QR's and BJ's Social Performance: Food Poverty 1992-2008
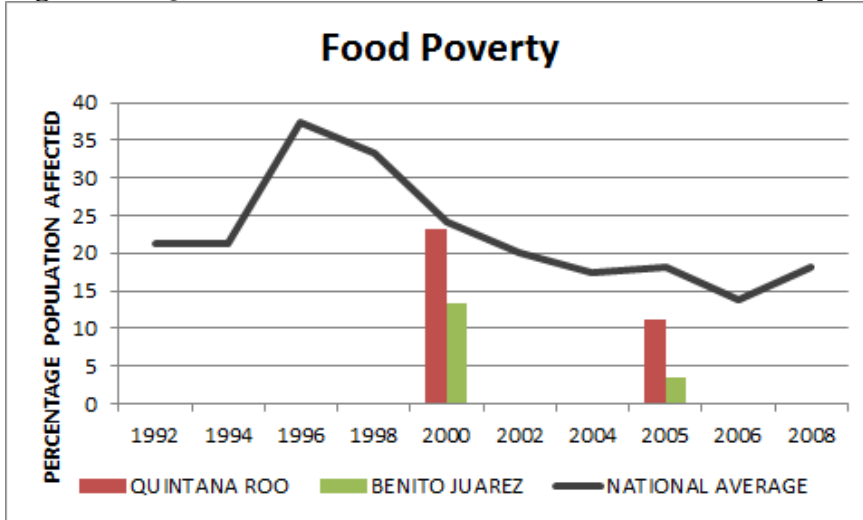
(Graph produced from data provided in: CONEVAL, 2008)

The next level is capacity poverty which measures a family's capacity to provide food plus the basics of education and health. In other words, it is a cumulation of food poverty plus the minimum needs of a modern society: education and health. Again, QR is near the national average while BJ still fares well.

Figure 49: QR's and BJ's Social Performance: Capacity Poverty 1992-2008
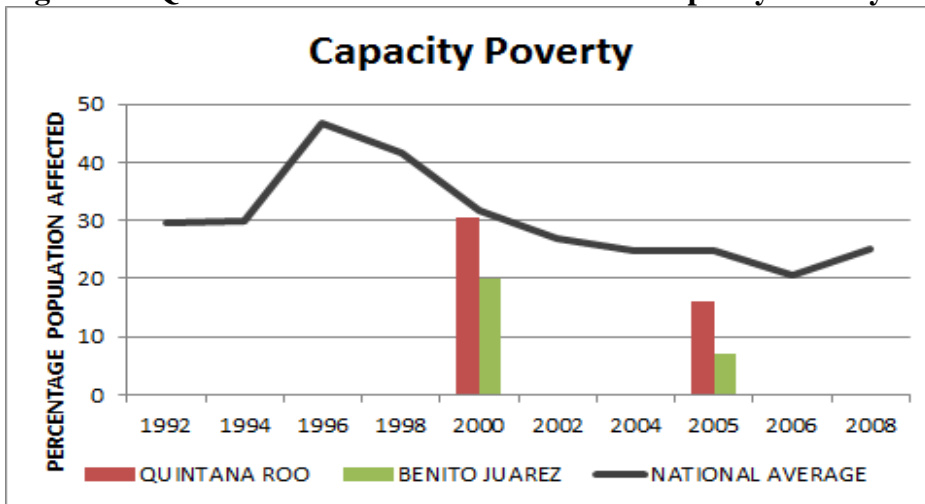
(Graph produced from data provided in: CONEVAL, 2008)

The third indicator is called patrimony poverty. Here the family is barely able to ensure basic food, health services, education, clothing, and transportation (capacity poverty plus clothing and transportation). It is a further cumulation of food and capacity poverty to which is added clothing and transportation. In other words, patrimony poverty means that families require all their monthly income for the basic expenses and are unable to secure patrimony such as property.

Figure 50: QR's and BJ's Social Performance: Patrimony Poverty 1992-2008
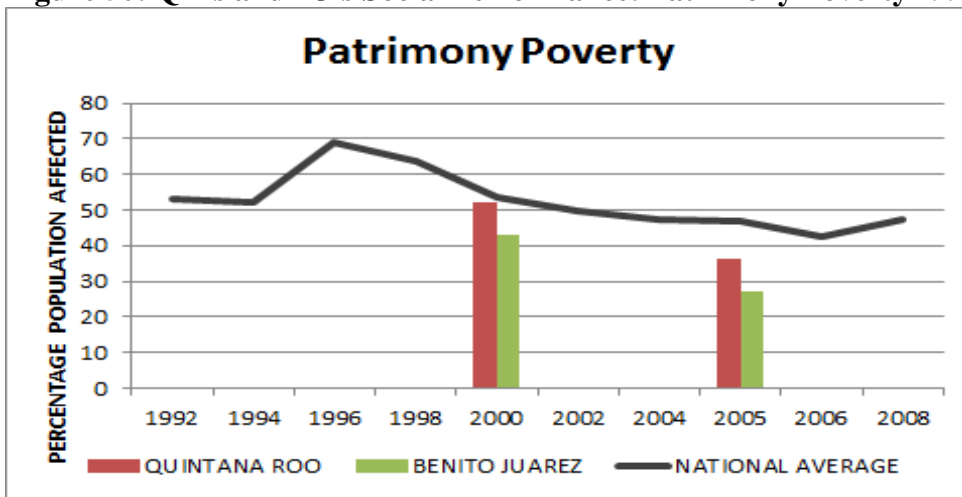
(Graph produced from data provided in: CONEVAL, 2008)

Similar to the Gini coefficients above, QR and BJ are very close to the national average of 50 percent in 2000 (Figure 50). By 2005, this marginal limit had improved for 15 percent of the population but still one-in-three residents of QR live at their income levels. In other words, not only can these households not afford to buy property, there is no margin for emergencies or unexpected expenses such as Hurricane Wilma that destroyed Cancún in 2005 and now the economic downturn in the USA which has negatively impacted tourism. Although the figures for 2010 have yet to be released, it is expected that BJ and QR will again increase to the national average which is also expected to be higher than in 2005.

As for the second category of indicators, social lag, CONEVAL calculates four indicators that include education lag, healthcare deficiencies, housing deficiencies and access to utilities. As recently as 2005, on a five point scale from very high (1) to very low (32) CONEVAL ranked QR at 20th out of 32 federal entities with the qualification of "moderate social lag". A state with a history, economy and social spending similar to that of QR (Cancún) is Baja California Sur (Los Cabos). It was ranked much higher at 10th of 32 entities and graded as "little social lag". As for municipalities, the same study lists BJ as "very little social lag" ranking BJ as 1973rd out of 2454 municipalities assessed BJ is barely within the top 20 percent, up only two points since 2000. Although this sounds promising, within QR state the municipalities of Cozumel (2182) and Othon P. Blanco, the municipality with QR's capital city of Chetumal (2003) rank higher than BJ. Also ranking higher is the city of Merida in the state of Yucatan (2384) in the top 3 percent of all municipalities (CONEVAL, 2005). Although doing relatively well in terms of housing materials and utilities, BJ demonstrates serious social lag in education and healthcare, the two areas that account for more than 70 percent of all earmarked funds in 2010 (CONEVAL, 2011a: 17).

CONEVAL defines education lag as all children under 15 that have dropped out of school without having completed the minimum national requirements. In the case of BJ, I only have statistics for current school-aged children (not adults) that have not completed their schooling. Yet this limited data demonstrates that in 2000 BJ had above average education lag compared both nationally and for QR. The latter was also higher than the national average.

Figure 51: QR's and BJ's Social Performance: Education Lag 1990-2010
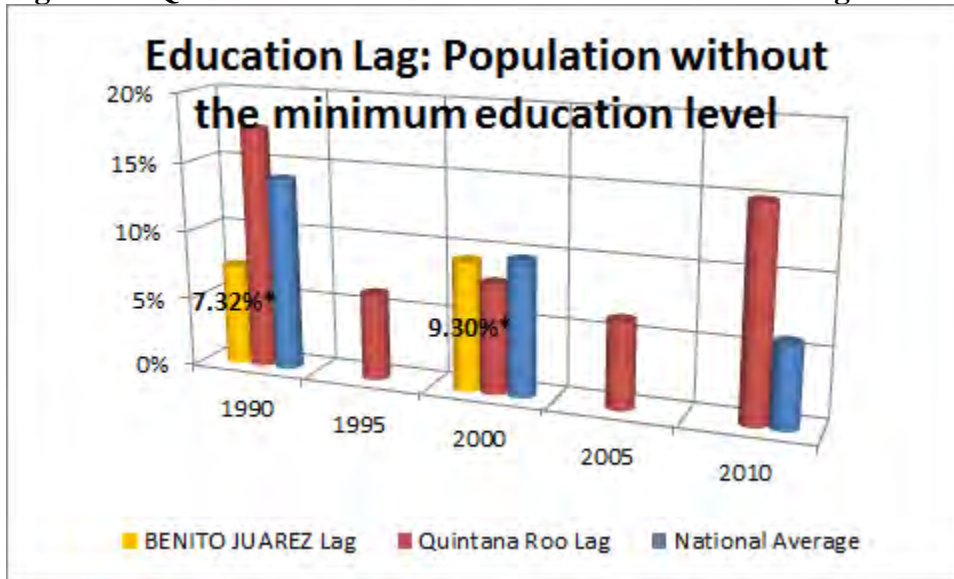
(Source:CONEVAL, 2011a; CONEVAL, 2011b)
*Only includes school-aged children that have dropped out. I have these figures for BJ 1990 and 2000 and for QR 1995, 2000 and 2005. The 2010 QR is CONEVAL's calculation of education lag for QR.

QR received the 12th highest per capita of earmarked education fund in 2007[26] and ranked 13th in the country in terms of education. The best entity being the Federal District and the poorest, ranked 32nd, was the state of Chiapas (CONEVAL, 2011a: 29). One possible explanation for BJ's results being lower than similar Los Cabos (ranked fourth) is the high-rate of teen pregnancies in BJ, one of the highest in the country, which usually results in school abandonment.

Another basic human right and therefore key indicator is access to healthcare. CONEVAL defines healthcare deficencies as the percentage of the population without access to government-sponsored healthcare.

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[26] Per capita Baja California Sur received the most and Mexico City the least.

Figure 52: QR's and BJ's Social Performace: Population without access to Social Security 1995-2010
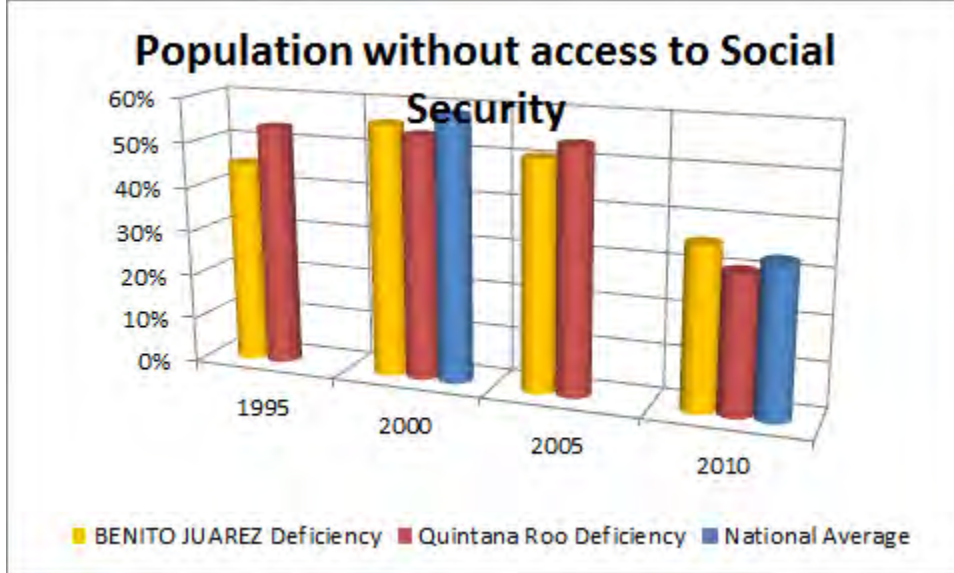
(Source:CONEVAL, 2011a; CONEVAL, 2011b)

In the area of access to healthcare and social services, QR ranked low at number twenty of the thirty-two entities when measured by the percentage of the population that is registered with some form of public health insurance. Since 1980 QR and BJ have averaged around 50-60 percent of the population without access, close to the national average (Figure 52). The improvement since 2005 is due to the introduction nationwide of inexpensive healthcare for uninsured workers called '*seguro popular*'. Now more people, approximately 70 percent, have access to some healthcare services at little or no cost. Here again the population residing in BJ that does not have access to healthcare is higher than both QR and the national average at over 30 percent. One possible explanation is the number of temporary employees and those now outsourced rather than hired in-house, a major change in the past decade. Moreover, the QR gap between per capita healthcare spending and those without access to healthcare is one of the five highest in the country (CONEVAL, 2011a: 39). This means that monies are distributed based on population without consideration that many, even the majority, do not have access as is the case in BJ since 1995.

Poor health is directly attributable to housing conditions. CONEVAL defines housing deficiencies as those houses built with precarious materials: roofs made of cardboard or waste material; walls of wattle and daub, bamboo, cardboard or waste; and/or earth floors. In 2010 QR state ranked one of the worst at 30th for precarious roofing materials, 24th for wall materials and 15th for the number of houses that have earth floors. Notable is that QR receives one of the lowest amounts per capita for social infrastructure that includes water, drains and electricity yet is considered one of the five best states in terms of these services (CONEVAL, 2011a: 43). Although this result appears contradictory to QR's overall social lag, most of QR's population is urban and easier to service. As such, BJ ranks within the top ten percent of municipalities (2338th out of 2464) for the number of houses with non-earth floors from 89 percent of houses in 1990 to more than 96 percent in 2010. Moreoever, BJ ranks relatively well in the number of households with piped-in water (from 48 percent in 1990 to 88 percent in 2010), connection to a municipal sewer system or a septic tank (from 70 percent in 1990 to 95 percent in 2010) and electricity (from 81 percent of BJ households to 96 percent).

To summarize the overall results, not only do QR and BJ enjoy enhanced sources of income through federal zone taxes, hotel taxes, FONATUR maintenance and relatively high property taxes, the state and municipality also receives at least its fair share (CONEVAL, 2011a) or even more (Ahmad et al., 2007) of earmarked funds for education, health and social infrastructure. Although QR now receives more federal funds than it collects in federal taxes, the overall development of the area is no better, and by some indicators far worse, than the national average. Income inequality is equal to or greater than the national average and patrimony poverty is only slightly lower than the national average. In other words, the little net influx of economic wealth that tourism appears to provide does

little to help those with the greatest need assuming delivery efficiency. With more than 60 percent of direct and indirect activity related to tourism in QR, arguably tourism is increasing inequity of the population and impoverishing the federal government.

Discussion: A Review by Decades

To better understand the evolution of Cancún as well as many tourism destinations, it is worthwhile to crosscut by decades the evolution of public finance and private sector results. The construction of Cancún couples historically with changes in political divisions, government responsibilities and tax laws. These mesh with a growing municipal population, provision of basic services and employment that is suffering due to changes in the typical tourist model from hotel rooms to floating and fixed all-inclusives.

Although some argue that it would be more informative to analyze by presidential or gubernatorial periods, many changes in laws policies and procedures straddle presidential and gubernatorial changes and/or lag their introduction. Therefore, this separation is complicated and perhaps misleading. As this paper focuses on public finance rather than public policy and politics, I leave it to other investigators to find correlations based on electoral campaigns. Instead, I have chosen to separate by decades because the construction of Cancún was in the early 1970s, BJ's financial reporting started in 1980 and much of the data collected ends in 2010. The lack of political-electoral bias allows for revelations regarding changes in private industry, public finance and the local population. As we will see, the 1970s are characterized by the stress and sweat of construction towards an uncertain and unknowable future: a struggling tourism resort, a flood of migrants and precarious living conditions. In the 1980s, the resort takes hold, tax revenue exceeds economic and social investment, and living conditions improve substantially with better housing materials and more employees insured. By the early 1990s BJ is an international icon for tourism. Despite heavy pressure on municipal resources due to the influx of migrants, BJ has one of the highest levels of economically active populations in Mexico

and the highest percentage of workers insured in BJ's history. Since the late 1990s, tourism as a development strategy is a definite burden due to the convergence, among others, of:

- a change in the dominant tourism models to all-inclusives;
- decentralization of federal social programmes allowing sub-national goverments to claim responsibility for federal programs while abating local tax effort;
- modification of tax-sharing formulas to favour high density-high GDP growth localities while ignoring environmental and social damange; and
- continued lack of accountability and transparency of states and municipalities.

All these events are not only important to Mexico, QR and BJ, but to any destination that implements tourism as a development strategy.

The 1970s – Stress and Sweat

With a US $21.5 million original loan from Interamerican Development Bank (IDB) and US $31 million from the federal government, Banco de Mexico through a trust fund INFRATUR, began the initial construction phase of Cancún. The IDB loan which was to be repaid through land sales, was eventually reimbursed by the federal government when the land failed to interest investors. Through share swaps with banking cronies, INFRATUR directors succeeded in fulfilling the loan conditions in terms of available rooms. Although a financial failure, the mega-project staunched the flow of migration to an already overcrowded Mexico City and brought economic prosperity and legislative stability to one of the most depressed regions in Mexico – a country with high income disparity (Gini 0.57).

The territory of QR became a state in 1972 and the region around Cancún was declared a municipality in 1974. The state's population exploded from 88,150 in 1970 to 225,985 by 1980. In the same decade, Cancún's population went from a few hundred fishers to more than 6,000 precariously lodged residents in 1975, mostly in tent cities

(Marti-Brito, 1985: 51), to permanent housing of 37,190 residents in 1980. Since the construction of Cancún, QR and BJ have had one of the highest levels of economically active population in the nation (workers 14 years of age and over) at 62 percent in QR and 64 percent in BJ by 1980. Employment generated money for residential housing construction. By 1980, the percentage of BJ's houses that had electricity, concrete floors and were connected to municipal water and sewage was 69, 50 and 45 percent respectively. The standard of living was higher in BJ than in QR which averaged 69 percent of houses with electricity, 41 percent with concrete floors and 43 percent connected to a sewage system. This higher standard has been maintained for three decades thanks to employment first in construction and then within hotels and attendant tourism services. From simply satisfying the IDB loan conditions of 200 rooms available in 1973, by 1975 Cancún boasted 1,322 rooms. The number of hotel rooms would triple over the next decade. This development required an injection of more than US $1 billion (2010 dollars) for public works some of which is summarized as follows:

Table 15: 1970s - INFRATUR/FONATUR Investment in Infrastructure

	Public Works in USD millions (current)	Fed Govt Tourism Infrastructure	Fed Govt Airports	QR State Tourism Infrastructure	QR State Electricity	QR State Water and Drainage
1969	$ 0.10	$ -	$ 0.10	$ -	$ -	$ -
1970	$ 5.15	$ -	$ 5.15	$ -	$ -	$ -
1971	$ 6.47	$ 4.47	$ 2.00	$ -	$ -	$ -
1972	$ 36.54	$ 6.50	$ 2.91	$ 6.00	$ 10.56	$ 10.56
1973	$ 162.02	$ 7.28	$ 1.06	$ 10.64	$ 135.76	$ 7.28
1974	$ 100.97	$ 15.23	$ 5.50	$ 21.36	$ 30.96	$ 27.92
1975	$ 99.03	$ 31.63	$ 1.88	$ 25.36	$ 7.52	$ 32.64
1976	$ 266.46	$ 23.60	$ -	$ 93.36	$ 108.26	$ 41.25
1977	$ 305.91	$ 7.23	$ 1.11	$ 89.80	$ 170.91	$ 36.85
1978	$ 11.87	$ 9.54	$ 2.32	$ -	$ -	$ -
1979	$ 22.53	$ 22.03	$ 0.51	$ -	$ -	$ -
1980	$ 48.19	$ 42.06	$ 6.13	$ -	$ -	$ -
1981	$ 66.05	$ 51.33	$ 14.72	$ -	$ -	$ -
Total	$ 1,131.28	Public Works				

Source: (FONATUR, 2011b; INFRATUR, 1971; Marti-Brito, 1985; McDonalds, 2007)

Although everything was under the administration of INFRATUR/FONATUR, different agencies were responsible for different installations. As can be seen in Table 15, at the start of the project the bulk was invested in the airport built by the federal government. The initial temporary airport was replaced by today's Cancún International Airport that started functioning in 1973 (FONATUR, 2011b) but was officially inaugurated by then Mexican president Echevarria in 1975 (McDonalds, 2007). With the new airport, flights and passengers increased sixfold in five years with an ever increasing proportion of international tourists (Table 16).

Table 16: 1970s - Evolution of Flights, Passengers and Tourists

	Flights	Passengers Ttl	Passengers International	Passengers National	Nationals/ Total
1975	1,013	55,800	6,100	49,700	89.1%
1976	3,245	153,100	63,700	89,400	58.4%
1977	4,820	212,600	97,600	115,000	54.1%
1978		243,800	125,900	117,900	48.4%
1979	5,639	294,500	166,900	127,600	43.3%
1980		341,800	179,700	162,100	47.4%

(Source: www.sct.gob.mx)

As to the return on investment, public accounts for this era are sparse and anecdotal. However, federal ear-marked transfer payments to the state grew 45-fold from US $ 0.2 million in the early 70s to $ 9.3 million by 1977 ostensibly for the second construction phase with little spent on social programmes.

Figure 53: 1970s - QR's Earmarked Transfers as a Portion of Total Budget
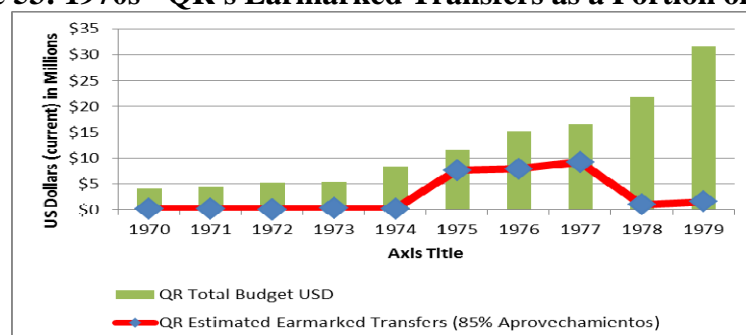
(See Appendix 4 for data and sources.)

Thanks to this second phase of investment, by 1980 the number of hotels climbed to 50 offering almost 4,000 rooms and receiving an estimated 460,000 visitors that lodged, on average, 4 nights in European Plan hotels[27], and most of whom arrived by plane. Not only were hotels booming but also local restaurants and visitor attractions.

Table 17: 1970s – BJ's Evolution of Hotels, Hotel Rooms and Occupancy

	Hotels	Rooms	Occupancy	Visitors	Ave. Stay
1974	3	332			
1975	12	1,322	54.7%	99,500	
1976	22	2,023	62.0%	180,500	
1977	30	2,494	68.5%	265,200	
1978	35	2,763	70.9%	309,800	
1979	41	2,923	77.5%	395,800	
1980	50	3,930	65.7%	460,000	3.8

(Source:FONATUR, 2011a; Jiménez Martínez, 2010; Moncada Jimenez, 2008)

Probably due to full employment, by the end of the decade housing standards in BJ were superior to the rest of QR (and would remain so for three decades) with 69 percent of houses having electricity, 50 percent with concrete floors and 45 percent connected to water and sewage. In other words, benefits were trickling to the local population and Banxico's ambition of international tourism providing foreign currency and regional employment was bearing fruit.

Simultaneous to this ambitious project were changes in taxing powers and legislation. States that had originally resisted the federal government's central authority, by 1972 had ceded and began negotiations. By 1978, the federal government and the sub-national governments created a new fiscal federalist framework wherein states and municipalities renounced their right to impose certain local taxes in exchange for a share of

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[27] European Plan is defined as room only with no meals included. The other end of the spectrum is All-Included hotels where everything is included in one price from room, meals, alcoholic and non-alcoholic beverages to activities, entertainment and tips.

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all taxes collected by the federation. With the new agreement, 458 sub-national and 18 federal taxes were revoked.

As QR's own revenue generation only contributed 15 percent, these higher transfers accounted for as 'other' (see Figure 54 especially 1975-1977) , covered 50 percent of the budget needs and boosted QR's resources almost doubling the state budget during this period.

Figure 54: 1970s - QR's Dispersion of State-Generated Revenue
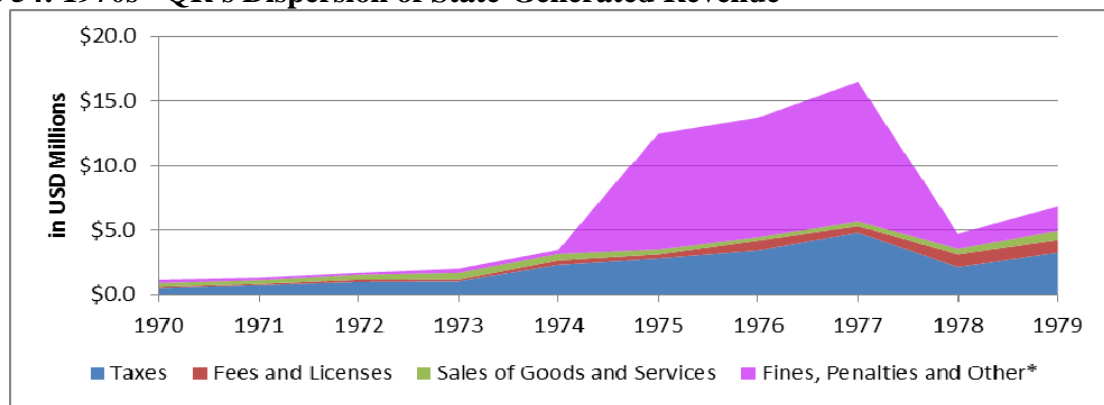
(See Appendix 6 for data and sources.)

The years of higher transfers correspond to Banxico's INFRATUR becoming the federal government's FONATUR (1974) and Enrique Savignac, INFRATUR's director and Banxico employee, becoming a federal government employee and FONATUR's first director[28].

As to revenue generation (or return on investment), an estimate of the sum of QR's state generated revenue for the decade from 1970 to 1979 is approximately US $33-35 million, less than 4 percent of the total federal investment. The contribution of QR to federal revenue and municipal budgets in this period is sparse and anecdotal so no figures are available on each state's collection in the 1970s. As for municipal expenditure and resources, QR did not provide itemized municipal accounts until 1978 and BJ's until 1980.

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[28] Antonio Enriquez Savignac went on to be Tourism Secretary from 1982-1988 and then Secretary-General of the United Nations World Tourism Organization (UNWTO) from 1990 to 1996.

The 1980s - Silver Bullet

With Cancún's reputation growing, the number of hotels doubled, the number of

rooms quadrupled and the number of visitors surpassed 1 million.

Table 18: 1980s - BJ's Evolution of Hotels, Hotel Rooms and Visitors

	Hotels	Rooms	Visitors
1980	50	3,930	460,000
1981		5,225	540,800
1982	52	5,258	643,800
1983	52	5,709	754,600
1984	57	6,106	713,900
1985	59	6,591	729,900
1986	64	7,028	869,300
1987	86	8,910	960,600
1988	95	11,891	838,200
1989		15,310	1,153,600

(Source: INEGI, 1993a; Jiménez Martínez, 2010; Moncada Jimenez, 2008)

As such, the number of flights tripled from 6000 to 18,000 within a decade and, with larger

aircrafts, air passengers more than tripled rising from 341,600 to 1.3 million of which 70

percent were international (FONATUR, 2011a), the highest percentage in the history of

Cancún. Banxico's goal of attracting foreign tourists and hard currency was achieved.

Arriving in search of work, the number of BJ residents grew fivefold from 37,190 to

176,765 by 1990 while the state doubled in population from 225, 985 to 493,277. Despite

this strong growth, the economically active population (those over 14 years of age) only

dipped slightly from 64.25 percent in 1980 to 58.37 percent in 1990. In QR the

economically active rate was lower than in BJ at 62 percent in 1980 and 51 percent in 1990.

QR in general and BJ in particular had one of the highest rates of economically active

population in the country and remained one of the highest nationally for two decades. Of

the QR workers, only 33 percent worked in the service sector in 1980 but by 2000 it was

over 72 percent demonstrating a major shift from rural to urban and from the primary sector

to the tertiary sector. With plentiful work, the 1980s showed the highest level of insured workers ever at 65 percent in BJ and an average for QR state of 47 percent.

The fast growth of BJ made it difficult to provide adequate housing as demonstrated by data on housing materials. By 1990, the national average of houses with precarious roofing materials such as cardboard and waste materials was 12.4 percent whereas QR was 30 percent. Houses with precarious walls made of wattle and daub or cardboard was 7.4 percent nationally while QR was at 16 percent. In terms of dirt floors, the national average was 20 percent whereas QR was 23 percent but only 11 percent of BJ houses. Another illustration of BJ's wealth was that while 57 percent of all of QR's houses had concrete floors or better (tile, marble, etc), BJ was almost ten percent higher at 66 percent. Of the houses within the municipality, 82 percent had electricity and 48 percent had municipal water connected inside the house. In short, in the 1980s life was good for the average BJ resident and getting better.

With such rapid growth in hotels and employment, public finance reflected this boom with a positive net cash flow back into the government coffers to reimburse Cancún's infrastructure cost. Of total federal taxes, the proportion collected in QR more than doubled from 0.12 percent in 1983 to 0.27 percent in 1988. Although this looks impressive, QR's population and GDP to national was 0.34 percent and 0.40 percent respectively in 1980, and then grew to 0.59 percent and 0.80 percent by 1990. Otherwise said, compared to its economic activity and population growth, QR continued to collect only one-third of its potential in important federal taxes (income taxes and VAT, especially). However, as federal taxes are remitted in the federal entity of the declared head office, total federal taxes generated in Cancún are not fully reflected. Therefore the true judge is that the net received by the state (federal collection minus federal transfers) is close to zero suggesting an

execedent outside the state[29]. This would evidence an overall net benefit to the federal government to reimburse costly initial and ongoing expenditure as is the case.

Figure 55: 1980s - QR's Federal Taxes Remitted to Federal Transfers Received
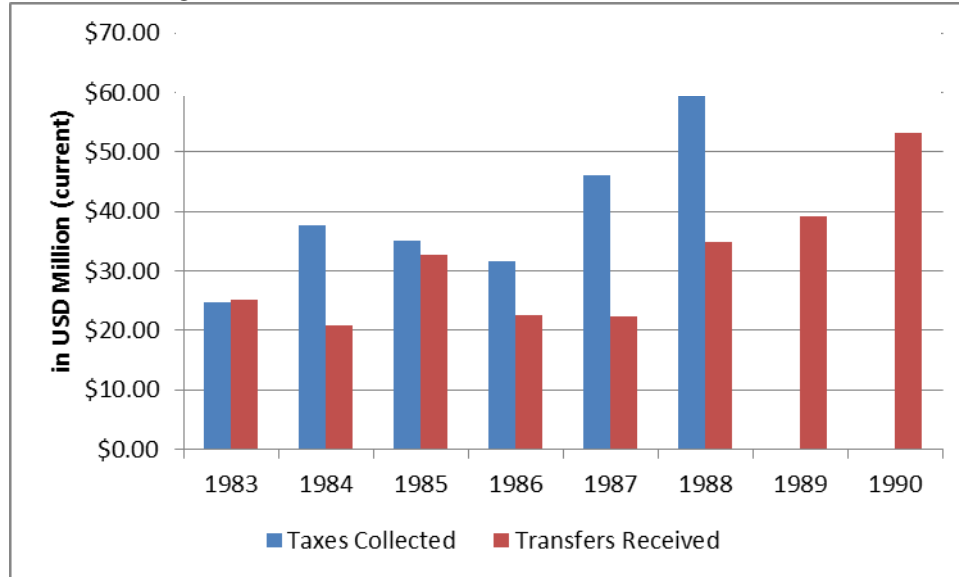
(See Appendix 4 for data and sources. Information not available for 1989 and 1990.)

Although federal tax remittances doubled, federal transfers back to the state were less than remittances (Figure 55). This suggests that QR (and in particular BJ with most of the economic activity), produced a net benefit to the federation. The benefit would have been even greater if it was not for an inexplicable treatment of QR as *Zona Fronteriza* since 1973 with a low VAT rate of 6 percent throughout the 1980s when most other states applied 10 percent in 1980 and then 15 percent in 1985. VAT exemptions[30] combined with tax evasion seriously eroded capture and reduced collections by an estimated 5.5 percent of GDP (Fuentes Castro et al., 2010: 102). Combined income taxes and VAT historically provide 80 percent of non-petroleum federal revenue which, in turn, provides 80 percent of

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[29] When I had operations in Cancún in the 90s nd early 2000s, my accountant in Cancún recommended declaring my registered office in the neighbouring state of Yucatan because of the rampant corruption and incompetence of the Cancún federal revenue office. I was told that if I needed to contest tax assessments, Merida offered a better chance of a fair and competent reappraisal.

[30] Zero VAT and exemptions apply to all food products, even processed foods, as well as medication.

state and municipal budgets. In short, lower VAT to QR is a major loss of important federal revenue.

As for other state generated revenue, QR remained heavily dependent on government transfers (see Figure 56, especially the 'Other'). As federal revenue earmarked and non-earmarked transfers rose, state tax effort slackened. State generation to overall budget was an average of 11 percent having fallen from an average of 45 percent in 1970s.

Figure 56: 1980s - QR's Dispersion of State Revenue including Earmarked Transfers
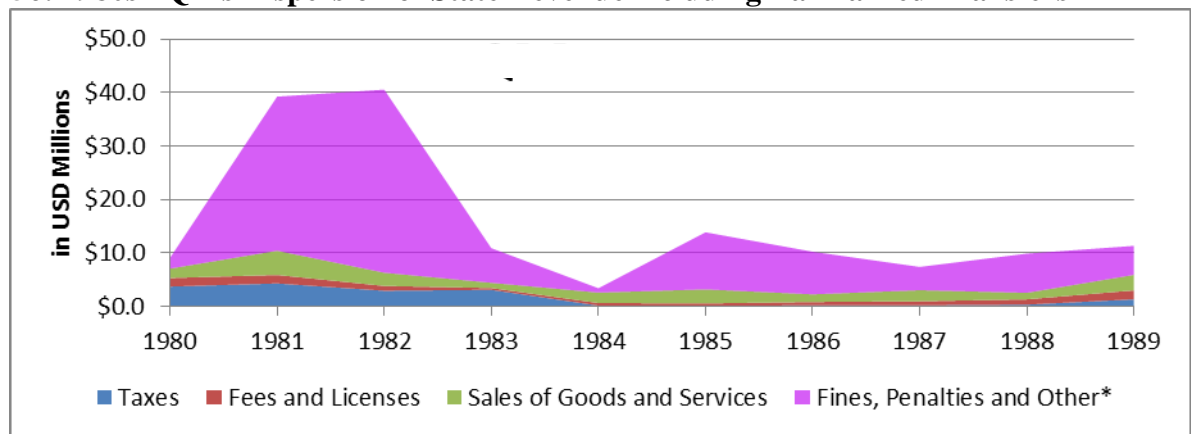
(See Appendix 6 for data and sources.)
*An estimated 85-95 percent of Other is ear-marked transfers

By the end of the 80s, the state government earned more in sales and fees than in taxes. However, by far the most important source was federal transfers.

While QR remained heavily dependent on government transfers for the majority of its budget, BJ's tax collection soared with the new hotels and houses in the latter 80s corresponding to a second wave of hotel construction (from 57 to 90 hotels) and new residences. From almost zero in 1980, municipal tax collection reached a high of US $7 million in taxes making the municipality relatively independent.

Figure 57: 1980s - BJ´s Tax Collection Total and Population Growth
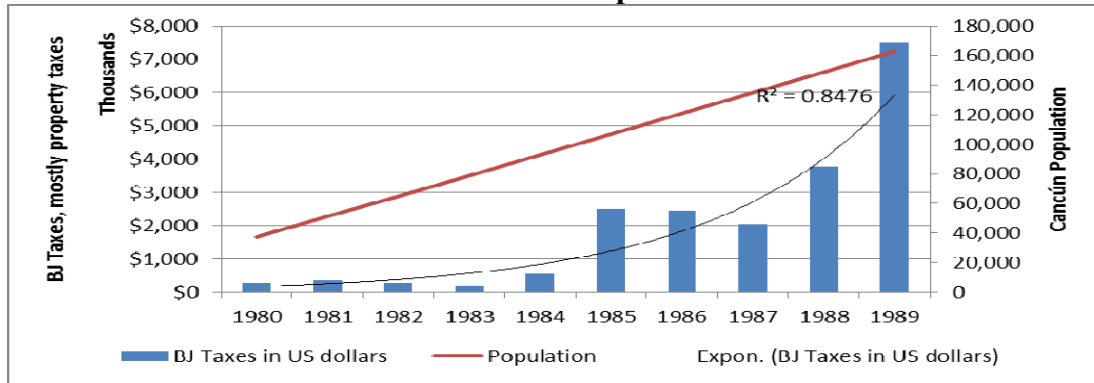
(See Appendix 7 for data and sources.)

From an almost complete dependence on ear-marked transfers in the first half of the 1980s, BJ moved quickly to more than two-thirds of its total revenue locally generated between local property taxes and federal non-earmarked transfers (BJ's portion of federal tax collection). BJ was the municipal miracle! In less than two decades, the impoverished region now housed one of the richest municipalities in the country.

Figure 58: 1980's - BJ's Dispersion of Local Revenue including Transfers
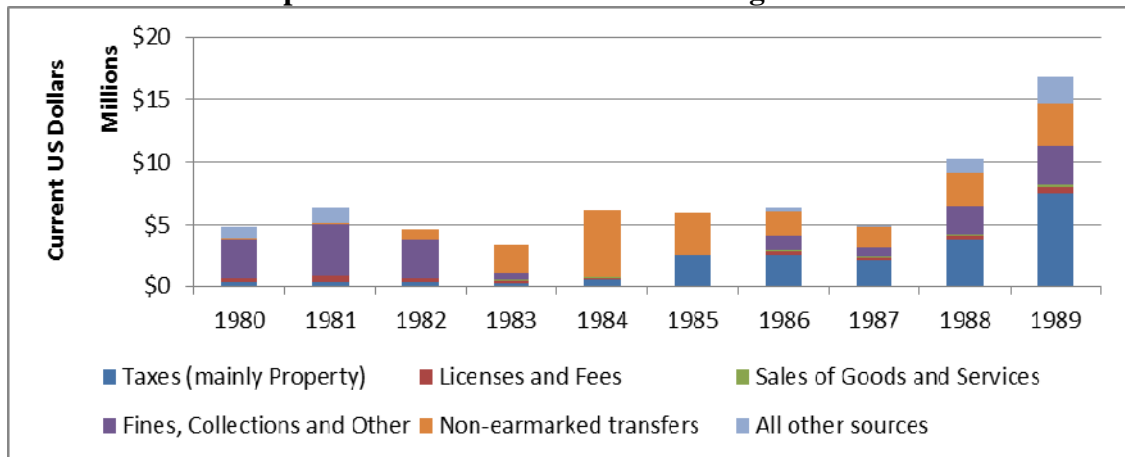
(See Appendix 7 for data and sources.)

However, pressure was building. Although BJ's revenue tripled in a decade, because its population quintupled BJ's budget was less per capita at the end of the decade than at the beginning.

Figure 59: 1980s - BJ's Total and Per Capita Budget
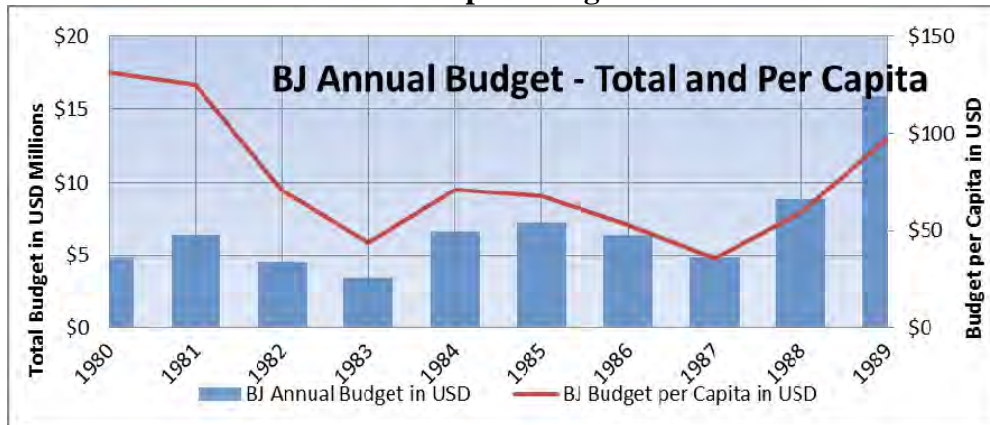
(See Appendix 4 for data and sources.)

The pressure on the municipality is equally demonstrated in ear-marked transfers. Although undisclosed, the proportion of 'Fines, Collections and Other' attributable to ear-marked transfers is an estimated 85 to 95 percent (Figure 56 and Figure 58). BJ's revenue dispersion was similar to all QR's municipalities in the early 80s at 70 percent of revenue from federal sources. This proportion continued for the other muncipalities whereas BJ jumped to relative independence with over 40 percent of revenue generated through municipal taxes while the other municipalities remained highly dependent on federal funds averaging only 10 percent of total budget financed by local taxes.

Figure 60: 1980s - Comparison of QR's Municipalities' Revenue Dispersion
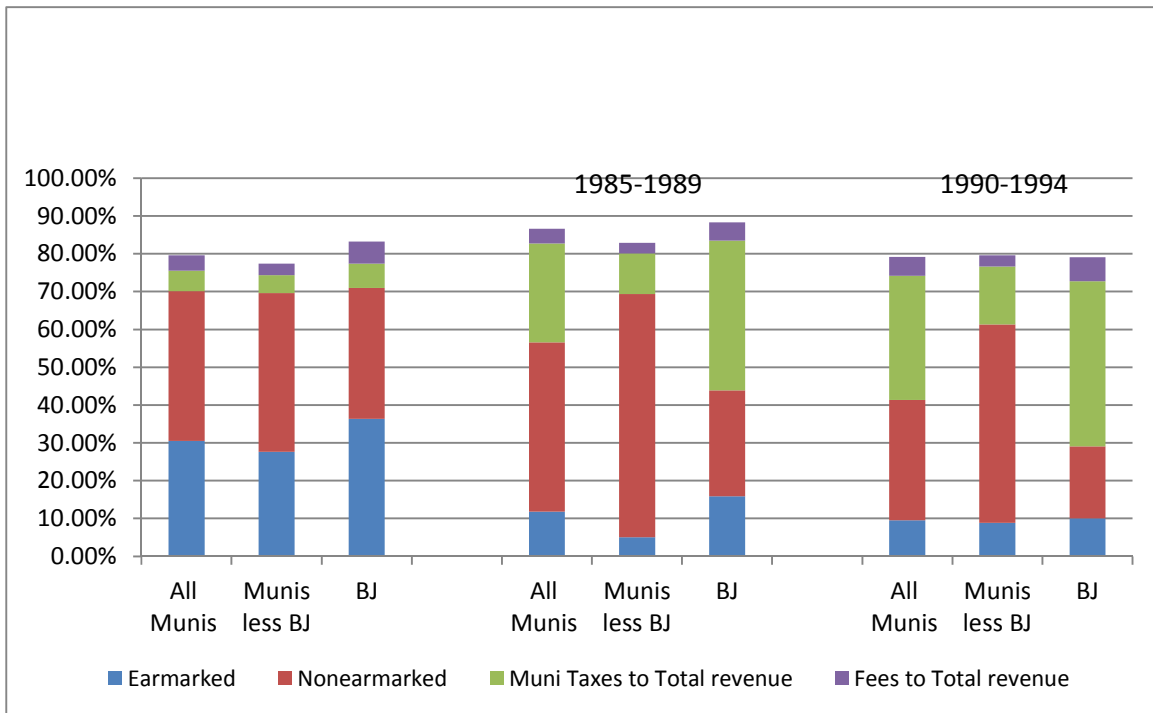
(See Appendix 7 for more information and data sources. Own compilation from INEGI, 1984a, 1986a, 1987a, 1993a, 1998b)

Of the municipal participable fund (MPF) to be distributed among the QR municipalities, BJ alone obtained 38 percent in the early 1980s, 55 percent in the late 1980s and then reached a historic high of 62 percent of total in the early 1990s, higher than its population share but most likely in keeping with economic activity.

However, these averages hide another fact, the important assistance through earmarked transfers for municipal infrastructure.[31]

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[31] In Mexico, municipal responsibilities include streets, public lighting, recreation and security and other. See earlier chapters for more information.

Figure 61: 1980s - QR's and BJ's Earmarked Transfers as a Percentage of Total Revenue
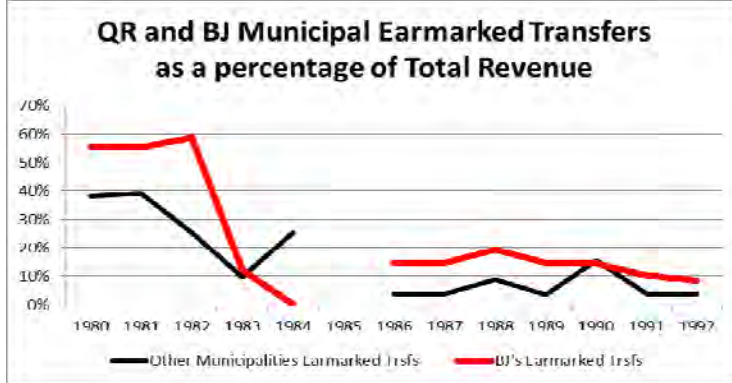
(See Appendices 6 and 7 for data and sources.)
*There was no data for 1984 and 1985 BJ and 1985 QR State.

Although declining, earmarked transfers provided the bulk of all of QR's municipal revenue which declined to 10 percent by the early 90s. BJ received a larger portion of these ear-marked transfers compared to other municipalities in addition to the lions' share of municipal participable revenue. As a reminder, earmarked transfers pay for federal social programs that local politicians can portray as their own iniciatives and slacken local public works (e.g. see Achach Solís, 2002).

In the euphoria, BJ started on the slippery slope of borrowing with its first US $1.13 million loan in 1989. As we will see, debt would make up an increasingly larger proportion of revenue from 1990 onwards with only 30 percent of revenue coming from transfers. Otherwise said, BJ enjoyed more independence than most municipalities but also more largesse than most.

As to expenditure, in the early 80s BJ was already distinguishing itself for a higher percentage of current expenses for personnel and materials to that spent on public works. While other municipalities reduced their current expenditure as a proportion of total revenue from 58 percent to 38 percent, BJ only dropped from 81 percent to 79 percent.

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Figure 62: 1980s - Comparison of QR's Municipalities' Expenditure Dispersion
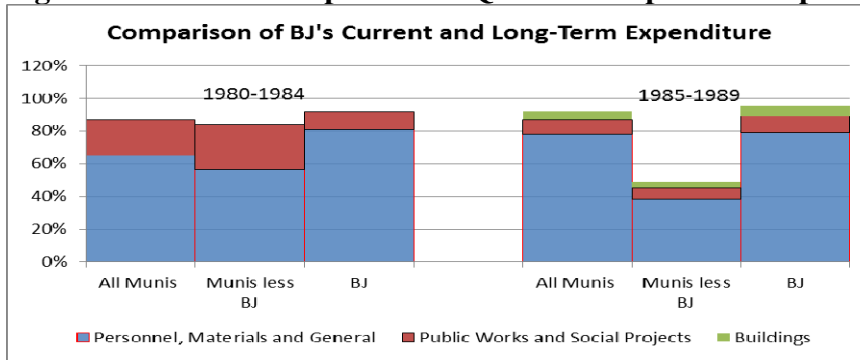
(See Appendix 7 for more information and data sources. Own compilation from INEGI, 1984a, 1986a, 1987a, 1993a, 1998b)

In other words, the fledgling muncipal administration was becoming more a source of employment, probably political nepotism, than long-term investment in municipal infrastructure and public service. In the latter 80s the municipality continued to provide employment but improved tax effort and public works investment. Overall, the municipality was an economic success providing net revenues to the federal government and improving the well-being of the community through social security benefits and better living standards. The demand for workers led to high migration to the area. Most certainly, municipal administration was pressed to provide services but the service it best provided was employment in the administration of itself.

The 1990s – From Silver Bullet to Sacred Cow

Cancún's reputation was now established. The number of hotels continued to climb although not as quickly as available rooms. The size of the hotels increased by 50 percent from an average of 125 rooms per hotel in 1990 to 175 rooms per hotel by 1997. Therefore, the number of hotels in Cancún increased by 13 percent while the number of rooms available increased by 25 percent. By the end of the 90s the number of visitors surpassed 3 million. Average year-round occupancy climbed from 68 percent in 1991 to a high of 81

percent in 1997. Hotel rates averaged US $77 per room per night with an average stay of

five nights.

Table 19: 1990s – BJ's Evolution of Hotels, Hotel Rooms, Visitors and Occupancy

	Hotels	Rooms	Visitors	Occupancy	Stay	Rate
1990	110	17,470	1,575,700	68.0%	5.2	
1991	107	17,971	1,912,100	69.0%	4.8	
1992	106	18,003	2,046,000	75.0%	5.0	
1993	109	18,540	1,979,100	72.0%	5.1	
1994	113	18,859	1,958,100	76.3%	5.1	
1995	121	20,278	2,164,230	76.3%	5.2	$75.80
1996		21,097	2,311,600	77.9%	5.2	$77.97
1997	124	21,683	2,621,300	81.0%	5.1	$80.07
1998		23,581	2,664,200	76.4%	5.0	$80.72
1999		24,610	2,818,300	73.0%	5.0	$75.53

(Source:AHC, 1995-2012; Jiménez Martínez, 2010; Moncada Jimenez, 2008)

While the numbers of rooms in Cancún increased at 10 to 20 percent per annum, large all-inclusive hotels in the adjoining Solidaridad boosted the number of rooms available by 50 percent.

Figure 63: 1990s - BJ and Solidaridad Available Hotel Rooms

	1995	1996	1997	1998	1999	2000
Solidaridad	1470		4918	10095	12653	15297
Cancún	20278	20197	21683	23581	24610	25434
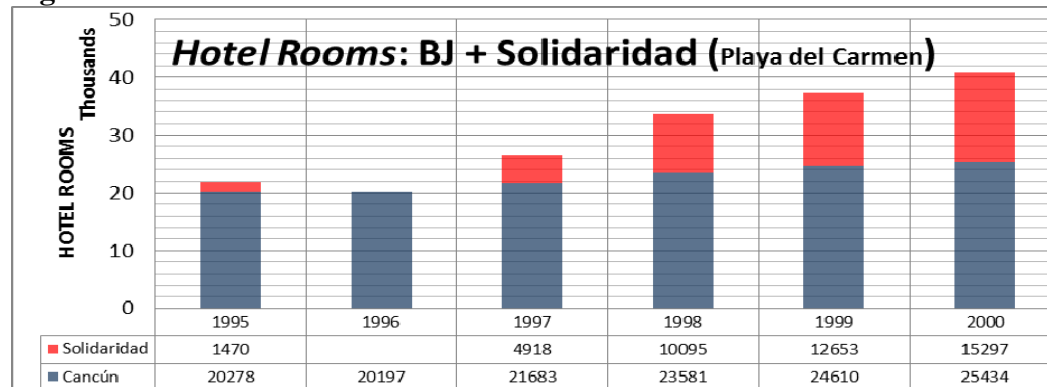
(See Appendix 3 for data and sources.)

Throughout the decade of the 90s flights had increased by 50 percent from 18,500 in 1990 to 28,000 by 2000. The number of passengers grew from 1.3 million to more than 2 million by 2000 with more than 60 percent international.

Throughout the 90s the number of BJ residents also grew to 48 percent of QR's population by 2000 having grown from 177,000 to 417,000 while the state's population

was 875,000. Despite this strong growth, the economically active population (those 14 years of age and over) increased over the decade from 51 to 58 percent state average and 58 to 62 percent for BJ most working in the service sector. Work was plentiful but the number of insured workers in BJ dropped steadily since the record high of 65 percent in 1986. In the early 90s it dropped 10 percent to 55 percent and then a further 10 percent in the latter 90s to an average of 44 percent by the year 2000. From a record high of 65 percent in the mid-80s the number of BJ insured workers was even lower than QR's average of 46 percent, a indicator of important industry changes.

Despite the fast growth, there were important strides in terms of housing standards. In QR, the number of houses with concrete or better floors increased sharply from 56 percent in 1990 to 88 percent in 1995 and 90 percent in 2000. Residential electricity improved from 85 to 95 percent of total dwellings and with in-house water from 36 to 45 percent of all QR residences. For BJ, the averages were higher. Dwellings in the municipality with electricity increased from 82 percent in 1990 to 95 percent in 1995 to 99 percent in 2000; and in-house water from 48 percent in 1990 to 50 percent in 1995 to 59 percent in 2000. Even education-lag was below the national average. All indicators showed improvements above the average with one exception: income disparity and education. In 1994 the Gini per capita was 0.62 in the state while the national average was lower at 0.58.

But the state and especially the municipality were rich, or were they? In the 90s the magic of development through tourism appears to wane especially in the second half of the decade.

Figure 64: 1990s - QR's Federal Taxes Remitted to Federal Transfers Received
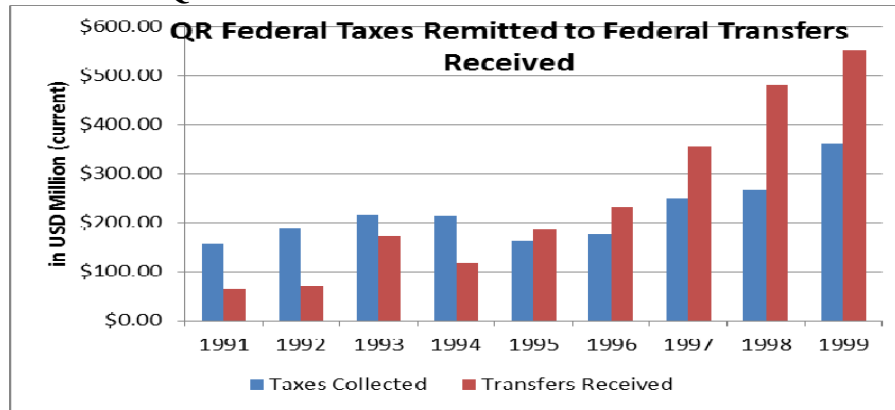
(See Appendix 4 for data and sources.)

By the end of the decade total transfers (earmarked and non-earmarked) exceeded federal revenue collection within QR by 50 percent. One reason is that earmarked transfers to the states legislated for education in 1992 and for health services in 1996 were fully implemented by 1998 through targeted funds for education (FAEB and FAETA), health (FASSA), and security (FASP), among others. But equally QR's mono-industry of tourism was no longer producing a surplus in taxes that were remitted in QR or elsewhere.

With a higher-than-national-average economically active population, it is unsurprising that QR's GDP is higher than its proportion of population. In 1990, QR had 0.6 percent of the population but 1 percent of GDP. The proportion of state taxes collected correlates closely to these two numbers at 0.81 percent. Yet QR provides only 0.25 percent of nationwide federal taxes, again one-third of its potential. In 1995, QR had 0.77 percent of the population, generated 0.92 percent of nationwide state income and produced 1.23 percent of national GDP. Yet QR only accounted for 0.31 percent of federal tax collection, one quarter of its activity. The same trend continued to 2000: 0.9 percent of the population, 1.4 percent of the nation's GDP, 1.2 percent of nationwide state tax collection yet only 0.42 percent of all federal taxes, one-third or less of QR's proportion of GDP.

Figure 65: 1990s - QR's Federal Tax Collection to State GDP and Population
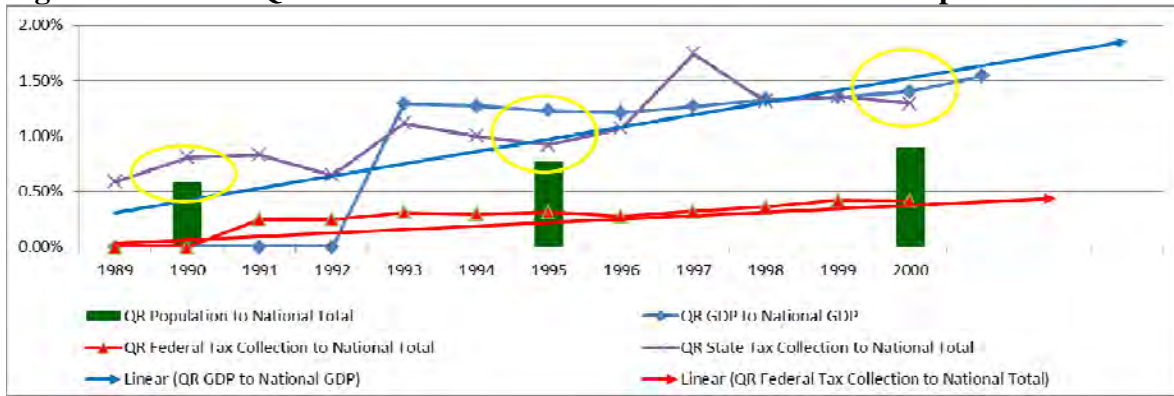
(See Appendix 4 for data and sources.)

Although the percentage is stable between 0.25 and 0.33 percent of national collections, in gross amounts the federal tax effort in QR is less than population growth and economic activity as the above graph shows. Population, state GDP and state generated revenue grew faster than QR's proportion of federal taxes indicating low tax effort combined with avoidance and/or evasion. In other words, the most important taxes, federal income tax and VAT, appear to receive the least effort.

While state revenue collection remained flat, the amount of non-earmarked transfers over state revenue tripled from US $50 million in 1990 to US $150 million in 2000.

Figure 66: 1990s - QR's State Revenue Generation to Federal Transfers
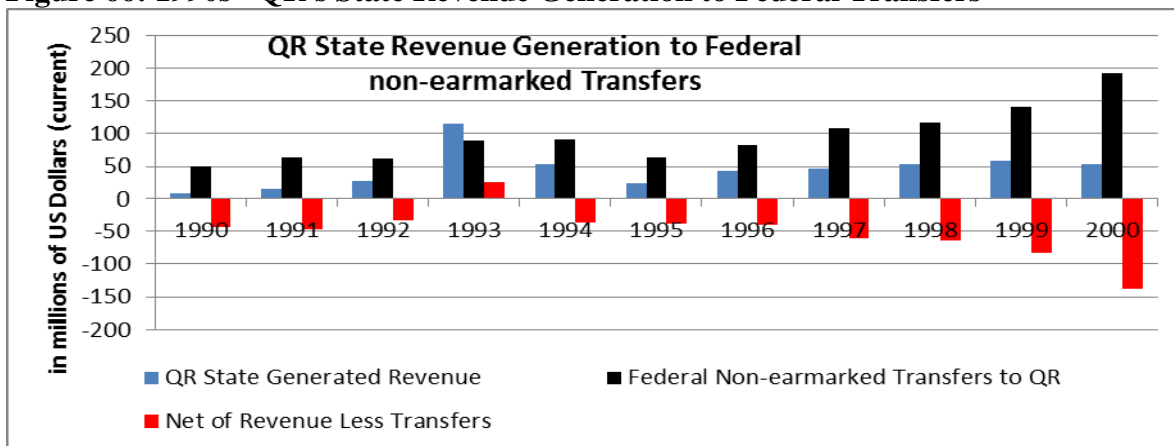
(See Appendix 4 for data and sources.)

Otherwise said, QR´s budget was increasingly depended on its portion of federal transfers while federal collections in real terms were slowing. Several reasons could explain this. The first is political favours to ensure re-election. Another is the facility of using back-to-back credit operations[32] known to be common practice in the 90s for hotel and other building construction (pers. comm.). Concurrent to this is the major shift in the tourism industry with the growth in the number and size of all-inclusives, both fixed and floating, from 1995 onwards. Both use critical land-based and fragile resources without concommitant taxation. In addition to evasion (back-to-back) and avoidance through transfer pricing, land-based all-inclusives have a malleable product mix of ground services, food and lodging that can be modified on paper to lower the tax burden. For example of the package price per person, a larger portion is assigned to entertainment and a smaller portion to lodging which is the object of hotel tax. All-inclusives also employ proportionally fewer personnel, an estimated 25 percent fewer[33], which helps to explain the fall by 10 percent in the number of insured workers to 44 percent in BJ and 46 percent in QR barely above the national average of 41.4 percent. Last but not least is the negative impact on local investment in small and medium-sized enterprises as guests no longer leave the premises of these mammoth guilded cages. This affects employment in shops, domestic restaurants and entertainment centers, and therefore income, payroll and value-added taxes. To offset some inefficiencies, indirect hotel taxes (ISH), harder to evade, were legislated federally in 1995

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[32] The company deposits money in an overseas bank at an agreed rate and then the same bank corporation within Mexico lends the same company money for construction and renovation at previously agreed upon high interest rates to reduce taxable income.
[33] The reasons for fewer staff include, among others, economies of scale from a one-size-fits-all experience; self-service buffet meals and drinks; and multi-task staff (e.g. pool activities during the day and show entertainment in the evening) that live onsite and work longer hours.

but only introduced into law in QR in 1998 and collected as of 1999. QR's legislated these monies to be earmarked for tourism promotion.

As for cruise ships that pay no tax whatsoever, from 1.2 million passengers along the coast of QR in 1996, by 2000 the number increased 50 percent to 1.8 million. Cruise ships require docks, roads and other important infrastructure for shore visits yet locally create minimal and irregular work, often in the informal sector and uninsured workers with no access to social security. It is hard to understand how increasing the number of cruise ships and passengers with no taxation is a boon to development apart from boosting GDP figures.

As tourism becomes more and more entrenched in the national and local psyche as a viable development strategy, we need to more closely examine the municipality of BJ. With hotels and residences expanding, it is to expect that total property taxes collected would grow accordingly. However, this was not the case. While population climbed arithmetically, property taxes declined (Figure 67).

Figure 67: 1990s - BJ's Tax Collection Total and Population Growth
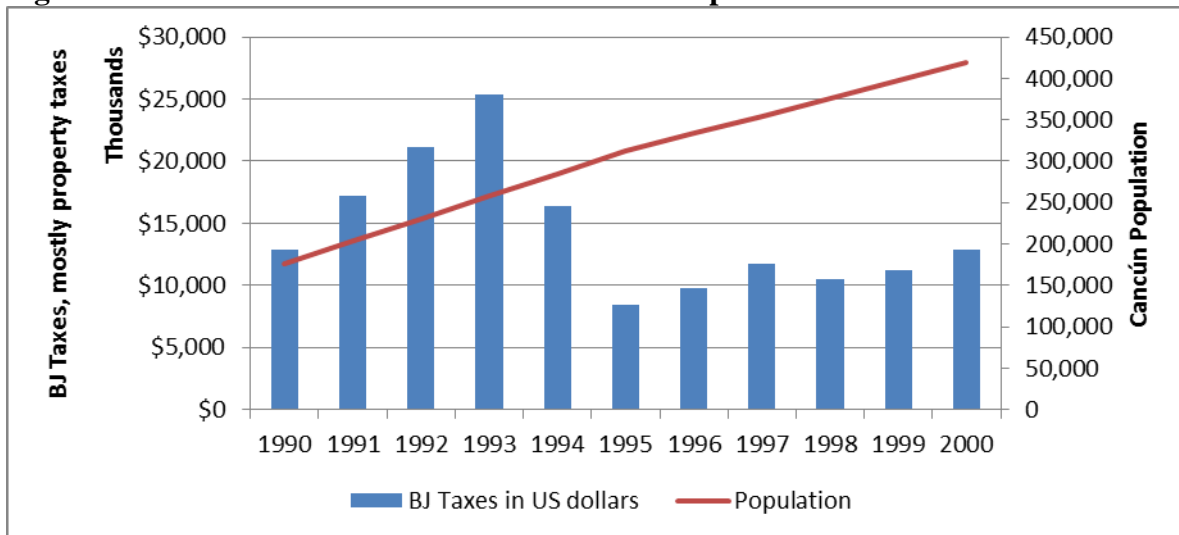
(See Appendix 7 for data and sources.)

One explanation is the economic crisis in 1995 which severely affected the country. Property tax rates may have been lowered to help soften the crisis. However, in terms of tourism, the weak Mexican peso to the US dollar made the destination very attractive. This is confirmed by continued strong growth in the number of tourists, the occupancy and the average hotel rate. Therefore, employment was not severely affected as in other parts of the country. Moreover, property tax collection only recovers to the historic 1992 peak by 2010, long after the country has recovered. More likely, it is a combination of low tax effort and local politics. The combination of decentralized expenditure with centralized collection and obscures the true source of the funds which allows state and municipal politicians to take credit for ear-marked federal program funds while slackening sub-national collections to appease the local electorate and to ensure re-election of members of their own parties (Ahmad et al., 2007; Broid Krauze, 2010; Lozano Cortés and Cabrera Castellanos, 2010; Martinez-Vazquez, 2008; Sour, 2007).

The pinnacle of BJ's wealth was in the early 90s when BJ was allotted more than one-half of the municipal participable fund combined with all-time high property tax collection. In 1993 per capita budget peaked at US $245 (see Figure 68), a level revisited only one decade later but based on borrowing rather than tax effort. Since 1995, BJ´s tax efficiency declined to 41 percent, then 37 percent and recently to 34 percent of overall budgets, while the proportion of the MPF remained stable at 34 percent (QR, 2004, 2010).

Figure 68: 1990s - BJ's Total and Per Capita Budget
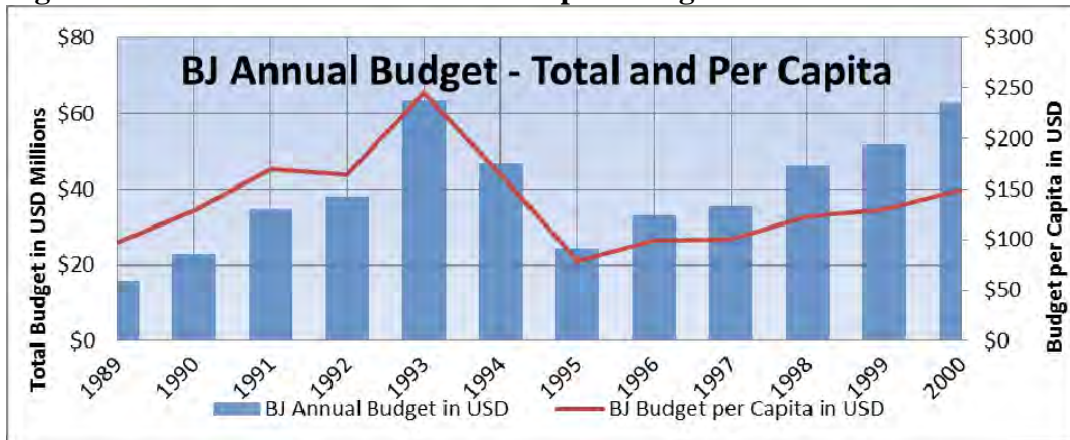
(See Appendix 7 for data and sources)

As to expenditure (Figure 69), BJ continued to have a higher percentage of current expenses of personnel and material compared to QR's other municipalities. While BJ spent two-thirds of its budget on current expenses, especially personnel, the other municipalities spent approximately one-half. For all municipalities little was invested in long-term capital expenditure.

Figure 69: 1990s - QR's Municipalities Expenditure Dispersion
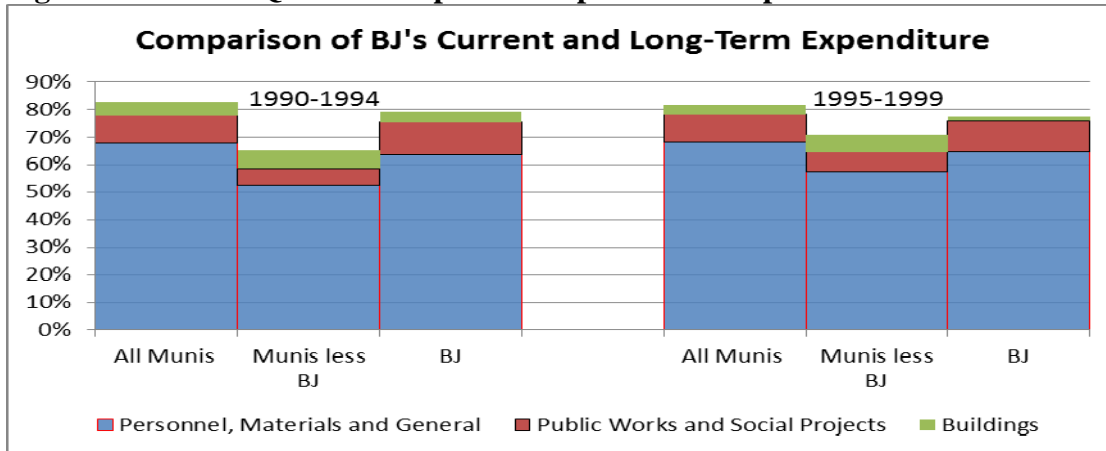
(See Appendix 7 for more information and data sources. Own compilation from INEGI, 1984a, 1986a, 1987a, 1993a, 1998b)

It appears that BJ administration continued to exist primarily for itself rather than realize economies of scale and long-term projects.

Despite declining resources per capita, debt also declined by 75 percent to US $80 million from a high of US $140 million in 1993.

Figure 70: 1990s - Indebtedness - Sum of QR State and Municipal Borrowing
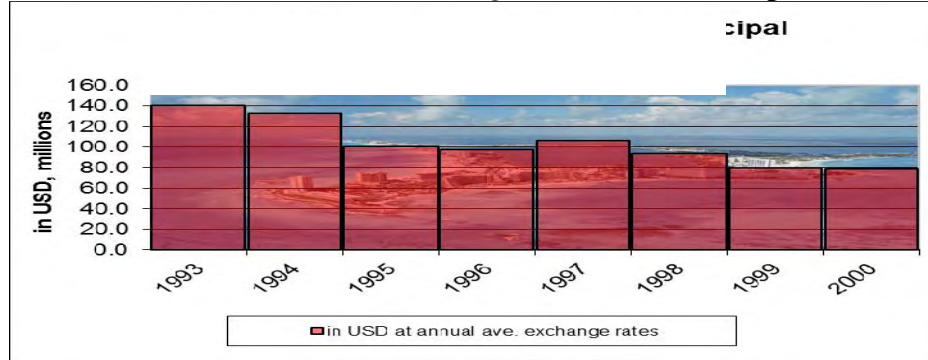
(See Appendix 9 for data and sources.)

To summarize, although tourism as a development strategy was starting to show cracks, they would not be fully revealed for another decade. Tax evasion was high[34], BJ's per capita budget fell and workers were less often insured. QR now received more in transfers than it provided in tax revenue. Yet the Gini (income inequality) was declining, housing had improved and the economy boomed. Euphoria, myopia and hubris were more common than caution, reflection and industrial diversification especially having ridden out the 1995 crisis better than other areas.

The 2000s – Sacred Cow

Cancún's reputation was established but it was now one of a concrete city of multi-level buildings. Tourist tastes, sparked by hoteliers´ promotion touting isolated lengths of sandy beaches, turned to the mammoth all-inclusive complexes increasingly dotting the 150 km shoreline to the south of Cancún. Since 2000, more than 50 percent of tourist arrivals at Cancún´s airport lodge in the area to the south of Cancún known as the 'Riviera Maya'.

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[34] Tax losses from avoidance and evasion compared to the USA was estimated to be more than 6 percent of GDP throughout the 90s. The special treatments and subsidies, and non-payment cost Mexico US $30 billion in 1993. Improving tax effort without changing the tax structure would have resulted in sufficient revenue for all social spending and infrastructure programmed in 1999 (Hernández Trillo et al., 2000).

Nonetheless, Cancún´s tourism record is remarkably stable: a 10 percent increase in the number of rooms, an average of 3 million visitors per year, occupancy of 68-70 percent and a stay of 4.7 days (AHC, 1995-2012). Moreover, the decade saw a powerful hurricane that destroyed Cancún in 2005 and a serious economic recession of its most important client: the USA. For private enterprise the tourist resort of Cancún weathered well the turbulent decade.

As for the federal government, for the first time in seven decades, the Revolutionary Party lost the presidential election in 2000 as more and more urban dwellers voted for the opposition. Thus began a decade to improve transparency and accountability. This is reflected in the new laws such as the introduction of accrual accounting for all levels of government to consolidate accounts among government and independent agencies under their control such as trust funds like FONATUR that were always required to use accruals. Accrual accounting throughout allows for the proper consolidation of the government accounts with these independent agencies under their administration to fully account for resources. The federal government has introduced a legally enforced balanced budget (OECD, 2009) and renewed tax effort in view of the heavy dependence on volatile petroleum revenues. The three most important forms of revenue nationwide and for all levels of government are corporate income tax (CIT), personal income tax (PIT) and value-added tax (VAT). From tax evasion averaging 30 percent, since 2000 the federal government has suceeded in reducing evasion to one-half or less of previous rates. To better align with its two NAFTA neighbours, Mexico adjusted its CIT rates to those of Canada and the USA, and reduced the number of PIT brackets from 10 to 8 (Fuentes Castro et al., 2010). Another important piece of legislation that lead to a court challenge (Meade Kuribueña, 2010) was the change from an asset tax to IETU, a minimum tax based on cash

flow. This has made it harder to avoid taxes. In fact Mexico's tax collection improved by 1.4 percent of non-petroleum revenues an average of 7.5 percent of GDP from 1980-2000 to now 9.8 between 2007 and 2011 (SCHP, 2011: 40). As to the informal sector, to capture a portion of evaded revenue, an indirect tax on large cash deposits (IDE) collected by banks was added which has boosted coffers more than expected. The previous floor tax on assets added 0.1 to 0.3 percent of GDP to federal taxes from 1990 to 2008. The new taxes of IETU and IDE have added an average of 5 percent (SCHP, 2011: 60).

But tax loopholes still exist. All food stuffs and medication have zero VAT which makes these exemptions regressive rather than progressive. The federal government loses important revenues from inexplicable tax-free zones such as QR where the VAT is 5 percent lower than other states. Decentralizing collections to the states and making tax effort an element in the calculation of non-earmarked transfers back to the sub-national governments are still not bearing the fruits it should especially in tourism destinations. QR´s tax effort is one of the lowest in Mexico. Of the 31 states, QR ranks 18th in CIT tax effort, 15th in VAT tax effort and 8th in PIT effort (Sobarzo, 2003). Yet QR houses 1.5 percent of Mexico´s population, employs a higher than average economically active population, produces 1.5 percent of Mexico's GDP and collects 1.65 percent of nationwide state revenues. Despite these advantages, collection of federal taxes has remained at one-third of these levels providing less than 0.45 percent of federal taxes between 2000 and 2007.

Figure 71: 2000s - QR's Federal Tax Collection to State GDP and Population
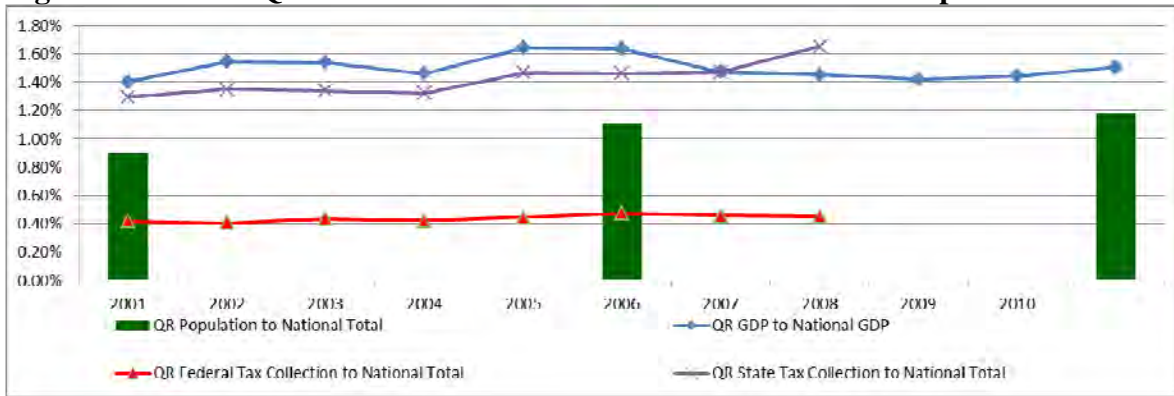
(See Appendix 4 for details and sources.)

One reason for the poor tax collection is a combination of tax laws and the characteristics of the tourism industry. Rather than evasion through illegal back-to-back credit operations common throughout the 90s, ocean-front properties now avoid taxes through the new CIT floor rules called IETU that allow properties on federal concession land (high tide plus 20 metres) to deduct 'improvements' to that land. Any ocean-front hotel improvements or 'new investment' are deducted to lower the IETU minimum to zero taxes (pers. comm. 2011; SCHP, 2011). That combined with transfer-pricing agreements, management fees, and other strategies means that hotels now legally pay no CIT (pers. comm.; Hernandez-Pulido, 2008). In addition to re-assigning revenues to different accounts to lower taxes, all-inclusives employ 25 percent fewer personnel. Since 2006 QR's unemployment is the same as the national average. Lower employment translates into more unemployed and lower payroll taxes which are eroded still further by minimum-rate pay supplemented by employee tax-free benefits such as transportation, uniforms and meals, tax deductions for the hotels. This information confirms a recent study that since 1993 QR has a lower GDP per capita than the national average; since 2006 QR's unemployment is the same as the national average; and informal work is 25 percent of employment again the same as the national average (IMCO, 2011).

In Cancún where hotels were originally 100 percent European Plan[35], the number of all-inclusive hotel rooms has jumped from one-third to two-thirds of available rooms in just ten years (Table 20).

Table 20: 2000s - BJ's Change in Rooms Available in European Plan and all-inclusive

Year	EP rooms	AI rooms	AI / EP
2000	15,374	7,652	33.23%
2001	15,625	7,873	33.50%
2002	15,360	7,718	33.44%
2003	12,879	9,482	42.40%
2004	11,157	12,812	53.45%
2005*	10,602	13,631	56.25%
2006	9,530	12,001	55.74%
2007	10,348	14,272	57.97%
2008	10,766	15,532	59.06%
2009	10,815	15,912	59.54%
2010	10,231	16,688	61.99%
2011	9,694	17,114	63.84%

Source: Cancún Hotel Association, 2012

In addition to transformation of existing properties into all-inclusives, construction of this type continues. Despite industry complaints of over-taxation and waning demand, the construction of hotels in Cancún and environs continues unabated. Rarely does tourist demand exceed available rooms which are now over 70,000 between Cancún and the surrounding municipalities, and construction permits for thousands of more rooms have been issued. In the short term, this growth has helped the municipal and state governments in terms revenues (see below Figure 73).

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[35] European Plan is defined as room only with no meals included. The other end of the spectrum is All-Included hotels where everything is included in one price from room, meals, entertainment and tips.

Figure 72: 2000s - BJ and Solidaridad Available Hotel Rooms

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Solidaridad	15297	18731	21014	22624	23215	26980	31397	34718	0	0	0
Cancún	25434	26194	25829	26404	27522	11192	23824	27075	27880	28537	28050
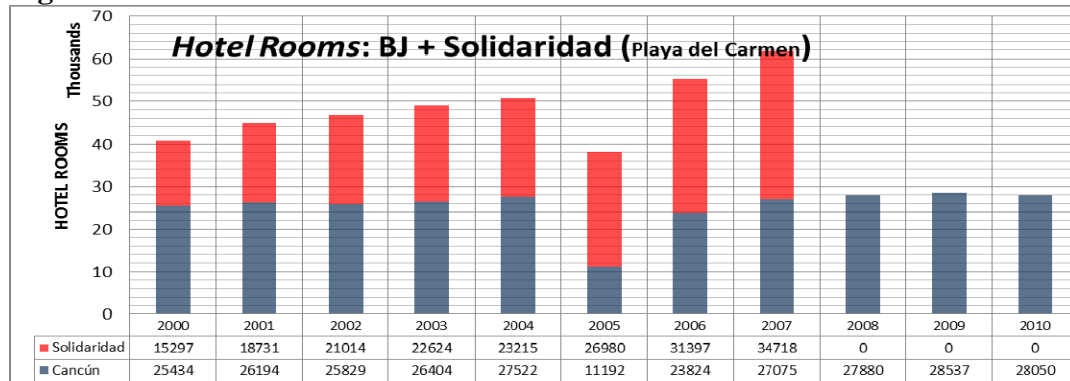
(See Appendix 3 for details and sources.)

Although able to avoid CIT, the 2-3 percent indirect hotel tax introduced in January 1999 is difficult to obfuscate and has been an important source of income for the state. From US $12 million in 2000, hotel tax has tripled to more than US $35 million in 2010 of which 92 percent is paid for by the hotels in BJ and Solidaridad. Notable is that by 2004 BJ had 56 percent of the available rooms between BJ and Solidaridad but contributed two-thirds (66 percent) of the hotel taxes remitted by the two municipalities. One explanation is higher occupancy in Cancún but another possibility is oversight – the relative inaccessibility of Solidaridad's more isolated all-inclusive hotels complicates scrutiny by authorities. In addition to hotel taxes, payroll taxes supply an equal amount of state revenue as hotel taxes but both sources of state revenue have limitations. Although non-earmarked, payroll taxes provide less than 5 percent of the QR budget. Also, the increasing number of rooms has boosted state taxes in total but not per capita which has remained stable in real (2003) per capita terms at $20 per annum. Moreover hotel taxes are earmarked for tourism promotion administered through the tourism trust fund established in each municipality. So although tourism taxes (approximately US $30 million in 2010) are included in total state revenue, it is more cosmetic than real since the funds have restrictions on their application.

Figure 73: 2000s - QR's Budget Revenue by Source
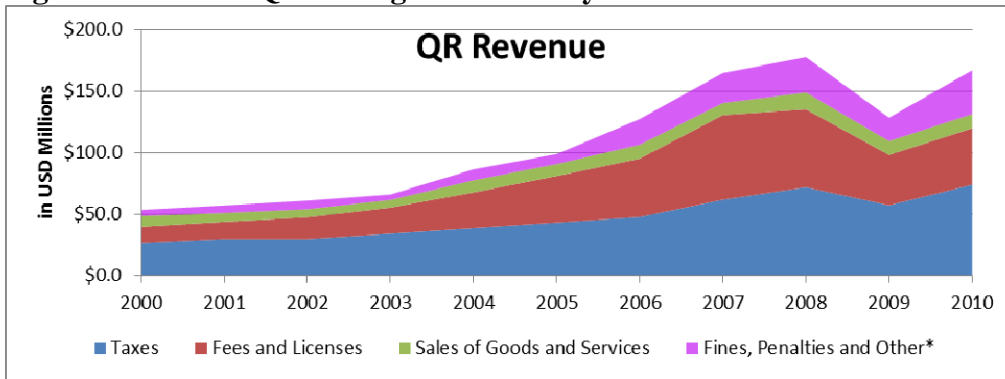
(See Appendix 6 for details and sources.)

Despite economic growth and changes to the tax structure, when state-generated revenue is layered into the total budget (Figure 74), it becomes evident that QR remains highly dependent on federal transfers for more than 90 percent of its revenue.

Figure 74: 2000s - QR's State-Generated Revenue to Federal Sources
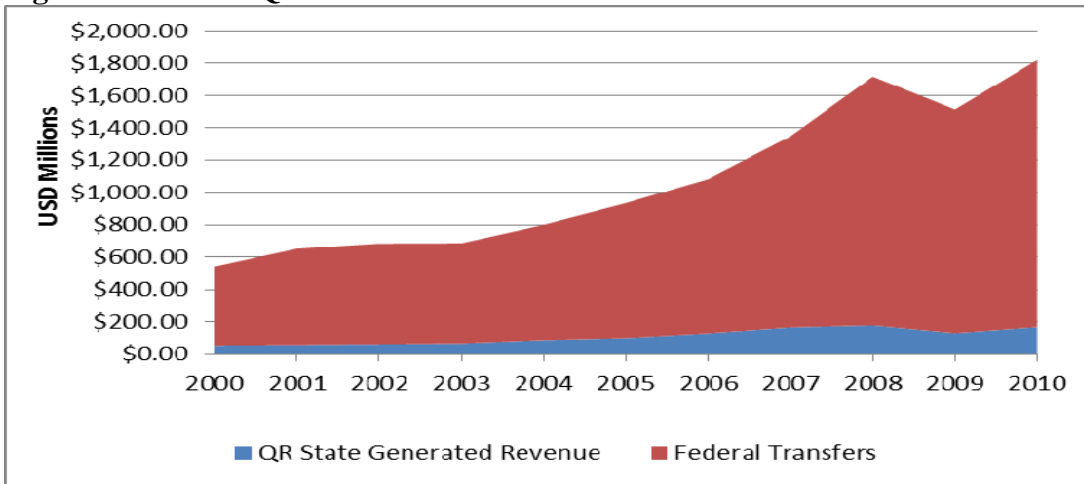
(Source: QR, 2004, 2005, 2006, 2007, 2008, 2009, 2010)

Analyzing the federal sources further, non-earmarked based on federal tax collection has decreased from 40 percent of transfers to 27 percent while earmarked transfers for federal programs has increased as a proportion of total transfers (Figure 75).

Figure 75: 2000s - QR's Proportion of State-Generated Revenue to Federal Transfers
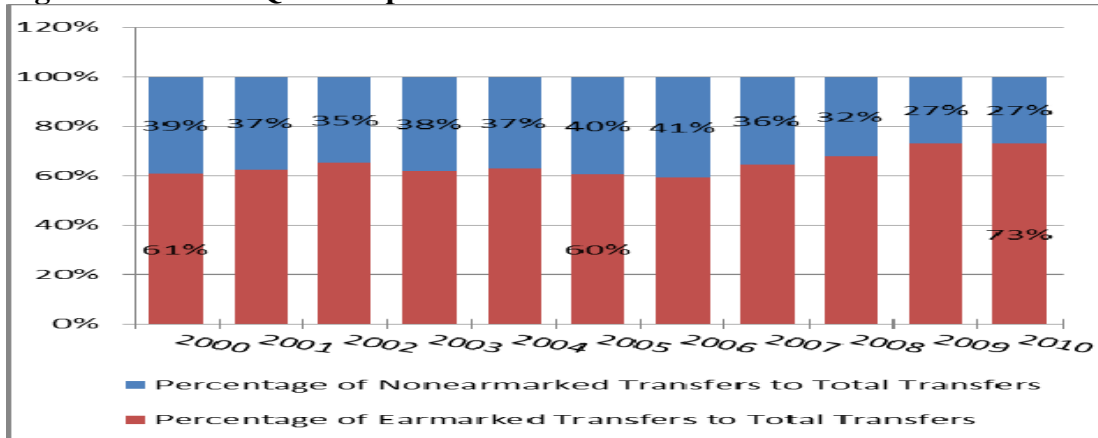
(Source: QR, 2004, 2005, 2006, 2007, 2008, 2009, 2010)

This provides further evidence of QR's burden on federal resources and the conclusion that the tide has turned - QR is a net recipient of federal resources to the detriment of other entities and economic sectors. Over the decade, the per capita net transfers (federal tax collection minus federal transfers) to QR had almost doubled from $400 per person to $700 per person within seven years (Figure 76). The rest of Mexico is directly subsidizing QR residents and therefore tourists.

Figure 76: 2000s - QR Federal Tax Collection to Transfer Receipts

Source: Own compilation from INEGI and QR public accounts.
(See Appendix 4 for details and sources.)

This subsidy is even greater when two more elements are added: cruise tourism that impacts the state and FONATUR administration that impacts Cancún's 30 km hotel zone. Ships to QR´s coast have doubled between 1995 and 2010 increasing the number of

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passengers sixfold to 3 million due to larger vessels. These passengers require critical resources such as roads to visit nearby sites but provide little and only marginal employment, and pay no taxes. Cruise liners pollute heavily and cause damage to reefs through collisions (CONANP, 2010a) yet in Mexico only pay dock fees to private operators dotted along QR's coastline.

As for BJ, Cancún receives an average annual benefit of US $6 million through FONATUR's administration of the hotel zone including roadways, water delivery, water treatment, rainwater runoff, gardens, public lighting, and security among others (FONATUR, 2011b). These responsibilities are usually the domain of municipalities and paid for from property taxes. Yet while the municipality of BJ collects property taxes, FONATUR with federal monies maintains the hotel zone.

Table 21: 2000s – FONATUR – BMO Annual Expenditure for Cancún Hotel Zone Maintenance

US $	2000	2001	2002	2003	2004	2005	2006	2007
Millions	$ 6.14	$ 7.03	$ 7.40	$ 5.53	$ 1.98	$ 4.39	$ 1.82	$ 6.48
Source: http://www.fonaturconstructora.gob.mx, Finanzas.								

So what is the situation of BJ that historically houses 50 percent of QR's population? Since 2000 property taxes, the most important source of independent municipal revenue, increased threefold per capita and fivefold total indicating greater tax effort.

Figure 77: 2000s - BJ's Property Tax Effort Total and Per Capita
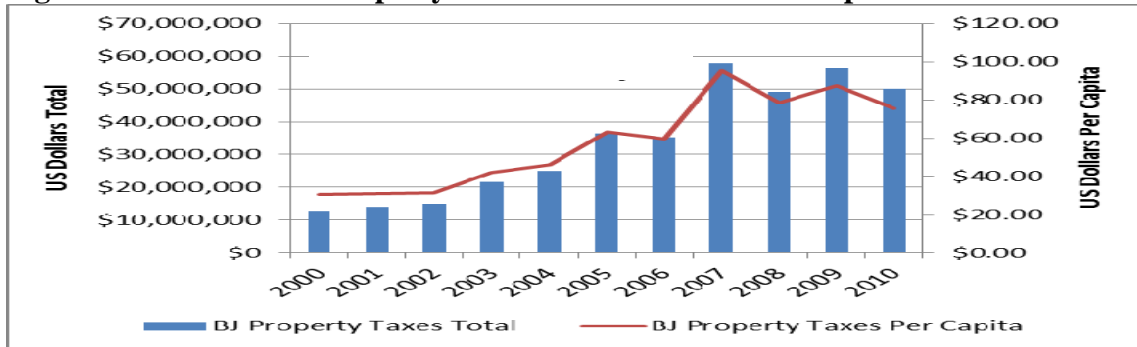
(See Appendix 7 for details and sources.)

Taxes constituted 24 percent of municipal revenue between 2000 and 2010 making BJ one of the five wealthiest municipalities in Mexico. Meanwhile, BJ's annual budget per capita had only doubled until 2010 (Figure 78).

Figure 78: 2000s - BJ's Municipal Budget Total and Per Capita
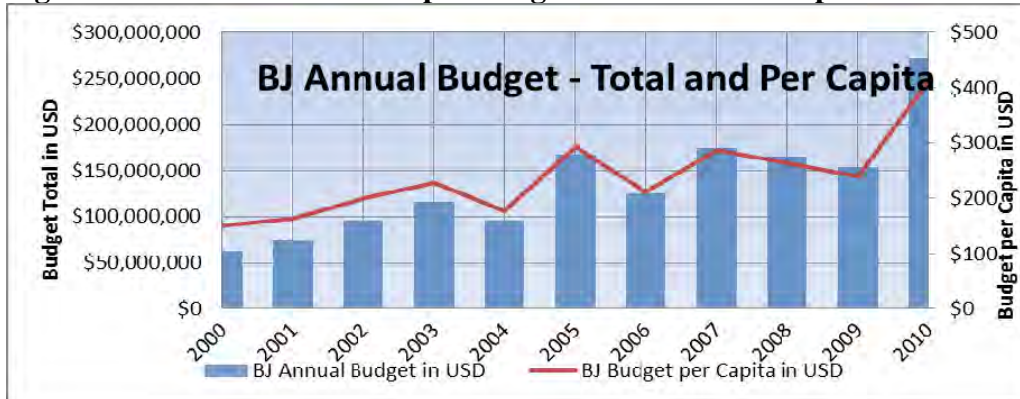
(See Appendix 7 for details and sources.)

The doubling of the budget is due to the transfers which represent the bulk of BJ's revenue, over 40 percent, that increased from US $25 to 50 million between 2000 and 2010.

Figure 79: 2000s - BJ's Municipal Revenues in Earmarked and Non-earmarked Transfers
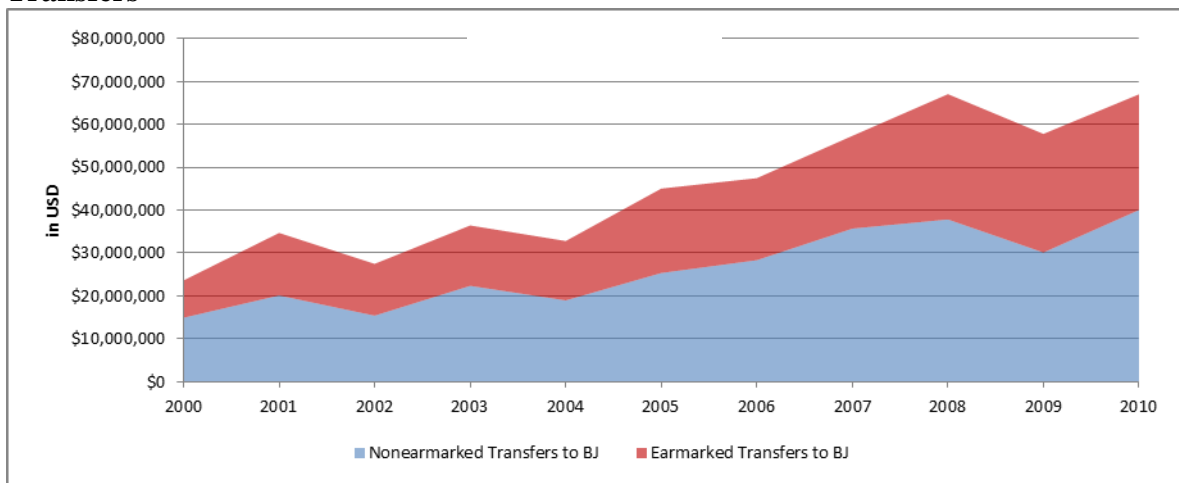
(See Appendix 7 for details and sources.)

The formula for re-distribution between the federal government and the states differs from the formula used within each state to redistribute between the state and municipal governments and then amongst the municipalities themselves. Therefore, unlike

QR's budget that is declining in non-earmarked transfers, BJ's proportion of earmarked to non-earmarked is stable at about 50 percent for each.

Figure 80: 2000s - BJ's Proportion of State-Generated Revenue to Federal Transfers
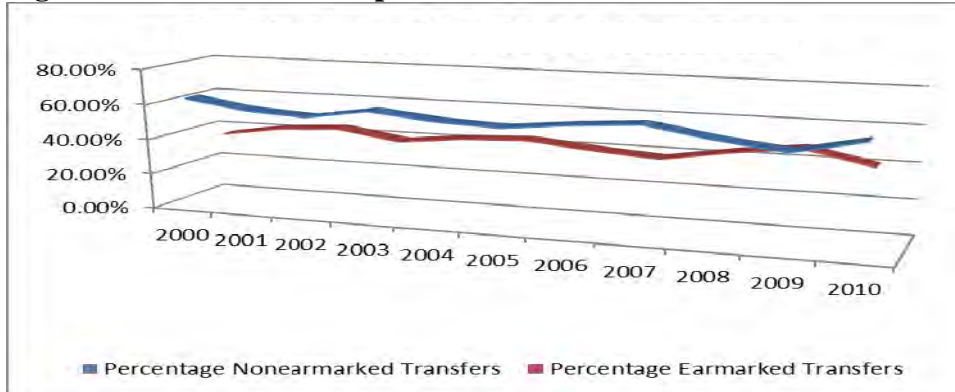
(See Appendix 4 for details and sources.)

The US $30 million of non-earmarked transfers plus the $50 million in taxes makes BJ´s municipal presidents powerful and unaccountable. Expenditures (Figure 81) evidence the lack of accountability.

Figure 81: 2000s – BJ's Expenditure Dispersion
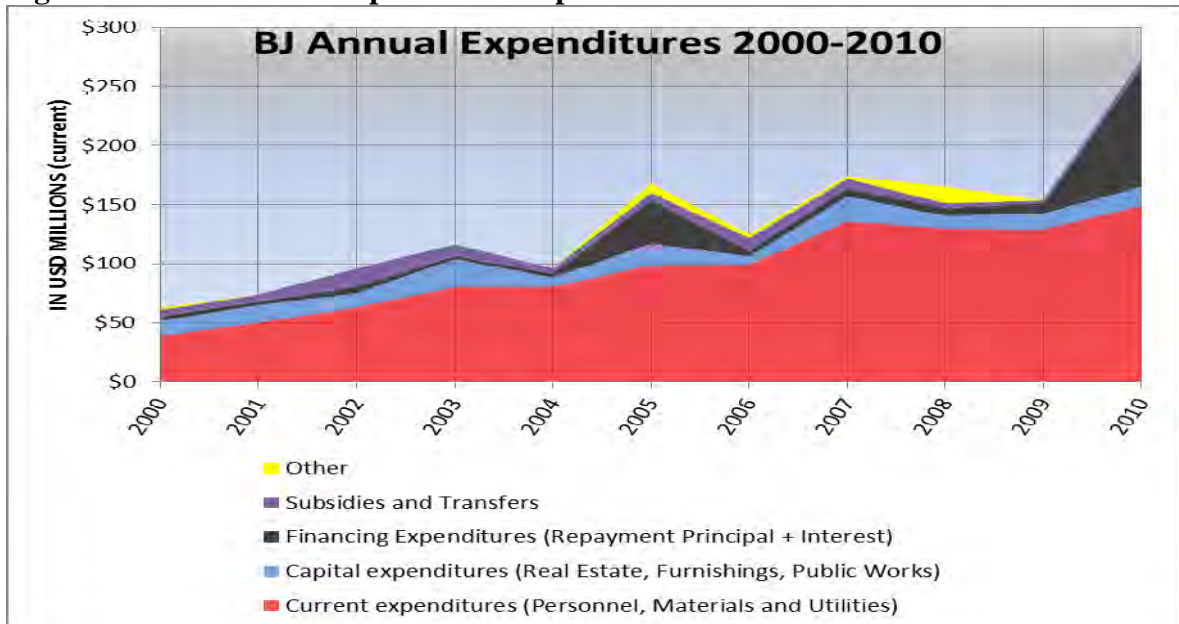
(See Appendix 7 for details and sources.)

Current expenditures increased fourfold from US $39 to $149 million while capital expenditures remained relatively constant at US $14 million per year. Although personnel

is 50 percent of the budget, this expenditure averaged US $78 million per year over the past five years up from an average of US $38 million in the 90s. Also, notable is the increase in materials to an average of US $20 million while public works remain stable. The need to maintain the pace of current expenditures could explain the sharp increase in financing from an average of US $8 million per annum between 2000 and 2009 to more than $100 million in 2010. The balance sheets provide clues as to how this surge in debt was guaranteed.

Figure 82: 2000s - BJ´s Total Fixed Assets

PATRIMONY - FIXED ASSETS in BENITO JUAREZ

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All Other Fixed Assets	$14,023,65	$15,996,78	$17,889,98	$17,391,79	$18,304,06	$19,372,50	$24,926,94	$25,194,36	$21,622,82	$24,650,58
Police Force and Fire Dept	$1,211,330	$1,169,321	$1,047,967	$1,001,941	$1,038,520	$2,661,305	$2,399,625	$2,372,461	$2,796,323	$3,004,697
Vehicles	$7,749,948	$10,460,75	$12,282,37	$12,120,77	$13,216,23	$18,804,08	$23,296,02	$14,934,52	$12,820,39	$14,285,32
PUBLIC WORKS	$6,013,068	$5,804,534	$54,307,34	$65,854,02	$68,258,24	$68,171,41	$67,536,03	$15,272,48	$24,304,26	$25,977,85
LAND	$1,801,271	$1,749,142	$2,520,444	$1,264,165	$1,310,318	$491,586	$153,225,7	$295,173,4	$270,383,7	$594,865,7

(See Appendix 8 for details and sources.)

To begin, land was inexplicably revalued from US $0.5 million to $600 million between 2006 and 2010 (Figure 82), a revaluation of 1200 times with no apparent change in properties. Then in 2010, the municipality contracted an additional US $75 million in debt with repayment over 12 years (Figure 83).

Figure 83: 2000s - BJ's Long-Term Indebtedness
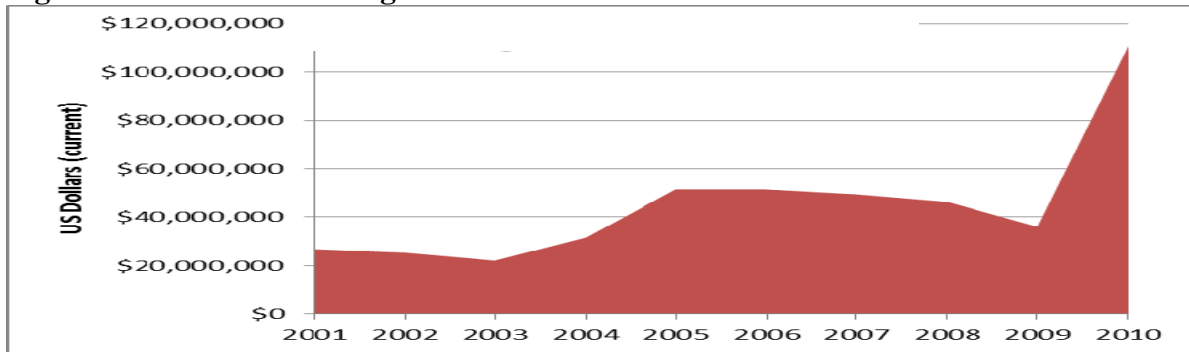
(See Appendix 8 for details and sources.)

When debt contracted by QR state government is added to that contracted by the BJ municipal government, the lack of accountability is manifest. Combined debt that averaged US $100 million throughout the 90s shot up between 2006 and 2010 to US $800 million. In per capita terms combined debt has more than tripled from US $200 to US $663 per BJ resident. BJ´s financing margin (annual property taxes per capita to measure the government's ability to finance future services and capital needs) is US $70 per year, one-tenth of its debt. When Gregorio Sanchez finished his period as Cancún's mayor in 2010, the municipal administration was purged of more than 15 percent phantom employees (Martoccía, 2011a), several millions of dollars remain unaccounted for (Cruz and Ruiz, 2011; Informativo, 2011) and BJ, one of the wealthiest and most independent municipalities in Mexico (IMCO, 2011), was bankrupt (Martoccia, 2011b).

Although the mono-industry tourism in the state of QR is now subsidized by the federal government and the BJ municipal government is a bastion of nepotism and political self-interest, the ultimate question is the outcome for BJ's growing permanent population. Since 2000 the number of BJ residents grew from 48 to exactly 50 percent of QR's 1.32 million inhabitants. Despite this strong growth, the economically active population (those over 14 years of age) increased over the decade from 58 percent state average and 61 percent for BJ with 80 percent in the service sector by 2011 (INEGI, 2011b). Although

work was plentiful the number of insured workers in BJ continued to drop until 2005 when '*seguro popular*', was introduced. Thanks to this new federal insurance, 48 percent to now 68 percent of the QR population is insured. Within BJ, the insured also increased from 44 to 64 percent. Conversely, this means that one-in-three still have no access to public healthcare. Moreover, the QR gap between per capita healthcare spending and those without access to healthcare is one of the five highest in the country.

From one of the highest ranking, in 2010 QR state ranked as one of the worst for precarious roofing materials at 30th out of 32 sub-national entities, 24th for wall materials and 15th for the number of houses that have earth floors. Notable is that QR receives one of the lowest amounts per capita for social infrastructure that includes water, drains and electricity yet is considered one of the five best states in terms of these services (CONEVAL, 2011a: 43). Although this result appears contradictory to QR's overall social lag, most of QR's population is urban. As such, BJ ranks within the top ten percent of municipalities (2338th out of 2464) for the number of houses with non-earth floors and high in the number of households with electricity and connection to municipal water and sewage. Access to these services explains why BJ's HDI increased from below QR average to now above. Even so, QR ranks 8th within the nation declining from 7th position in terms of HDI. Notably Baja California Sur historically and continuously occupies third place.

Figure 84: 2000s - QR's and BJ's HDI
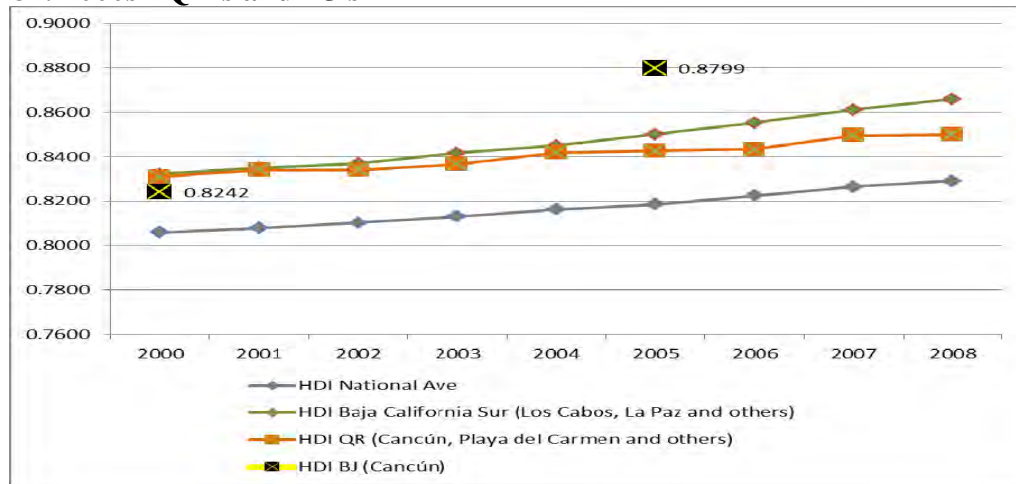
(Source:UNDP - PNUD, 2011a)

Although seemingly high at 0.88, BJ presents serious social lags. BJ is worse than both the state and national average in terms of access to social security and QR was triple the national average in education-lag in 2010. Although ranking better than the national average in food and capacity poverty, in 2005 both QR and BJ were near national average in terms of patrimony poverty. In 2010, per household Gini (income inequality) in QR was still higher than the national average but closing the gap (0.453 QR versus 0.435 national average). In short, since the late 1990s tourism benefits private investors, the international tourist and a privileged few locals but is a burden for every other Mexican.

Figure 85: 2000s - BJ's Increasing Burden on Federal Resources
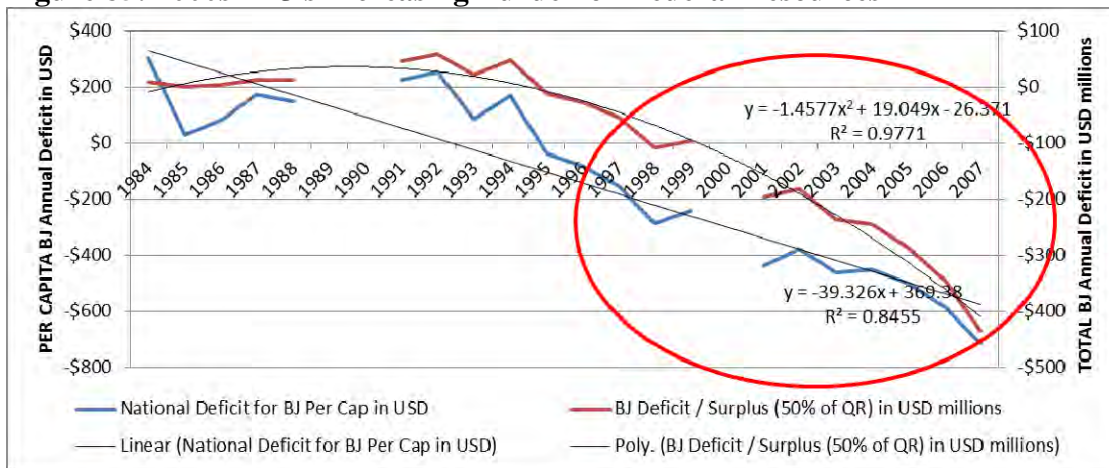
Conclusion

Although this is a cursory study and requires refinement of much of the data, the results are conclusive: BJ and its main industry, tourism, is now a burden. But the sacred cow is untouchable (e.g. CEFP, 2006; SecTur, 2003). In 2007 when the Mexican president Felipe Calderon suggested incorporating the Ministry of Tourism into Commerce, where it is located in most countries, there was such an outcry that he had to cancel the proposal. And he more than backtracked declaring instead to invest in more infrastructure so that Mexico, now 14th, would achieve first position in the World Tourism Organization's rankings (Presidencia, 2007). Without comprehensive analysis of the longitudinal effects of a development strategy initiated decades ago, entrenched political and economic interests continue to pressure for the maintenance of Mexico's now burdensome development strategy.

The policy goals of Cancún were to generate foreign currency and mitigate migration to Mexico City. In view of the heavy public sector investment to create Cancun in the 1970s, the fundamental question is the outcome of expenditure in terms of the well-being of local residents. Longitudinal data demonstrate that dedicated tourism-resort investment no longer generates sufficient revenue for social improvement and increased well-being meaning that there is no surplus for further development. The problem is exacerbated by a focus on economic development over sustainability: 80 percent of international departure fees are earmarked for the Tourism Promotion Council, all state hotel taxes are earmarked for state tourism promotion; and federal transfers are linked to GDP growth which in QR translates into more tourism investment.

The departure tax of approximately US $20 per person now totaling $70 million annually is earmarked 80 percent for tourism promotion and 20 percent for immigration adminstration. In 2007, the 3 percent QR hotel tax, to be used exclusively for tourism promotion[36] provided QR coffers with some US $20 million and over US $25 million in 2010 (Sipse, 2010). The collection of Zona Federal along the 57 km of coastline allowed the municipality to collect an average of US $7 million per annum throughout the past decade accelerating non-earmarked transfers to BJ that served to prop up inefficient and ineffective administrations that regularly insist the tourism industry is Mexico's salvation. Instead, massive tourism resorts are built on fragile ecosystems with no concomitant payment for the use of public goods. Rather than alleviating disparities, tourism sustains the position of a privileged few. Local institutional weaknesses and the current characteristics of a global industry of fixed and floating all-inclusives make accountability rare.

Although an initial boon to the national economy, since 1995 continued investment in the region has been a net burden partly due to the new tourism models. Cruise ship visits have exploded in the past fifteen years with a sixfold increase in passengers to the region. While utilizing local infrastructure, polluting heavily and damaging reefs, they provide little local employment and pay no taxes. Permanent all-inclusive hotels pay increasingly small amounts of tax due to transfer agreements and a malleable product mix of ground services, food and lodging that is modified on paper to lower tax burden. All-inclusives employ fewer personnel than regular hotels thus generating less payroll taxes which are eroded still further by minimum-rate pay and tax-free benefits to employees which are tax deductions for hotels. Despite industry complaints of over-taxation, the construction of

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[36] Some funds were used exceptionally for beach nourishment following Hurricane Wilma - personal conversation SEDETUR July, 2011.

hotels in Cancún and environs has exploded from 200 rooms in 1972 to more than 64,000 rooms by 2007 with now more than 80 percent all-inclusive hotels.

The volatility inherent to tourism due to seasonality, consumer tastes, and various crises (recessions, hurricanes and H1N1) are aggravated by local institutional factors like a push for GDP growth, nepotism and the lack of accountability. Numerous and unnecessary incentives are offered to attract more investment with decreasing risk. As Bird (1992: 1155) observed, "if private investors are not willing to risk their own funds in the tourist business, it is not clear why public money should remove the risk and leave them the profit, as has been the case in too many "sun and fun" countries". The superficial success of resorts like Cancún when measured in room construction has fueled more construction but now under the all-inclusive model. In their euphoria and a myopic race for votes, local politicians push for more federal funds and programs to claim to local electorate as local successes (e.g. Achach Solís, 2002). Increasing local debt supports a bloated inefficient public sector bent on sustaining its own narrow interests. Cancun's per capita debt has more than tripled in five years due to state and municipal borrowing, and now declared bankrupt. These inefficiencies are facilitated by public sector accounting system that does not produce transparent accounts of sources and uses of funds (Sour, 2007, 2011; Sour and Rosillo, 2009) and lengthy delays in audit reports (14 months) that render the report findings immaterial (OECD, 2009) in a state considered amongst the least transparent (IMCO, 2011).

The confluence of industry and local governance factors critically erodes tax compliance reducing funding for social projects and environmental protection in a country where tax effort is one of the lowest of the OECD countries and Latin America. The study shows that while Cancún initially provided economic benefit by creating jobs, foreign

currency and surplus tax revenue, the development has not translated into proportionally greater security (economic, social and physical), more social programs or improved education, especially since the mid-90s. And now, thanks to tourism as a sacred cow, other regions subsidize the state through transfers that far exceed federal taxes collected. QR is one of the least transparent of the 32 federal entities (IMCO, 2011; Sour and Rosillo, 2009), has a historically low tax effort (Hernández Trillo, 2011; Sobarzo, 2003) in a country with the lowest effort of the OECD and one of the lowest in all of Latin America (OECD, 2009). Yet powerful forces compelled the federal government to reverse its plan to shift industrial and social focus to other sectors and regions.

Future Research

Much refinement is needed to this analysis. With sole authorship, this pilot study contains errors requiring revised calculations and historical corrections. More specificially, the public accounts provided in the appendices both in MXP and in current USD provide the most complete collection of documents on BJ finances. Numerous possibilities exist for further analysis and comparison to other destinations within Mexico as well as around the world to determine if Mexico's burdensome strategy is mirrored in other locations. If so, a detailed system of marginal effective tax rates (METR) modeling tax avoidance mechanisms would highlight the gaps in tax legislation that need to be closed not only in Mexico but any country heavily dependent on tourism. Also, the impact of all-inclusive properties, both floating and fixed requires greater study to determine if these properties should be permitted and what additional taxes should be applied since they are currently taxed little or not at all. Also lacking is discussion on how to transform priorities from economic growth (eg. achieving WTO's top position in tourism visits) and a race to become environmental bottom-feeders, to integrating sustainability into transfer formulas

between federal, state and municipal governments thereby making environmental protection (asset maintenance) a cornerstone of local policy and politics. As Banco de Mexico was visionary four decades ago in its construction of centrally-integrated resorts, the Mexican government could become a leader in combining mass tourism and sustainability while countervailing the current institutional weaknesses and public finance burden of these dedicated tourism resorts.

Appendices

Appendix 1: The Public Sector in Mexico
(Reproduced from: CEFP, 2005: 11)

Sector Público Presupuestario		

Sector Público Presupuestario Directo	Sector Público Presupuestario Indirecto

Gobierno Federal		Organismos y Empresas Bajo Control Presupuestario Directo	Organismos y Empresas Bajo Control Presupuestario Indirecto
Poderes e IFE	Administración Pública Centralizada		
- Legislativo - Judicial - IFE - Comisión de Derechos Humanos - Tribunales Agrarios - Tribunal Federal de Justicia Fiscal y Administrativa	- Presidencia de la República - Gobernación - Relaciones Exteriores - Hacienda y Crédito Público - Defensa Nacional - Agricultura, Ganadería y Desarrollo Rural - Comunicaciones y Transportes - Economía - Educación Pública - Salud - Marina - Trabajo y Previsión Social - Reforma Agraria - 'Medio Ambiente Rec. Naturales y Pesca - Procuraduria General de la República - Energía - Desarrollo Social - Turismo - Función Pública	- PEMEX - CFE - LFC - IMSS - ISSSTE	* Financieras - Agroasemex - Bancomext - Banobras - Nacional Financiera - Otros * No Financieras - Notimex - Pronósticos para la Asistencia Pública - Administraciones Portuarias Integrales - Servicio Postal Mexicano - Telecomunicaciones de México - Fideicomiso de Fomento Minero - Colegio de Bachilleres - Fondo de Cultura Económica - Comisión Nacional de Libros Gratuitos - CAPUFE - LOTENAL

Appendix 2: 1975 – 2010 Cancún International Airport: Flights and Passengers

(Compiled from FONATUR, 2011a; McDonalds, 2007; SCT, 2011)

	Flights	Pax Ttl	Pax Int'l	Pax Nac'l	Natls/Total
1975	1,013	55,800	6,100	49,700	89.1%
1976	3,245	153,100	63,700	89,400	58.4%
1977	4,820	212,600	97,600	115,000	54.1%
1978		243,800	125,900	117,900	48.4%
1979	5,639	294,500	166,900	127,600	43.3%
1980		341,800	179,700	162,100	47.4%
1981					
1982	9,325				
1983	10,805				
1984		506,259	320,583	185,675	36.7%
1985					
1986					
1987	12,332				
1988	10,804	617,514	503,241	163,163	26.4%
1989		770,705	543,501	227,203	29.5%
1990	18,445	1,310,356	933,775	376,582	28.7%
1991	20,421	0			
1992	19,828	**1,192,156**	712,210	479,946	40.3%
1993	22,721	**1,252,281**	728,949	523,332	41.8%
1994	21,031	**1,275,342**	705,336	570,006	44.7%
1995	22,134	**1,419,124**	848,705	570,419	40.2%
1996	24,361	**1,642,341**	1,071,342	570,999	34.8%
1997	27,322	**1,801,562**	1,171,633	629,929	35.0%
1998	28,806	**1,808,184**	1,173,058	635,126	35.1%
1999	27,413	**1,830,521**	1,079,198	751,323	41.0%
2000	27,959	**2,055,788**	1,328,433	727,355	35.4%
2001	27,244	**2,127,318**	1,301,202	826,116	38.8%
2002	29,527	**2,334,247**	1,394,873	939,374	40.2%
2003	32,718	**2,811,519**	1,761,095	1,050,424	37.4%
2004	35,992	**3,403,675**	2,308,988	1,094,687	32.2%
2005	33,225	**3,313,772**	2,329,398	984,374	29.7%
2006	35,140	**3,665,662**	2,498,607	1,167,055	31.8%
2007	40,619	**4,443,886**	3,027,498	1,416,388	31.9%
2008	43,788	**5,181,826**	3,583,929	1,597,897	30.8%
2009	42,503	**4,784,189**	3,224,850	1,559,339	32.6%
2010	45,475	**5,379,245**	3,670,224	1,709,021	31.8%

Appendix 3: 1974-2010 Benito Juarez Hotels, Hotel Rooms, Occupancy, Average Stay and Average Room Rate

(Compiled from: AHC, 1995-2012; INEGI, 1984a, 1993a; Jiménez Martínez, 2010; Moncada Jimenez, 2008)

	BJ Hotels	BJ Hotel Rms	Cancun Tourists	Percent Occup	Ave. Stay	Avr Rm*Rate USD	
1974	3	332					
1975	12	1,322		54.7%			
1976	22	2,023		62.0%			
1977	30	2,494		68.5%			
1978	35	2,763		70.9%			
1979	41	2,923		77.5%			
1980	50	3,930		65.7%	3.8		**Rooms Playa del Carmen & Tulum**
1981		5,225					
1982	52	5,258					
1983	52	5,709					
1984	57	6,106					
1985	59	6,591					**200**
1986	64	7,028					
1987	86	8,910					
1988	95	11,891					
1989		15,310					
1990	110	17,470	1,575,700	68.0%	5.2		
1991	107	17,971	1,912,100	69.0%	4.8		
1992	106	18,003	2,046,000	75.0%	5.0		
1993	109	18,540	1,979,100	72.0%	5.1		
1994	113	18,859	1,958,100	76.3%	5.1		
1995	121	20,278	2,164,230	76.3%	5.2	$75.80	**1470**
1996		21,097	2,311,600	77.9%	5.2	$77.97	
1997	124	21,683	2,621,300	81.0%	5.1	$80.07	**4918**
1998		23,581	2,664,200	76.4%	5.0	$80.72	**10095**
1999		24,610	2,818,300	73.0%	5.0	$75.53	**12653**
2000		25434	3,044,682	73.8%	4.9	$76.25	**15297**
2001		26194	2,987,800	71.8%	4.7	$77.08	**18731**
2002		25829	2,827,400	66.7%	4.6	$69.31	**21014**
2003		26404	3,063,444	70.5%	4.6	$70.16	**22624**
2004		27522	3,376,300	76.4%	4.6	$72.06	**23215**
2005		11192	3,074,400	79.4%	4.0	$83.53	**26980**
2006		23824	2,431,700	73.5%	4.8	$107.65	**31397**
2007		27075	3,004,800	67.5%	4.7	$98.98	**34718**
2008	139	28214	3,265,591	71.0%	4.5	$66.97	
2009		28537	2,878,811	60.0%	4.6	$79.20	
2010		28050	3,015,690	61.5%	4.7	$81.54	

Appendix 4: 1983-2007 QR Performance Data: QR's Burden on Federal Resources; QRTax Effort to National; QR GDP contribution; Population Growth

(Compiled from: INEGI, 1980, 1982, 1984c, 1985a, 1985b, 1986a, 1986b, 1986f, 1987a, 1987b, 1988a, 1989, 1990a, 1991a, 1991b, 1993b, 1994a-a, 1994a-b, 1995a, 1996, 1998a, 2001, 2005a, 2005b, 2006, 2009, 2011b, 2011, Sept)

Part A – 1983-2007 in USD Federal Taxes Minus Federal Transfers = Net Federal Benefit/Burden

Year	1981	Fed Taxes	Minus Nonearmarked	Minus Earmarked	Federal Net Surplus/Deficit	QR Popn of National	QR Portion of GDP to National	QR Portion of Federal Tax Collection	QR Portion of State Tax Collection to National
1983	0.1503	$24,653.42	$19,565.99	$5,507.88	-$420.46	0.34%	0.40%		0.46%
1984	0.1849	$37,627.06	$20,060.99	$698.62	$16,867.45			0.12%	0.50%
1985	0.3103	$35,113.17	$23,575.29	$9,086.72	$2,451.15			0.14%	0.62%
1986	0.6353	$31,528.18	$15,808.95	$6,777.67	$8,941.56	0.47%	0.51%	0.14%	0.72%
1987	1.3980	$46,137.36	$18,563.96	$3,705.28	$23,868.12			0.16%	0.52%
1988	2.2871	$59,411.37	$28,533.44	$6,227.07	$24,650.86			0.20%	0.73%
1989	2.4816	n.d.	$34,617.37	$4,615.21	n.d.		0.72%	0.27%	0.70%
1990	2.8385	n.d.	$50,836.32	$2,289.47	n.d.				0.62%
1991	3.0157	$156,459.89	$62,265.46	$2,946.88	$91,247.55	0.59%			0.75%
1992	3.0954	$187,107.13	$60,677.36	$9,718.61	$116,711.16			0.25%	0.59%
1993	3.1152	$215,123.89	$89,494.29	$82,422.87	$43,206.73			0.25%	0.81%
1994	3.3890	$213,204.77	$90,908.40	$25,654.31	$96,642.05		1.29%	0.31%	0.83%
1995	6.4268	$163,032.95	$62,372.38	$123,565.51	-$22,904.94		1.27%	0.30%	0.65%
1996	7.5992	$176,357.92	$82,082.82	$150,065.96	-$55,790.86	0.77%	1.23%	0.31%	1.12%
1997	7.9167	$247,878.28	$108,118.39	$247,837.65	-$108,077.76		1.21%	0.28%	1.00%
1998	9.1537	$266,861.04	$117,527.75	$364,398.84	-$215,065.55		1.27%	0.32%	1.07%
1999	9.5532	$360,712.58	$140,669.74	$411,176.52	-$191,133.67		1.33%	0.36%	1.74%
2000	9.4568	n.d.	$191,473.48	$526,017.45	n.d.		1.35%	0.42%	1.31%
2001	9.3360	$479,880.82	$223,051.89	$649,117.38	-$392,288.45	0.90%	1.40%	0.42%	1.36%
2002	9.6714	$526,274.10	$217,831.55	$671,099.25	-$362,656.70		1.54%	0.41%	1.29%
2003	10.7913	$468,087.23	$236,706.81	$703,984.88	-$472,604.46		1.54%	0.43%	1.35%
2004	11.2871	$520,844.46	$266,459.98	$743,273.93	-$488,861.96		1.46%	0.42%	1.34%
2005	10.8895	$643,417.35	$331,250.48	$884,901.75	-$572,734.88	1.10%	1.64%	0.44%	1.32%
2006	10.9034	$691,361.26	$389,219.32	$992,118.95	-$689,977.01		1.63%	0.47%	1.46%
2007	10.9274	$750,748.41	$420,736.47	$1,198,511.89	-$868,499.95		1.45%	0.45%	1.65%

BJ and QR Population Growth

$y = 18685.1x - 1627.1$, $R^2 = 0.9855$

$y = 1088.2x - 1086.1$, $R^2 = 0.9849$

Legend: Quintana Roo; Benito Juárez; Linear (Benito Juárez); Linear (Quintana Roo)

Note: Numbers in black represent Census data and those in yellow the estimate based on the arithmetic formula. Percentage represent the proportion of QRV population residing in BJ.

Part B : 1983-2007 QR'S Federal Tax Collection in MXP

IN MXP, THOUSANDS	1983	1984	1985	1986	1987	1988	1989
GR. TOTAL: TRIBUTARIOS MAS NO-TRI	$3,705.7	$6,958.6	$10,895.0	$20,031.0	$64,499.0	$135,878.0	$0.0
TAX REVENUE TOTAL	$3,081.0	$5,606.6	$8,445.0	$17,803.0	$60,352.0	$128,093.0	
INCOME TAXES	$1,019.0	$2,332.0	$3,298.0	$7,350.0	$23,106.0	$57,904.0	
CIT	$264.0	$854.0	$901.0	$2,890.0	$9,657.0	$26,673.0	
PIT	$701.0	$1,374.0	$2,259.0	$4,167.0	$12,562.0	$29,968.0	
other	$54.0	$104.0	$138.0	$293.0	$887.0	$1,263.0	
CORPORATE ASSET TAX							
VAT	$1,632.0	$2,435.0	$3,769.0	$8,099.0	$30,724.0	$52,715.0	
SPECIAL TAX ON GOODS & SVCS	$259.3	$475.0	$835.0	$1,451.0	$3,312.0	$5,715.0	
VEHICLE LICENSING	$54.2	$93.0	$83.0	$201.0	$544.0	$1,695.0	
NEW CAR TAX	$24.8	$95.6	$210.0	$220.0	$923.0	$2,059.0	
IMPORT DUTIES	$91.7	$176.0	$250.0	$482.0	$1,743.0	$8,005.0	
SALARY SUBSTITUTE TAX							
LUXURY TAX							
ACCESSORIES							
OTHER							
UNKNOWN							
NO-TRIBUTARIOS TTL	$624.7	$1,352.0	$2,450.0	$2,228.0	$4,147.0	$7,785.0	

IN MXP, THOUSANDS	1990	1991*	1992*	1993	1994	1995	1996	1997	1998	1999
QR GR. TOTAL: TAX PLUS NON-TAX	$0.0	$471,842.0	$579,164.0	$670,144	$722,549	$1,047,787	$1,340,180	$1,962,379	$2,442,769	$3,445,962
TAX REVENUE TOTAL		$461,457.0	$565,918.0	$655,133.0	$713,584	$1,037,000	$1,291,848	$1,913,522	$2,389,799	$3,318,970
INCOME TAXES		$156,326.0	$200,415.0	$261,113.0	$282,728	$412,232	$479,010	$850,170	$1,119,696	$1,497,859
CIT										
PIT										
other										
CORPORATE ASSET TAX		$24,544.0	$40,277.0	$59,436.0	$71,378	$78,436	$104,181	$78,243	$81,911	$106,184
VAT		$208,062.0	$234,150.0	$239,171.0	$253,941	$398,302	$489,662	$691,379	$877,314	$1,330,096
SPECIAL TAX ON GOODS & SVCS		$9,130.0	$7,004.0	$6,347.0	$6,391	$7,573	$16,892	$19,564	$36,517	$59,003
VEHICLE LICENSING		$8,225.0	$15,773.0	$21,113.0	$25,673	$28,781	$44,416	$64,449	$67,053	$74,345
NEW CAR TAX		$4,320.0	$5,628.0	$8,045.0	$8,049	$1,631	$196	$7,880	$27,881	$46,611
IMPORT DUTIES		$21,287.0	$32,537.0	$24,230.0	$25,910	$20,330	$26,510	$35,624	$45,156	$72,692
SALARY SUBSTITUTE TAX										
LUXURY TAX										
ACCESSORIES				$26,836.0	$39,514	$89,715	$130,864	$166,036	$133,829	$131,980
OTHER		$6,447.0	$8,850.0	$8,842.0	$0	$0	$117	$178	$443	$200
UNKNOWN		$23,116.0	$21,284.0	$0.0						
NO-TRIBUTARIOS TTL		$10,385.0	$13,246.0	$15,011.0	$8,906	$10,787	$48,449	$48,457	$52,969	$126,992
Fees				$11,018	7327					
Sale of Goods & Svcs				$1,805	221					
Fines				$2,181	845					
Improvements				$0	0					
Other				$7	513					

IN MXP, THOUSANDS	2000	2001	2002	2003	2004	2005	2006	2007
QR GR. TOTAL: TAX PLUS NON-TAX	$3,909,118	$4,480,166	$5,089,809	$5,051,291	$5,878,803	$7,006,495	$7,538,169	$8,203,759
TAX REVENUE TOTAL	$3,758,552	$4,191,525	$4,791,108	$4,716,809	$5,384,561	$6,864,904	$6,911,500	$7,465,921
INCOME TAXES	$1,769,221	$2,111,106	$2,325,052	$2,160,728	$2,552,103	$3,311,509	$3,817,622	$4,225,753
CORPORATE ASSET TAX	$160,587	$187,537	$339,698	$317,491	$352,279	$334,294	$327,606	$463,353
VAT	$1,384,408	$1,453,992	$1,510,988	$1,651,262	$1,931,603	$2,216,520	$1,874,558	$1,888,011
SPECIAL TAX ON GOODS & SVCS	$62,028	$66,911	$55,503	$54,213	$66,250	$466,966	$56,969	$58,083
VEHICLE LICENSING	$85,828	$94,621	$126,562	$142,523	$159,850	$192,015	$226,758	$352,834
NEW CAR TAX	$59,235	$64,160	$67,041	$79,579	$108,934	$106,390	$119,065	$139,225
IMPORT DUTIES	$67,721	$80,205	$74,108	$84,411	$93,563	$97,307	$105,779	$104,929
SALARY SUBSTITUTE TAX	$0		$12,234	$96,929				
LUXURY TAX	$0		$138,367	$16,698				
ACCESSORIES	$169,524	$132,993	$141,555	$112,975	$119,979	$139,903	$383,143	$203,733
OTHER	$0							
UNKNOWN								
NO-TRIBUTARIOS TTL		$288,641	$298,701	$334,482	$494,242	$561,861	$626,669	$737,838
Fees				$280,342	$428,545	$513,894	$562,560	$676,769
Sale of Goods & Svcs			$441	$929	$511	$5,182	$2,706	$968
Fines			$25,109	$28,327	$44,144	$41,990	$61,328	$59,662
Improvements				$24,133				
Other			$5	$751	$21,042	$795	$75	$439

Appendix 5: 1982-2009 Non-petroleum Tri-National Revenues in MXP
(Sources include INEGI, 2001; INEGI, 2005b, 2006, 2010b)

REAL VALUES (in MXP millions)										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total	**0**	**0**	**1844729**	**4058733**	**6345067**	**11206543**	**16020814**	**38806.6**	**82253**	**109241.8**
Federal: No Petroleros			1515403	3396952	5089025	8218361	13111291	34884	71481.2	96273
State*			329326	661781	1256042	2988182	2909523	3922.6	10771.8	12968.8
Municipal									0	0

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total	**141589.7**	**202478.8**	**249177.5**	**248894.2**	**253728.9**	**306889.9**	**423182.9**	**551534.2**	**595314.6**	**735339**
Federal	122666.2	177286.8	214947.2	193746.2	220102.3	280144.4	392566	508743.8	545175.7	674348.1
State	18923.5	25192	34230.3	49006	26857.4	19622.7	22445.2	32754.7	37024.6	45262.7
Municipal	0	0	0	6142	6769.2	7122.8	8171.7	10035.7	13114.3	15728.2

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**911454**	**989716.2**	**786533.3**	**839369.6**	**899676.3**	**957042**	**1121288**	**1318583**	**1489452**	**1596076**
Federal	868267.6	939114.5	729347.3	775340.9	823622.7	871497.6	1015184	1205362	1357841	1466060
State	25254.7	29070.7	32247.6	36344.1	42980.8	49008.4	63389.8	65616.6	77685.7	76360.7
Municipal	17931.7	21531	24938.4	27684.6	33072.8	36536	42714.4	47604.3	53925.1	53655.1

Appendix 6: 1970-2010 QR Public Finances, Sources and Uses in MXP and USD

(Compiled from sources including INEGI, 1980, 1984a, 1985b, 1986a, 1986f, 1987a, 1989, 1991a, 1991b, 1994a-a, 1995c, 2001, 2005a, 2005b, 2007; QR, 2004, 2005, 2006, 2007, 2008, 2009, 2010)

Part A – 1970-2010 QR Public Finances in MXP

Concepto/Año - en MILES	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Ingresos Totales	**52.1**	**55.2**	**80.1**	**70.7**	**120.6**	**176.8**	**240.4**	**392.8**	**495.3**	**718.0**
Impuestos	6.5	9.4	12.4	13.1	28.8	35.0	52.5	107.8	48.6	74.0
Derechos	1.3	1.1	2.2	1.7	4.3	3.9	11.5	11.6	22.3	22.0
Productos	3.7	3.5	4.7	6.4	6.3	4.7	4.0	8.0	9.7	16.0
Aprovechamientos	3.0	2.4	1.9	4.0	3.7	112.7	142.9	244.5	26.4	43.0
Contribución de mejoras										
Participaciones Federales									89.0	113.0
Deuda Pública (financiamiento)	0.0	0.0	0.0	1.9	2.6	4.2	0.0	0.0	0.5	8.0
Por cuenta de terceros									46.0	34.0
Transferencias (Aportaciones Federales)										
Otros Ingresos										
Disponibilidades	5.0	0.2	0.9	0.6	2.8	16.2	29.4	6.9	19.8	27.0
Subsidios, Transferencias y Ayudas	30.0	35.0	58.0	43.0	76.0				233.0	381.0
Cuentas de Orden	2.7	3.5						14.0	45.7	
Estimado Aportaciones 85% Aprovecha to 1994	**2.5**	**2.1**	**1.6**	**3.4**	**3.2**	**95.8**	**121.5**	**207.9**	**22.5**	**36.6**
Gastos Totales	**52.2**	**54.298**	**65.181**	**67.931**	**104.383**	**143.55**	**233.535**	**372.934**	**495.0**	**718.0**
Administrativos 1/	20.34	22.5	20.074	28.299	50.192	65.56	92.57	134.265	190.0	547.0
Servicios Personales										
Materiales y Suministros										
Servicios Generales										
Obras Públicas	27.975	7.383	19.445	19.742	22.928	24.062	72.863	160.868	229.0	139.0
Adquisición de bienes muebles e inmuebles										
Obras Públicas y Acciones Sociales										
Transferencias	2.458								46.0	5.0
Subsidios, Transferencias y Ayudas										
Recursos Federales y Est. a municipios										
Deuda pública	1.275		3.646	1.663	2.267	16.69	22.813	3.397	3.0	2.0
Disponibilidades	0.153								27.0	25.0
Por cuenta de terceros										
Inversión Financiera										
Otros Egresos		29.883	43.165	49.704	75.387	106.312	188.246	298.53		

Concepto/Año - en MILES	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Ingresos Totales	**1,100.0**	**1,785.0**	**3,447.0**	**6,771.0**	**9,138.0**	**14,766.0**	**21,459.0**	**38,637.0**	**112,070.0**	**131,512.7**
Impuestos	85.0	105.0	170.0	464.0	29.0	35.0	135.0	290.0	761.0	3,291.4
Derechos	37.0	39.0	52.0	53.0	89.0	139.0	393.0	1,055.0	2,265.0	4,149.4
Productos	40.0	111.0	144.0	146.0	359.0	812.0	903.0	2,891.0	2,791.0	7,202.4
Aprovechamientos	46.0	706.0	1,987.0	974.0	152.0	3,317.0	5,066.0	6,094.0	16,755.0	13,474.4
Contribución de mejoras										
Participaciones Federales	312.0	749.0	975.0	2,941.0	3,710.0	7,315.0	10,044.0	25,952.0	65,258.0	85,907.4
Deuda Pública (financiamiento)	21.0		50.0	850.0	780.0	891.0	1,376.0		11,836.0	9,901.4
Por cuenta de terceros	48.0	38.0								7,586.4
Transferencias (Aportaciones Federales)										
Otros Ingresos				1,236.0	1,969.0	2,196.0	3,542.0	2,355.0	12,133.0	
Disponibilidades	26.0	37.0	69.0	107.0		61.0			271.0	
Subsidios, Transferencias y Ayudas										
Cuentas de Orden										
Estimado Aportaciones 85% Aprovecha to 1994	**39.1**	**600.1**	**1,689.0**	**827.9**	**129.2**	**2,819.5**	**4,306.1**	**5,179.9**	**14,241.8**	**11,453.2**
Gastos Totales	**1,100.0**	**1,785.0**	**3,447.0**	**6,771.0**	**9,138.0**	**14,766.0**	**19,481.0**	**45,853.0**	**112,070.0**	**131,512.6**
Administrativos 1/	422.0	946.0	1,226.0	2,289.0	4,436.0	4,666.0	7,321.0	17,032.0	39,798.0	56,098.4
Servicios Personales										
Materiales y Suministros										
Servicios Generales										
Obras Públicas	571.0	511.0	1,529.0	2,571.0	1,393.0	2,183.0	4,417.0	6,914.0	25,543.0	21,927.4
Adquisición de bienes muebles e inmuebles										
Obras Públicas y Acciones Sociales										
Transferencias				1,880.0	2,925.0	1,600.0	7,115.0	18,386.0	13,403.0	50,234.4
Subsidios, Transferencias y Ayudas										
Recursos Federales y Est. a municipios										
Deuda pública	70.0	259.0	584.0		364.0	2,361.0		1,698.0	1,333.0	3,252.4
Disponibilidades	37.0	69.0	108.0	31.0	20.0	1,130.0		1,823.0	11,888.0	
Por cuenta de terceros						2,826.0	628.0		20,105.0	
Inversión Financiera										
Otros Egresos										

Concepto/Año - en MILES	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Ingresos Totales	**212,043.8**	**288,903.1**	**335,885.1**	**760,660.4**	**901,197.5**	**1,021,367.7**	**1,536,342.8**	**2,209,206.4**	**3,593,427.0**	**4,395,625.7**
Impuestos	4,565.4	12,503.3	25,221.3	30,312.5	35,007.3	41,424.5	123,102.0	145,584.3	182,286.5	219,465.3
Derechos	5,843.4	8,982.3	13,834.3	14,533.5	21,181.5	23,006.4	44,215.2	86,333.0	109,801.3	116,308.2
Productos	2,592.4	12,929.3	9,078.3	10,798.5	22,860.0	14,790.5	79,509.6	104,796.2	143,208.6	122,356.1
Aprovechamientos	7,645.4	10,455.3	35,391.3	302,070.5	102,285.0	70,677.5	78,410.9	35,522.9	62,878.1	100,662.0
Contribución de mejoras										
Participaciones Federales	144,297.4	187,776.3	187,818.3	278,788.5	308,087.7	400,857.5	623,764.2	855,941.3	1,075,815.2	1,343,847.1
Deuda Pública (financiamiento)	37,709.4	9,391.3	12,043.3	100,756.5	27,236.0	43,086.4				
Por cuenta de terceros	9,390.4	46,865.3	52,498.3	20,890.5	384,540.0	13,590.0	17,150.0		57,132.1	223,632.5
Transferencias (Aportaciones Federales)						397,068.0	570,191.0	981,028.7	1,667,800.9	1,964,027.2
Otros Ingresos										
Disponibilidades				2,510.0		16,867.0			294,504.2	305,327.2
Subsidios, Transferencias y Ayudas										
Cuentas de Orden										
Estimado Aportaciones 85% Aprovecha to 1994	**6,498.6**	**8,887.0**	**30,082.6**	**256,759.9**	**86,942.2**					
Gastos Totales	**212,043.6**	**288,902.9**	**335,884.8**	**760,660.9**	**901,197.3**	**1,021,367.5**	**1,536,342.8**	**2,209,206.4**	**3,593,427.0**	**4,395,625.7**
Administrativos 1/	82,469.4	90,193.2	109,475.2	156,324.5	176,787.3	173,815.0	246,985.5	355,542.8	509,252.7	718,647.4
Servicios Personales										
Materiales y Suministros										
Servicios Generales										
Obras Públicas	38,973.4	60,384.3	68,279.2	115,414.9	55,142.9	49,022.4	176,868.9	206,919.8	366,516.6	282,758.4
Adquisición de bienes muebles e inmuebles										
Obras Públicas y Acciones Sociales										
Transferencias	79,357.4	71,015.2	148,367.2	259,552.5	267,404.1	698,754.1	995,789.4	1,478,080.7	2,293,656.7	3,006,881.2
Subsidios, Transferencias y Ayudas										
Recursos Federales y Est. a municipios										
Deuda pública	11,243.4	67,310.2	9,763.2	24,763.5	50,925.0	99,776.0	90,418.0	78,303.2	72,182.1	137,617.5
Disponibilidades							26,281.0	90,359.8	305,327.2	239,514.6
Por cuenta de terceros				204,605.5	350,938.0				46,491.6	10,206.6
Inversión Financiera										
Otros Egresos										

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Concepto/Año - en MILES	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ingresos Totales	5,105,104.0	6,086,401.4	6,612,121.0	7,405,393.0	9,036,591.0	10,175,788.0	11,821,394.0	14,736,039.0	19,146,021.0	20,433,430.0	23,018,068.0
Impuestos	250,785.3	277,599.8	288,001.8	369,069.0	436,255.0	469,760.0	520,346.0	674,396.0	800,739.0	772,029.0	932,976.0
Derechos	124,430.2	131,032.1	171,455.3	228,648.0	328,162.0	412,067.0	516,890.0	751,369.0	705,458.0	552,166.0	579,706.0
Productos	83,994.2	67,081.9	63,582.9	66,435.0	110,072.0	106,103.0	122,508.0	106,849.0	152,078.0	151,658.0	145,010.0
Aprovechamientos	46,040.0	57,258.6	66,641.2	48,195.0	100,921.0	87,539.0	227,503.0	266,916.0	320,518.0	256,630.0	449,493.0
Contribución de mejoras									0.00%	0.00%	0.00%
Participaciones Federales	1,810,731.0	2,082,411.8	2,106,736.7	2,554,385.0	3,007,550.0	3,607,153.0	4,243,803.0	4,597,573.0	5,530,291.0	5,067,582.0	5,653,696.0
Deuda Pública (financiamiento)				193,430.0	164,625.0	187.0		581,036.0	8,638,304.0	9,026,610.0	8,401,404.0
Por cuenta de terceros	62,381.6	414,267.3	532,049.6		343,953.0				599,888.0	3,067,091.0	0.0
Transferencias (Aportaciones Federales)	2,487,227.2	3,030,079.0	3,245,235.7	3,798,472.0	4,194,689.0	4,818,070.0	5,408,721.0	6,548,334.0	0.0	0.0	0.0
Otros Ingresos					172,309.0	37,640.0	347,237.0	557,837.0	1,350,000.0	0.0	6,855,783.0
Disponibilidades	239,514.6	26,670.8	138,417.8	146,759.0	178,055.0	637,269.0	434,386.0	651,729.0	1,048,745.0	1,539,664.0	0.0
Subsidios, Transferencias y Ayudas											
Cuentas de Orden											
Gastos Totales	5,105,104.0	6,086,401.4	6,612,121.4	7,405,393.0	9,036,591.0	10,175,788.0	11,821,394.0	14,736,039.0			
Administrativos 1/	774,648.6	894,766.1	980,285.5	1,143,436.5	1,177,106.4	1,461,631.2	1,662,133.8	2,150,151.1			
Servicios Personales			619,202.8	669,074.9	715,289.2	862,572.8	923,872.5	1,224,703.4			
Materiales y Suministros			78,632.7	90,400.1	94,353.3	103,535.6	130,130.8	217,542.8			
Servicios Generales			282,450.0	383,961.5	367,463.8	495,522.8	608,130.5	707,904.9			
Obras Públicas	550,557.2	657,175.5	690,928.9	846,773.3	932,064.4	910,686.3	630,511.9	1,284,732.6			
Adquisición de bienes muebles e inmuebles			11,305.3	9,992.3	22,220.8	24,261.5	58,647.3	67,913.6			
Obras Públicas y Acciones Sociales			679,623.6	836,781.0	909,843.5	886,424.8	571,864.6	1,216,819.0			
Transferencias	3,505,536.6	4,147,619.9	4,531,856.1	4,924,179.6	5,797,109.5	6,595,165.3	8,353,934.4	9,612,836.0			
Subsidios, Transferencias y Ayudas			3,606,513.5	3,922,058.7	4,613,475.5	5,135,266.2	6,572,529.9	7,680,233.4			
Recursos Federales y Est. a municipios			925,342.6	1,002,120.9	1,183,634.0	1,459,899.0	1,781,404.5	1,932,602.6			
Deuda pública	55,791.3	58,761.7	100,528.2	106,459.0	189,639.4	202,521.8	158,105.0	312,410.8			
Disponibilidades	26,670.8	138,417.8	144,382.6	178,054.0	637,269.0	434,386.2	651,729.4	1,048,745.0			
Por cuenta de terceros	186,927.3	188,775.5	164,140.0	2,552.1	3,949.2						
Inversión Financiera				198,308.9	48,773.3	161,579.2	302,937.5	127,220.0			
Otros Egresos	4,972.3	885.0		5,629.7	250,679.9	409,818.0	62,042.0	199,943.5			

Part B – 1970-2010 QR Public Finances in current USD including exchange rates used

IN THOUSANDS USD - Exchange Rater	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0154	0.0225	0.0227	0.0227
Concepto/Año	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
REVENUES	**$4,171.8**	**$4,415.4**	**$6,405.0**	**$5,657.8**	**$9,646.2**	**$14,141.5**	**$15,639.6**	**$17,420.8**	**$21,792.1**	**$31,566.1**
Taxes	$522.5	$753.7	$994.6	$1,044.7	$2,305.9	$2,803.2	$3,417.3	$4,780.9	$2,138.7	$3,253.3
Fees and Licenses	$100.1	$90.2	$176.1	$135.4	$347.7	$313.8	$750.8	$513.5	$980.6	$967.2
Sales of Goods and Services	$295.5	$283.7	$373.8	$513.0	$501.1	$373.4	$260.0	$355.2	$427.7	$703.4
Fines, Penalties and Other*	$238.9	$194.0	$149.0	$322.6	$299.8	$9,019.5	$9,299.4	$10,844.9	$1,162.4	$1,890.5
Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Non-earmarked Federal Transfers	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3,915.7	$4,967.9
Public Debt	$0.0	$0.0	$0.0	$152.0	$208.4	$336.0	$0.0	$0.0	$21.6	$351.7
Third Party	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2,023.8	$1,494.8
Earmarked Federal Transfers	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Other Revenue	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Available	$396.6	$12.2	$71.4	$50.1	$223.4	$1,295.6	$1,912.1	$304.2	$868.9	$1,187.0
Subsidies and Assistance	$2,400.0	$2,800.0	$4,640.0	$3,440.0	$5,760.0	$0.0	$0.0	$0.0	$10,251.2	$16,750.3
Compensations	$218.2	$281.5	$0.0	$0.0	$0.0	$0.0	$0.0	$622.1	$1.5	$0.0
Estimado Aportaciones 85% Aprovecha	**$203.0**	**$164.9**	**$126.6**	**$274.2**	**$254.8**	**$8,568.5**	**$8,834.5**	**$10,302.6**	**$1,104.3**	**$1,606.9**
EXPENSES	**$4,175.8**	**$4,343.8**	**$5,214.5**	**$5,434.5**	**$8,350.6**	**$11,484.0**	**$15,193.3**	**$16,538.6**	**$21,778.2**	**$31,566.1**
Administrative	$1,627.2	$1,800.0	$1,605.9	$2,263.9	$4,015.4	$5,244.8	$6,022.4	$5,954.3	$8,359.3	$24,048.3
Personnel	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Materials	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
General Services	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Works	$2,238.0	$590.6	$1,555.6	$1,579.4	$1,834.2	$1,925.0	$4,740.3	$7,134.1	$10,075.2	$6,111.0
Property, Plant and Equipment	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public and Social Works	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transfers	$196.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2,023.8	$219.8
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Federal and State Stimulus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Debt	$102.0	$0.0	$291.7	$133.0	$181.4	$1,335.2	$1,484.2	$150.6	$132.0	$87.9
Availability	$12.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1,187.9	$1,099.1
Third Party	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Inversión Financiera	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Other Expenses	$0.00	$1,953.20	$1,761.28	$1,458.16	$2,319.68	$2,979.04	$2,946.41	$3,299.61	$0.00	$0.00
SUM OF CURRENT EXPENDITURE	$3,865.20	$4,343.84	$4,922.80	$5,301.44	$8,169.28	$10,148.80	$13,709.13	$16,387.94	$18,434.48	$30,159.28

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IN THOUSANDS USD - Exchange Rater	0.0229	0.0245	0.0580	0.1503	0.1849	0.3103	0.6353	1.3980	2.2871	2.4816
Concepto/Año	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
REVENUES	**$47,974.0**	**$72,891.6**	**$59,420.5**	**$45,046.4**	**$49,411.7**	**$47,588.9**	**$33,775.8**	**$32,799.5**	**$49,001.5**	**$52,994.6**
Taxes	$3,707.1	$4,287.7	$2,930.5	$3,086.9	$156.8	$112.8	$212.5	$207.4	$332.7	$1,326.3
Fees and Licenses	$1,613.7	$1,592.6	$896.4	$352.6	$481.2	$448.0	$618.6	$754.7	$990.3	$1,672.0
Sales of Goods and Services	$1,744.5	$4,532.8	$2,482.3	$971.3	$1,941.2	$2,617.0	$1,421.3	$2,068.0	$1,220.3	$2,902.3
Fines, Penalties and Other*	$2,006.2	$28,829.9	$34,252.6	$6,479.9	$821.9	$10,690.3	$7,973.7	$4,359.2	$7,326.0	$5,429.7
Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Non-earmarked Federal Transfers	$13,607.2	$30,585.9	$16,807.4	$19,566.0	$20,061.0	$23,575.3	$15,809.0	$18,564.0	$28,533.4	$34,617.4
Public Debt	$915.9	$0.0	$861.9	$5,654.9	$4,217.7	$2,871.6	$2,165.8	$0.0	$5,175.2	$3,989.9
Third Party	$2,093.4	$1,551.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3,057.0
Earmarked Federal Transfers	$21,152.2	$0.0	$0.0	$0.0	$11,084.9	$0.0	$0.0	$5,161.7	$0.0	$0.0
Other Revenue	$0.0	$0.0	$0.0	$8,222.9	$10,646.9	$7,077.4	$5,575.0	$1,684.6	$5,305.0	$0.0
Available	$1,133.9	$1,510.9	$1,189.4	$711.9	$0.0	$196.6	$0.0	$0.0	$118.5	$0.0
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Compensations	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Estimado Aportaciones 85% Aprovecha	**$1,705.3**	**$24,505.4**	**$29,114.7**	**$5,507.9**	**$698.6**	**$9,086.7**	**$6,777.7**	**$3,705.3**	**$6,227.1**	**$4,615.2**
EXPENSES	**$47,974.0**	**$72,891.6**	**$59,420.5**	**$45,046.4**	**$49,411.7**	**$47,588.9**	**$30,662.5**	**$32,799.5**	**$49,001.5**	**$52,994.5**
Administrative	$18,404.6	$38,630.5	$21,134.2	$15,228.3	$23,986.7	$15,037.9	$11,523.0	$12,183.3	$17,401.3	$22,605.5
Personnel	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Materials	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
General Services	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Works	$24,902.9	$20,867.0	$26,357.4	$17,104.4	$7,532.3	$7,035.5	$6,952.2	$4,945.7	$11,168.4	$8,835.9
Property, Plant and Equipment	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public and Social Works	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transfers	$0.0	$0.0	$0.0	$12,507.3	$15,816.3	$5,156.6	$11,198.8	$13,151.9	$5,860.3	$20,242.5
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Federal and State Stimulus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Debt	$3,052.9	$10,576.4	$10,067.2	$0.0	$1,968.2	$7,609.2	$0.0	$1,214.6	$582.8	$1,310.6
Availability	$1,613.7	$2,817.7	$1,861.7	$206.2	$108.1	$3,641.8	$0.0	$1,304.0	$5,197.9	$0.0
Third Party	$0.0	$0.0	$0.0	$0.0	$0.0	$9,107.8	$988.5	$0.0	$8,790.7	$0.0
Inversión Financiera	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Other Expenses	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SUM OF CURRENT EXPENDITURE	$43,307.45	$59,497.48	$47,491.59	$32,332.78	$31,519.00	$22,073.44	$18,475.26	$17,129.03	$28,569.74	$31,441.39

IN THOUSANDS USD - Exchange Rater	2.8385	3.0157	3.0954	3.1152	3.3890	6.4268	7.5992	7.9167	9.1537	9.5532
Concepto/Año	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
REVENUES	**$74,703.5**	**$95,798.5**	**$108,512.4**	**$244,180.7**	**$265,919.1**	**$158,922.2**	**$202,171.5**	**$279,056.3**	**$392,565.0**	**$460,120.4**
Taxes	$1,608.4	$4,146.0	$8,148.1	$9,730.7	$10,329.7	$6,445.5	$16,199.3	$18,389.5	$19,913.9	$22,972.9
Fees and Licenses	$2,058.6	$2,978.5	$4,469.4	$4,665.4	$6,250.1	$3,579.7	$5,818.4	$10,905.2	$11,995.3	$12,174.8
Sales of Goods and Services	$913.3	$4,287.3	$2,932.9	$3,466.4	$6,745.4	$2,301.4	$10,462.9	$13,237.3	$15,644.9	$12,807.9
Fines, Penalties and Other*	$2,693.5	$3,466.9	$11,433.7	$96,968.1	$30,181.5	$10,997.2	$10,318.3	$4,487.1	$6,869.1	$10,537.0
Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Non-earmarked Federal Transfers	$50,836.3	$62,265.5	$60,677.4	$89,494.3	$90,908.4	$62,372.4	$82,082.8	$108,118.4	$117,527.8	$140,669.7
Public Debt	$13,285.1	$3,114.1	$3,890.8	$32,344.0	$8,036.6	$6,704.1	$0.0	$0.0	$0.0	$0.0
Third Party	$3,308.3	$15,540.2	$16,960.3	$6,706.1	$113,467.4	$2,114.6	$2,256.8	$0.0	$6,241.4	$23,409.2
Earmarked Federal Transfers	$0.0	$0.0	$0.0	$0.0	$0.0	$61,782.8	$75,033.0	$123,918.8	$182,199.4	$205,588.3
Other Revenue	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Available	$0.0	$0.0	$0.0	$805.7	$0.0	$2,624.5	$0.0	$0.0	$32,173.2	$31,960.7
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Compensations	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Estimado Aportaciones 85% Aprovecha	**$2,289.5**	**$2,946.9**	**$9,718.6**	**$82,422.9**	**$25,654.3**					
EXPENSES	**$74,703.5**	**$95,798.4**	**$108,512.3**	**$244,180.8**	**$265,919.1**	**$158,922.1**	**$202,171.5**	**$279,056.3**	**$392,565.0**	**$460,120.4**
Administrative	$29,054.2	$29,907.5	$35,367.5	$50,181.9	$52,165.2	$27,045.2	$32,501.5	$44,910.5	$55,633.5	$75,225.8
Personnel	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Materials	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
General Services	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Works	$13,730.4	$20,023.0	$22,058.6	$37,049.5	$16,271.2	$7,627.8	$23,274.7	$26,137.1	$40,040.2	$29,598.3
Property, Plant and Equipment	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public and Social Works	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Transfers	$27,957.8	$23,548.2	$47,932.1	$83,319.3	$78,903.7	$108,724.3	$131,038.6	$186,704.0	$250,571.2	$314,751.0
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Federal and State Stimulus	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Public Debt	$3,961.1	$22,319.6	$3,154.1	$7,949.4	$15,026.6	$15,524.9	$11,898.3	$9,890.9	$7,885.6	$14,405.4
Availability	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3,458.4	$11,413.8	$33,355.6	$25,071.6
Third Party	$0.0	$0.0	$0.0	$65,680.7	$103,552.4	$0.0	$0.0	$0.0	$5,079.0	$1,068.4
Inversión Financiera	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Other Expenses	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SUM OF CURRENT EXPENDITURE	$42,784.60	$49,930.55	$57,426.08	$87,231.45	$68,436.36	$34,672.93	$55,776.15	$71,047.58	$95,673.69	$104,824.04

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IN THOUSANDS USD - Exchange Rater	9.4568	9.3360	9.6714	10.7913	11.2871	10.8895	10.9034	10.9274	11.1438	13.4983	12.6287
Concepto/Año	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
REVENUES	**$539,832.8**	**$651,928.4**	**$683,677.5**	**$686,234.5**	**$800,615.1**	**$934,458.5**	**$1,084,196.2**	**$1,348,535.2**	**$1,718,085.7**	**$1,513,777.5**	**$1,822,680.0**
Taxes	$26,519.0	$29,734.4	$29,778.7	$34,200.5	$38,650.9	$43,138.8	$47,723.4	$61,715.8	$71,855.0	$57,194.5	$73,877.5
Fees and Licenses	$13,157.7	$14,035.2	$17,728.1	$21,188.1	$29,074.2	$37,840.8	$47,406.4	$68,759.8	$63,304.9	$40,906.3	$45,903.9
Sales of Goods and Services	$8,881.9	$7,185.3	$6,574.3	$6,156.3	$9,752.1	$9,743.6	$11,235.8	$9,778.0	$13,646.9	$11,235.3	$11,482.6
Fines, Penalties and Other*	$4,868.4	$6,133.1	$6,890.5	$4,466.1	$8,941.3	$8,038.8	$20,865.4	$24,426.2	$28,762.0	$19,012.0	$35,593.0
Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Non-earmarked Federal Transfers	$191,473.5	$223,051.9	$217,831.5	$236,706.8	$266,460.0	$331,250.5	$389,219.3	$420,736.5	$496,265.7	$375,423.6	$447,686.5
Public Debt	$0.0	$0.0	$0.0	$17,924.5	$14,585.3	$17.2	$0.0	$53,172.2	$775,166.1	$668,721.7	$665,263.1
Third Party	$6,596.5	$44,373.1	$55,012.7	$0.0	$30,473.2	$0.0	$0.0	$0.0	$53,831.5	$227,220.5	$0.0
Earmarked Federal Transfers	$263,008.7	$324,558.7	$335,549.6	$351,992.4	$371,637.0	$442,450.9	$496,059.5	$599,255.9	$0.0	$0.0	$0.0
Other Revenue	$0.0	$0.0	$0.0	$0.0	$15,266.1	$3,456.5	$31,846.8	$51,049.2	$121,143.5	$0.0	$542,873.5
Available	$25,327.2	$2,856.8	$14,312.1	$13,599.7	$15,775.1	$58,521.4	$39,839.6	$59,641.5	$94,110.1	$114,063.5	$0.0
Subsidies and Assistance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Compensations	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0

Estimado Aportaciones 85% Aprovecha

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
EXPENSES	**$539,832.8**	**$651,928.4**	**$683,677.6**	**$686,234.5**	**$800,615.1**	**$934,458.5**	**$1,084,196.2**	**$1,348,535.2**			
Administrative	$81,914.2	$95,840.4	$101,359.2	$105,958.7	$104,288.1	$134,223.9	$152,442.2	$196,766.2	$0.0	$0.0	$0.0
Personnel	$0.0	$0.0	$64,024.1	$62,001.1	$63,372.5	$79,211.4	$84,732.7	$112,076.0	$0.0	$0.0	$0.0
Materials	$0.0	$0.0	$8,130.4	$8,377.1	$8,359.4	$9,507.8	$11,934.9	$19,907.9	$0.0	$0.0	$0.0
General Services	$0.0	$0.0	$29,204.7	$35,580.5	$32,556.2	$45,504.6	$55,774.5	$64,782.3	$0.0	$0.0	$0.0
Public Works	$58,218.0	$70,391.6	$71,440.4	$78,467.8	$82,578.1	$83,629.7	$57,827.2	$117,569.4	$0.0	$0.0	$0.0
Property, Plant and Equipment	$0.0	$0.0	$1,168.9	$926.0	$1,968.7	$2,228.0	$5,378.8	$6,215.0	$0.0	$0.0	$0.0
Public and Social Works	$0.0	$0.0	$70,271.5	$77,541.9	$80,609.4	$81,401.8	$52,448.4	$111,354.4	$0.0	$0.0	$0.0
Transfers	$370,688.6	$444,261.0	$468,583.1	$456,308.2	$513,606.7	$605,644.3	$766,179.0	$879,696.9	$0.0	$0.0	$0.0
Subsidies and Assistance	$0.0	$0.0	$372,904.9	$363,444.8	$408,740.2	$471,579.5	$602,797.9	$702,839.2	$0.0	$0.0	$0.0
Federal and State Stimulus	$0.0	$0.0	$95,678.2	$92,863.4	$104,866.4	$134,064.8	$163,381.1	$176,857.7	$0.0	$0.0	$0.0
Public Debt	$5,899.6	$6,294.1	$10,394.4	$9,865.2	$16,801.5	$18,597.9	$14,500.6	$28,589.6	$0.0	$0.0	$0.0
Availability	$2,820.3	$14,826.2	$14,928.8	$16,499.7	$56,460.1	$39,890.4	$59,773.2	$95,973.5	$0.0	$0.0	$0.0
Third Party	$19,766.4	$20,220.2	$16,971.7	$236.5	$349.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Inversión Financiera	**$0.0**	**$0.0**	**$0.0**	**$18,376.7**	**$4,321.2**	**$14,838.1**	**$27,783.8**	**$11,642.2**	**$0.0**	**$0.0**	**$0.0**
Other Expenses	$525.79	$94.79	$0.00	$521.68	$22,209.49	$37,634.23	$5,690.17	$18,297.38	$0.00	$0.00	$0.00
SUM OF CURRENT EXPENDITURE	$140,658.01	$166,326.80	$172,799.58	$184,948.15	$209,075.75	$255,487.84	$215,959.59	$332,632.97			

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Appendix 7: 1982-2010 BJ Public Finances, Sources and Uses in MXP and USD

Colour coding of sources:

INEGI Finanzas Publicas Estatales y Municipales 1978-1987
INEGI. (1986). Anuario Estadistico del Estado de Quintana Roo.
INEGI. (1989). El Ingreso Y Gasto Público en Mexico.
INEGI. (1985). El Ingreso Y Gasto Público en Mexico. 279 pgs.
INEGI. (1991). Anuario Estadistico del Estado de Quintana Roo.

NOTE: QR state only began declaring the municipal accounts in 1978 and for BJ from 1980. Colour codes are only in MXP but are also the sources for the USD. Exchange rates are the average official rate provided by the Bank of Mexico (Banxico).

Part A – 1980-2010 BJ Public Finances in MXP

	Nombre	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Egresos/ Gastos	$111,946	$156,725	$266,432	$520,000	$1,223,000	$2,252,000	$4,073,000	$6,806,600	$20,244,800	$39,365,600
1000	Servicios personales	$89,669	$125,537	$225,966	$452,000	$881,000	$1,635,000	$2,778,000	$3,575,700	$8,710,800	$14,495,400
2000	Materiales y suministros							$561,000	$1,049,200	$4,095,500	$5,967,900
3000	Servicios generales								$1,200,500	$3,146,400	$6,711,300
4000	Subsidios, transferencias y ayudas							$0	$0	$1,568,200	$3,418,000
5000	Adquisición de bienes muebles e inmuebles								$857,200	$1,246,700	$2,505,200
6000	Obras públicas y acciones sociales	$7,327	$10,258	$18,464	$37,000	$342,000	$438,000	$730,000	$124,000	$1,477,200	$5,723,700
7000	Inversión financiera										$0
8000	Aplicación de recursos federales y estatales										$0
	Otros egresos							$0			$0
	Por cuenta de terceros/Orden/Resultados	$8,828	$0	$6,574							$0
9000	Deuda pública										$544,100
	Disponibilidad final										$0
	tranferencias municipio y estado	$6,122	$8,571	$15,428	$31,000	$0	$179,000	$4,000			
	EROGACIONES EXTRAORDINARIAS										
*	Cuentas de Movimiento Compensado		$12,359								
4000	**Ingresos**	$111,946	$156,725	$266,432	$519,000	$1,249,000	$2,253,000	$4,072,800	$6,886,600	$23,432,600	$36,561,600
4100	Impuestos	$6,421	$8,989	$16,192	$32,000	$103,000	$774,000	$1,550,500	$2,850,100	$8,622,100	$15,376,100
4200	Derechos	$7,527	$10,538	$19,127	$37,000	$19,000		$268,700	$395,200	$800,400	$1,309,800
4300	Productos	$1,484	$2,077	$3,738	$7,000	$6,000		$106,900	$29,400	$160,300	$520,100
4400	Aprovechamientos	$73,009	$102,213	$183,983	$74,000	$4,000		$706,200	$1,182,300	$5,330,400	$6,346,700
	Contribuciones de mejoras										$0
4500	Participaciones	$2,359	$3,303	$43,392	$369,000	$1,017,000	$1,080,000	$1,233,400	$2,257,700	$6,041,400	$8,494,800
	Aportaciones federales y estatales										$0
	Otros ingresos							$207,100	$171,900	$2,478,000	$4,514,100
	Por cuenta de terceros/Orden		$8,828								$0
	Financiamiento (deuda pública)	$0	$0	$0							
	Resultados de Operaciones /Dispo Inicial	$21,147	$20,778	$0							

	Nombre	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	Egresos/ Gastos	$64,499,100	$104,277,000	$117,939,000	$196,900,381	$158,380,441	$156,737,878	$252,675,000	$282,424,099	$423,910,289	$492,924,274
1000	Servicios personales	$25,655,300	$38,083,000	$52,326,000	$35,780,908	$24,189,288	$72,884,925	$132,460,000	$108,238,404	$131,372,135	$166,895,627
2000	Materiales y suministros	$8,108,200	$11,221,000	$11,696,000	$47,571,915	$38,529,200	$12,122,547	$0	$20,633,142	$26,008,790	$35,580,852
3000	Servicios generales	$12,058,600	$23,325,000	$23,924,000	$0	$32,269,124	$34,274,553	$0	$57,306,533	$66,533,111	$89,186,136
4000	Subsidios, transferencias y ayudas	$7,752,600	$15,378,000	$17,614,000	$46,129,450	$18,336,823	$6,832,335	$24,079,000	$10,701,439	$29,643,754	$44,566,589
5000	Adquisición de bienes muebles e inmuebles	$7,091,500	$5,884,000	$2,477,000	$0	$0	$691,372	$2,036,000	$5,877,651	$12,771,690	$21,810,676
6000	Obras públicas y acciones sociales	$2,545,600	$9,032,000	$5,260,000	$60,272,907	$17,138,275	$3,019,181	$4,380,000	$16,300,555	$91,195,069	$91,987,238
7000	Inversión financiera	$0	$0		$0	$0	$0	$0	$0	$0	$0
8000	Aplicación de recursos federales y estatales	$0	$0		$0	$0	$0	$0	$0	$0	$0
	Otros egresos	$0	$0		$0	$0	$0	$0	$0	$0	$0
	Por cuenta de terceros/Orden/Resultados	$0	$0		$0	$0	$25,545,751	$0	$0	$0	$0
9000	Deuda pública	$1,287,300	$1,354,000	$4,642,000	$7,145,201	$2,371,980	$26,912,965	$89,720,000	$46,355,955	$66,385,740	$42,897,156
	Disponibilidad final	$0	$0		$0	$0	$0	$0	$17,010,420	$0	$0
	tranferencias municipio y estado										
	EROGACIONES EXTRAORDINARIAS										
*	Cuentas de Movimiento Compensado										
4000	**Ingresos**	$58,507,000	$87,935,000	$105,521,000	$196,900,381	$158,380,441	$156,737,878	$252,675,000	$282,424,099	$423,910,289	$492,924,274
4100	Impuestos	$27,142,200	$44,645,000	$48,372,000	$79,144,957	$55,699,823	$54,024,465	$74,559,000	$92,707,246	$96,121,642	$107,306,133
4200	Derechos	$1,723,500	$3,349,000	$9,923,000	$13,173,666	$14,024,790	$24,941,011	$34,388,000	$46,227,619	$55,141,445	$65,737,463
4300	Productos	$1,482,600	$2,087,000	$10,240,000	$13,893,271	$24,947,851	$16,013,230	$17,630,000	$18,909,430	$3,300,911	$7,577,967
4400	Aprovechamientos	$9,832,800	$10,583,000	$10,484,000	$14,535,582	$20,688,517	$20,941,802	$33,566,000	$32,581,995	$41,333,034	$55,278,923
	Contribuciones de mejoras	$0	$0		$0	$0	$0	$0	$0	$0	$0
4500	Participaciones	$11,846,600	$17,089,000	$23,674,000	$27,326,872	$30,142,114	$32,820,588	$55,994,000	$65,226,752	$80,309,033	$216,959,261
	Aportaciones federales y estatales	$0	$0		$0	$64,053	$0	$0	$0	$59,939,775	$17,918,157
	Otros ingresos	$6,479,300	$10,182,000	$2,828,000	$0	$0	$0	$0	$26,771,057	$36,730,710	$9,335,924
	Por cuenta de terceros/Orden	$0	$0		$0	$54,810	$0	$0	$0	$0	$0
	Financiamiento (deuda pública)				$48,826,033	$12,758,483	$7,996,782	$36,538,000	$0	$51,033,739	$12,810,446
	Resultados de Operaciones /Dispo Inicial										

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Nombre	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Egresos/ Gastos	$593,360,528	$690,337,445	$928,529,783	$1,256,724,282	$1,086,674,977	$1,829,083,106	$1,364,326,379	$1,904,704,521	$1,842,296,286	$2,073,653,362	$3,444,339,009
1000 Servicios personales	$227,346,809	$280,929,358	$374,358,013	$533,443,898	$613,045,098	$714,211,656	$808,903,145	$946,831,985	$1,004,247,566	$1,021,584,830	$1,076,700,242
2000 Materiales y suministros	$41,420,720	$50,293,994	$57,435,744	$78,960,941	$77,706,470	$74,946,922	$0	$180,987,516	$200,695,905	$291,289,108	$402,466,069
3000 Servicios generales	$102,304,088	$135,908,946	$178,433,031	$254,579,672	$218,314,592	$287,735,801	$272,987,264	$357,134,120	$243,489,875	$430,518,279	$405,302,562
4000 Subsidios, transferencias y ayudas	$49,047,893	$55,022,086	$82,505,458	$107,272,437	$50,026,257	$70,876,433	$116,849,164	$94,314,587	$44,652,251	$32,141,804	$79,142,886
5000 Adquisición de bienes muebles e inmuebles	$25,927,164	$34,092,885	$50,658,327	$98,222,836	$9,276,267	$75,933,147	$14,664,533	$44,508,756	$40,666,518	$24,290,430	$22,163,488
6000 Obras públicas y acciones sociales	$91,943,246	$106,427,902	$65,137,686	$157,248,981	$79,176,492	$122,472,342	$62,288,878	$186,081,791	$78,160,709	$157,872,680	$181,327,353
7000 Inversión financiera	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
8000 Aplicación de recursos federales y estatales	$0	$199,000	$68,089,909	$0	$0	$0	$0	$0	$0	$0	
Otros egresos	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Por cuenta de terceros/Orden/Resultados	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
9000 Deuda pública	$36,692,056	$27,463,274	$51,911,615	$26,995,517	$39,129,801	$397,428,929	$52,152,555	$70,582,976	$72,653,734	$115,956,231	$1,277,236,409
Disponibilidad final	$18,678,552	$0	$0	$0	$0	$85,477,876	$36,480,840	$24,422,790	$157,729,728	$0	
tranferencias municipio y estado											
EROGACIONES EXTRAORDINARIAS											
* Cuentas de Movimiento Compensado											
4000 **Ingresos**	$593,360,528	$690,337,445	$928,529,783	$1,256,724,282	$1,086,674,977	$1,829,083,106	$1,364,326,379	$1,904,704,521	$1,842,296,286	$2,073,653,362	$3,366,719,404
4100 Impuestos	$121,855,897	$130,314,620	$145,978,089	$232,701,653	$282,401,516	$395,839,597	$384,960,199	$633,568,815	$547,555,582	$759,211,588	$630,320,433
4200 Derechos	$106,005,576	$128,785,097	$177,581,231	$216,854,115	$250,795,592	$277,443,277	$272,189,341	$339,991,139	$317,946,582	$277,244,845	$279,016,238
4300 Productos	$5,584,855	$4,900,660	$14,689,706	$48,393,188	$34,678,123	$6,376,657	$8,088,165	$78,749,147	$11,195,556	$12,612,003	$11,366,295
4400 Aprovechamientos	$49,220,365	$57,535,977	$86,854,694	$127,326,430	$98,850,441	$62,637,964	$93,255,790	$100,297,523	$127,815,647	$104,541,955	$107,182,855
Contribuciones de mejoras	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
4500 Participaciones	$141,162,432	$187,856,441	$149,007,002	$241,489,852	$213,993,993	$276,147,683	$309,274,128	$390,316,633	$421,810,837	$406,991,140	$506,003,591
Aportaciones federales y estatales	$82,394,712	$136,306,860	$116,869,363	$151,887,808	$156,564,103	$214,626,958	$208,518,312	$236,643,914	$325,953,886	$373,536,611	$340,894,492
Otros ingresos	$50,155,562	$24,857,621	$82,829,937	$7,601,726	$15,728,798	$35,210,970	$88,040,444	$88,656,510	$90,018,196	$61,879,068	$1,438,076,670
Por cuenta de terceros/Orden	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Financiamiento (deuda pública)	$0	$0	$154,719,761	$189,028,059	$33,662,411	$560,800,000	$0	$0	$0	$77,636,152	
Resultados de Operaciones /Dispo Inicial	$36,981,129	$19,780,169	$0	$41,441,451	$0	$0	$0	$36,480,840	$0	$0	
FORTAMUN											
Fondo financiero compensado											
Fondo General Participaciones											
Otras aportaciones federales 2010											$53,446,260
Aportaciones Municipales 2010											$412,570

Part B – 1980-2010 BJ Public Finances in current USD including exchange rate used

Av. Exchange Rate MXP in USD	0.02293	0.02449	0.05801	0.15031	0.18494	0.31030	0.63534	1.39798	2.28707	2.48163
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Expenses	$4,882,287	$6,399,955	$4,592,842	$3,459,475	$6,613,097	$7,257,493	$6,410,778	$4,868,890	$8,851,848	$15,862,819
1000 Personnel	$3,910,713	$5,126,366	$3,895,276	$3,007,082	$4,763,809	$5,269,094	$4,372,488	$2,557,766	$3,808,715	$5,841,087
2000 Materials	$0	$0	$0	$0	$0	$0	$882,997	$750,513	$1,790,719	$2,404,834
3000 General Services	$0	$0	$0	$0	$0	$0	$0	$858,740	$1,375,734	$2,704,395
4000 Subsidies and Transfers	$0	$0	$0	$0	$0	$0	$0	$0	$685,681	$1,377,322
5000 Purchase of Real Estate and Furnishings	$0	$0	$0	$0	$0	$0	$0	$613,171	$545,108	$1,009,499
6000 Public and Social Works	$319,555	$418,890	$318,288	$246,155	$1,849,288	$1,411,537	$1,148,998	$88,700	$645,892	$2,306,430
7000 Financial Investments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8000 Aplicación de recursos federales y estatales	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Holding for third parties	$385,007	$0	$113,325	$0	$0	$0	$0	$0	$0	$0
9000 Debt Repayment (principal + Interest)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$219,251
Final Results	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
State and municipal transfers	$267,012	$350,013	$265,953	$206,238	$0	$576,861	$6,296	$0	$0	$0
Extraordinary Expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
* Compensation	$0	$504,687	$0	$0	$0	$0	$0	$0	$0	$0
Revenue	$4,882,287	$6,399,955	$4,592,844	$3,452,822	$6,753,686	$7,260,715	$6,410,463	$4,926,115	$10,245,683	$14,732,915
4100 Taxes	$280,016	$367,060	$279,123	$212,891	$556,949	$2,494,360	$2,440,440	$2,038,730	$3,769,932	$6,195,975
4200 Fees	$328,265	$430,307	$329,718	$246,155	$102,738	$0	$422,926	$282,694	$349,967	$527,799
4300 Sale of Goods and Services	$64,700	$84,812	$64,445	$46,570	$32,444	$0	$168,257	$21,030	$70,090	$209,580
4400 Fines	$3,184,122	$4,173,913	$3,171,553	$492,310	$21,629	$0	$1,111,537	$845,722	$2,330,667	$2,557,475
Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4500 Non-earmarked Transfers	$102,889	$134,873	$748,005	$2,454,897	$5,499,198	$3,480,503	$1,941,334	$1,614,976	$2,641,545	$3,423,077
Earmarked State and Federal Transfers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Revenue	$0	$0	$0	$0	$0	$0	$325,969	$122,963	$1,083,482	$1,819,008
Third Party	$0	$360,491	$0	$0	$0	$0	$0	$0	$0	$0
Public Debt	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Available	$922,294	$848,501	$0	$0	$0	$0	$0	$0	$0	$0

Av. Exchange Rate MXP in USD	2.83847	3.01574	3.11515	3.11515	3.38899	6.42684	7.59921	7.91670	9.15371	9.55321
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Expenses	$22,723,191	$34,577,609	$37,859,768	$63,207,275	$46,733,807	$24,388,009	$33,250,188	$35,674,455	$46,310,208	$51,597,779
1000 Personnel	$9,038,425	$12,628,087	$16,797,245	$11,486,081	$7,137,608	$11,340,706	$17,430,770	$13,672,155	$14,351,789	$17,470,115
2000 Materials	$2,856,539	$3,720,814	$3,754,550	$15,271,129	$11,368,930	$1,886,237	$0	$2,606,279	$2,841,338	$3,724,493
3000 General Services	$4,248,274	$7,734,426	$7,679,878	$0	$9,521,750	$5,333,032	$0	$7,238,686	$7,268,430	$9,335,727
4000 Subsidies and Transfers	$2,731,260	$5,099,250	$5,654,295	$14,808,081	$5,410,703	$1,063,094	$3,168,621	$1,351,754	$3,238,441	$4,665,092
5000 Purchase of Real Estate and Furnishings	$2,498,353	$1,951,098	$795,145	$0	$107,576	$267,923	$742,437	$1,395,247	$2,283,074	
6000 Public and Social Works	$896,821	$2,994,955	$1,688,520	$19,348,293	$5,057,044	$469,777	$576,376	$2,059,008	$9,962,633	$9,628,938
7000 Financial Investments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8000 Aplicación de recursos federales y estatales	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Holding for third parties	$0	$0	$0	$0	$7,537,864	$0	$0	$0	$0	$0
9000 Debt Repayment (principal + Interest)	$453,519	$448,978	$1,490,135	$2,293,691	$699,907	$4,187,588	$11,806,498	$5,855,461	$7,252,330	$4,490,341
Final Results	$0	$0	$0	$0	$0	$0	$0	$2,148,674	$0	$0
State and municipal transfers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extraordinary Expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
* Compensation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Revenue	$20,612,160	$29,158,703	$33,873,448	$63,207,275	$46,733,807	$24,388,009	$33,250,188	$35,674,455	$46,310,208	$51,597,779
4100 Taxes	$9,562,264	$14,804,006	$15,527,965	$25,406,437	$16,435,519	$8,406,067	$9,811,421	$11,710,334	$10,500,838	$11,232,472
4200 Fees	$607,193	$1,110,508	$3,185,397	$4,228,897	$4,138,338	$3,880,757	$4,525,210	$5,839,251	$6,023,944	$6,881,193
4300 Sale of Goods and Services	$522,324	$692,036	$3,287,157	$4,459,899	$7,361,440	$2,491,617	$2,319,979	$2,388,548	$360,609	$793,238
4400 Fines	$3,464,120	$3,509,257	$3,365,484	$4,666,088	$6,104,625	$3,258,490	$4,417,041	$4,115,601	$4,515,440	$5,786,426
Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4500 Non-earmarked Transfers	$4,173,586	$5,666,607	$7,599,625	$8,772,239	$8,894,127	$5,106,799	$7,368,402	$8,239,130	$8,773,385	$22,710,620
Earmarked State and Federal Transfers					$18,900			$6,548,139	$1,875,617	
Other Revenue	$2,282,673	$3,376,288	$907,820	$0	$0	$0	$0	$3,381,591	$4,012,658	$977,255
Third Party	$0	$0	$0	$0	$16,173	$0	$0	$0	$0	$0
Public Debt	$0	$0	$0	$15,673,715	$3,764,685	$1,244,279	$4,808,134	$0	$5,575,196	$1,340,958
Available	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Av. Exchange Rate MXP in USD	9.45682	9.33600	9.67140	10.79135	11.28706	10.88950	10.90337	10.92744	11.14381	13.49831	12.629
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Expenses	$62,744,165	$73,943,622	$96,007,763	$116,456,682	$96,276,170	$167,967,551	$125,128,848	$174,304,717	$165,320,146	$153,623,239	$272,739,216
1000 Personnel	$24,040,503	$30,090,986	$38,707,725	$49,432,566	$54,313,972	$65,587,169	$74,188,347	$86,632,541	$90,117,076	$75,682,452	$85,258,268
2000 Materials	$4,379,982	$5,387,105	$5,938,719	$7,317,062	$6,884,562	$6,882,493	$0	$16,562,662	$18,009,631	$21,579,680	$31,869,186
3000 General Services	$10,818,018	$14,557,518	$18,449,549	$23,591,097	$19,342,023	$26,423,227	$25,036,958	$32,682,320	$21,849,787	$31,894,247	$32,093,793
4000 Subsidies and Transfers	$5,186,508	$5,893,541	$8,530,867	$9,940,599	$4,432,178	$6,508,693	$10,716,791	$8,630,986	$4,006,911	$2,381,173	$6,266,912
5000 Purchase of Real Estate and Furnishings	$2,741,635	$3,651,767	$5,237,950	$9,102,001	$821,850	$6,973,059	$1,344,954	$4,073,118	$3,649,247	$1,799,517	$1,755,011
6000 Public and Social Works	$9,722,423	$11,399,736	$6,735,081	$14,571,768	$7,014,802	$11,246,826	$5,712,809	$17,028,853	$7,013,823	$11,695,741	$14,358,366
7000 Financial Investments	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8000 Aplicación de recursos federales y estatales	$0	$21,315	$7,040,334	$0	$0	$0	$0	$0	$0	$0	$0
Other expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Holding for third parties	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9000 Debt Repayment (principal + Interest)	$3,879,955	$2,941,654	$5,367,537	$2,501,590	$3,466,784	$36,496,518	$4,783,158	$6,459,241	$6,519,649	$8,590,429	$101,137,680
Final Results	$1,975,140	$0	$0	$0	$0	$7,849,567	$3,345,831	$2,234,996	$14,154,022	$0	$0
State and municipal transfers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extraordinary Expenditures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
* Compensation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Revenue	$62,744,165	$73,943,622	$96,007,763	$116,456,682	$96,276,170	$167,967,551	$125,128,848	$174,304,717	$165,320,146	$153,623,239	$266,592,925
4100 Taxes	$12,885,499	$13,958,297	$15,093,786	$21,563,729	$25,019,934	$36,350,551	$35,306,527	$57,979,614	$49,135,402	$56,244,957	$49,911,783
4200 Fees	$11,209,427	$13,794,466	$18,361,475	$20,095,188	$22,219,743	$25,478,048	$24,963,776	$31,113,519	$28,531,228	$20,539,234	$22,093,839
4300 Sale of Goods and Services	$590,563	$524,921	$1,518,881	$4,484,444	$3,072,379	$585,578	$741,804	$7,206,550	$1,004,643	$934,340	$900,038
4400 Fines	$5,204,746	$6,162,810	$8,980,568	$11,798,939	$8,757,855	$5,752,142	$8,552,931	$9,178,500	$11,469,654	$7,744,821	$8,487,250
Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4500 Non-earmarked Transfers	$14,927,044	$20,121,733	$15,406,968	$22,378,104	$18,959,231	$25,359,072	$28,364,998	$35,718,942	$37,851,582	$30,151,277	$40,067,781
Earmarked State and Federal Transfers	$8,712,726	$14,600,139	$12,084,013	$14,074,965	$13,871,114	$19,709,528	$19,124,204	$21,655,931	$29,249,771	$27,672,853	$26,993,654
Other Revenue	$5,303,637	$2,662,557	$8,564,418	$704,428	$1,393,525	$3,233,478	$8,074,607	$8,113,200	$8,077,865	$4,584,210	$113,873,780
Third Party	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Debt	$0	$0	$15,997,654	$17,516,635	$2,982,389	$51,499,138	$0	$0	$0	$5,751,548	$0
Available	$3,910,523	$2,118,699	$0	$3,840,249	$0	$0	$0	$3,338,461	$0	$0	$0
FORTAMUN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Otras aportaciones federales 2010	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,232,130
Aportaciones Municipales 2010	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$32,669

Estimations based on the above.

		FEDERAL GENERATION IN QR & BJ				QR STATE		BJ				
USD millions	BJ to QR Popn	Fed Taxes Collected* Ttl QR	Fed Taxes Attributable to BJ	Est'd Dep Fees Cancun Airport	Zofemat	Taxes, Fees, Products and other (net est'd earmarked 1970-1994)*	QR REVENUE attributable to BJ	Taxes, Fees, Products and other (net est'd earmarked 1970-1997)*	Econ Activity Attrib to BJ EN USD MILLIONS	BJ POPN	REV PER CAPTA
1980	0.165	*$14*	$2			*$9*	*$1*	$1	$5	37,190	$131.72
1981	0.202	*$17*	$4			*$39*	*$8*	$2	$13	51,147	
1982	0.233	*$21*	$5			*$41*	*$9*	$1	$15	65,104	
1983	0.258	$25	$6			$11	$3	$1	$10	79,061	
1984	0.279	$38	$11			$3	$1	$1	$12	93,018	
1985	0.297	$35	$10			$14	$4	$2	$17	106,975	$159.52
1986	0.313	$32	$10			$10	$3	$3	$16	120,932	
1987	0.327	$46	$15			$7	$2	$2	$20	134,889	
1988	0.338	$59	$20			$10	$3	$5	$28	148,846	
1989	0.349	*$80*	$28			*$11*	*$4*	$7	$39	162,803	
1990	0.358	*$110*	$39			*$7*	*$3*	$11	$53	176,765	$301.17
1991	0.381	$156	$60			$15	$6	$17	$82	203,765	
1992	0.400	$187	$75	$11		$27	$11	$23	$119	230,765	
1993	0.416	$215	$90	$11		$115	$48	$35	$183	257,765	
1994	0.431	$213	$92	$11		$54	$23	$29	$154	284,765	
1995	0.443	$163	$72	$13		$23	$10	$15	$111	311,696	$354.71
1996	0.447	$176	$79	$16		$43	$19	$17	$131	333,316	
1997	0.451	$248	$112	$18		$47	$21	$21	$171	354,936	
1998	0.454	$267	$121	$18		$54	$25	$21	$185	376,556	
1999	0.457	$361	$165	$16		$58	$27	$25	$232	398,176	
2000	0.480	*$420*	$202	$27	*$6*	*$53*	*$26*	$30	$290	419,815	$689.86
2001	0.491	$480	$236	$26	*$6*	$57	$28	$34	$330	450,445	
2002	0.502	$526	$264	$28	*$6*	$61	$31	$44	$372	481,075	
2003	0.511	$468	$239	$35	*$6*	$66	$34	$58	$372	511,705	
2004	0.520	$521	$271	$46	*$6*	$86	$45	$59	$427	542,335	
2005	0.505	$643	$325	$47	*$6*	$99	$50	$68	$495	572,973	$864.47
2006	0.502	$691	$347	$50	*$6*	$127	$64	$70	$536	590,613	
2007	0.499	$751	$375	$61	$7	$165	$82	$105	$630	608,253	
2008	0.496	*$795*	$395	$72	$7	$178	$88	$90	$652	625,893	
2009	0.494	*$855*	$422	$64	$7	$128	$63	$85	$642	643,533	
2010	0.499	*$920*	$459	$73	$8	*$167*	*$83*	$81	$704	661,176	$1,065.38

* FOR ENTIRE QR STATE

RED INDICATES ESTIMATES

Appendix 8: 2001-2010 BJ Balance Sheets
(Sources: BJ, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011)

Part A – 2001-2010 Assets

BALANCE SHEET in USD	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ASSETS	$38,996,652	$43,803,912	$94,444,054	$107,669,162	$125,858,629	$134,702,375	$297,139,315	$382,219,496	$353,868,404	$813,330,030
Cash	$3,064,163	$4,284,947	-$794,825	$4,162,504	$11,743,369	$10,288,386	$15,454,652	$22,509,651	$16,655,166	$30,720,614
Cash-on-Hand	$31,231	$16,283	$26,660	$24,016	$5,669	$49,419	$14,420	$37,261	$35,967	$36,537
Trust Funds	$533,291	$171,771	$1,332		$29,570	$29,532	$1,267,527	$2,774,498	$1,060,978	$7,113,408
Banks	$2,499,641	$4,052,152	-$833,241	$4,128,315	$11,699,109	$10,200,424	$14,172,705	$12,440,896	$10,540,053	$15,858,280
Short Term Investments	$0	$44,741	$10,424	$10,173	$9,022	$9,010	$0	$5,910,958	$5,018,169	$0
Short Terms Stocks	$0	$0					$0	$1,346,038	$0	$7,712,389
	$0	$0								
Receivables	$5,109,411	$4,317,702	$7,169,646	$5,873,967	$7,326,511	$11,200,242	$7,445,372	$6,716,789	$5,241,623	$9,013,680
Deudores Diversos	$106,854	$70,082	$66,983	$32,923	$104,020	$367,023	$78,110	$62,867	$49,976	$113,226
Creditos Puentes por Recuperar	$33,696	$83,386	$1,254,374	$438,184	$156,114	$144,616	$138,307	$827,037	$682,778	$119,676
Cuentas por Cobrar	$695,866	$416,841	$1,399,555	$2,827,824	$4,506,502	$7,072,068	$4,233,881	$2,230,647	$1,874,908	$4,183,579
Anticipos a Proveedores	*$347,773*	*$286,694*	*$262,860*	*$264,730*	*$145,177*	*$0*	*$0*	*$0*	*$0*	*$0*
Anticipos a Contratistas	*$469,322*	*$546,134*	*$981,880*	*$278,632*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Gastos por Comprobar	$252,691	$327,602	$1,208,055	$320,430	$872,460	$667,961	$832,712	$598,805	$874,177	$746,966
Creditos Inmobiliarios por Recuperar	$2,999,237	$2,264,143	$1,706,746	$1,434,752	$1,388,477	$1,347,694	$1,262,897	$1,245,705	$1,019,204	$1,083,796
Programa Mpal de Mejor a la Vivienda	$4,002	$3,863	$3,462	$3,310	$0	$3,428	$3,420	$3,311	$2,733	$2,921
Sueldos y Presentaciones al Pnal.	$0	$0	$0		$153,762	$954,512	$247,180	$243,522	$201,045	$214,782
Anticipos	$0	$0	$0			$642,941	$648,863	$1,504,895	$536,802	$2,548,734
Deudores Diversos Admon. Anterior	*$5,693*	*$17,478*	*$15,664*	*$14,976*						
Créditos Puentes Admon. Anterior	*$36*	*$34*	*$31*	*$30*						
Cuentas por Cobrar Admon. Anterior	*$109,137*	*$155,851*	*$139,677*	*$133,542*						
Anticipos A Prov. Admon. Anterior	*$4,225*	*$6,146*	*$5,509*	*$5,267*						
Anticipos A Contratistas Admon. Anterior	*$73,444*	*$68,558*	*$61,443*	*$58,745*						
Gastos por Comprobar Admon. Anterior	*$7,437*	*$70,766*	*$63,296*	*$60,516*						
Deposito en Garantia Admon. Anterior	*$0*	*$124*	*$111*	*$106*						
	$0	$0				1.972%				81.137%
Fixed	$30,799,273	$35,180,536	$88,048,119	$97,632,692	$102,127,375	$109,500,903	$271,384,345	$352,947,294	$331,927,581	$662,784,184
Land	$1,801,271	$1,749,142	$2,520,444	$1,264,165	$1,310,318	$491,586	$153,225,714	$295,173,459	$270,383,783	$594,865,712
Buildings	$4,789,045	$4,622,960	$4,143,182	$3,961,218	$4,105,836	$4,100,613	$4,091,581	$4,012,138	$3,312,305	$3,540,392
Other real estate	$1,562,375	$1,508,191	$1,351,669	$1,292,305	$1,339,485	$1,337,781	$1,334,835	$1,308,917	$1,080,604	$1,155,015
Unidad Hab. Benito Juarez	$218,509	$210,931	$189,040	$180,738	$187,336	$187,098	$186,686	$183,061	$151,130	$161,537
Transportation Equipment (Vehicles)	$7,749,948	$10,460,754	$12,282,375	$12,120,771	$13,216,233	$18,804,089	$23,296,027	$14,934,523	$12,820,394	$14,285,328
Scrapers	*$118,332*	*$271,342*	*$556,489*	*$532,048*	*$551,472*	*$0*	*$0*	*$0*	*$0*	*$0*
Machinery and Equipment	$2,053,547	$2,739,022	$2,770,331	$2,661,892	$2,862,244	$3,984,875	$5,936,151	$6,799,876	$5,842,663	$6,702,985
Tools and Instruments	$801,435	$1,051,322	$2,526,101	$2,532,864	$2,668,371	$2,712,265	$3,152,675	$3,180,113	$2,685,628	$3,422,165
Fixed Tools	$13,990	$16,263	$14,955	$14,459	$15,153	$15,427	$21,945	$35,698	$129,833	$145,934
Office Furniture	$829,708	$1,302,559	$1,290,007	$1,266,341	$1,365,724	$1,542,713	$3,682,385	$3,009,940	$2,662,044	$3,054,716
Diverse Implements	$195,642	$409,163	$638,021	$635,285	$655,213	$684,685	$705,718	$711,743	$590,374	$641,591
Public Service Municipal Property	$2,376,612	$2,449,287	$2,933,035	$2,859,863	$2,964,272	$2,960,760	$2,954,239	$3,125,492	$2,580,315	$2,757,997
Public Works	$6,013,068	$5,804,534	$54,307,347	$65,854,020	$68,258,243	$68,171,418	$67,536,033	$15,272,482	$24,304,260	$25,977,858
Municipal Security and Fire Equipment	$1,211,330	$1,169,321	$1,047,967	$1,001,941	$1,038,520	$2,661,305	$2,399,625	$2,372,461	$2,796,323	$3,004,697
Equipo de Computación	$1,064,463	$1,415,745	$1,477,157	$1,454,780	$1,588,954	$1,846,289	$2,860,732	$2,827,390	$2,587,923	$3,068,256
Sum not incl Land, Vehicles, Pub Works)	*$14,023,657*	*$15,996,785*	*$17,889,985*	*$17,391,794*	*$18,304,061*	*$19,372,505*	*$24,926,946*	*$25,194,369*	*$21,622,820*	*$24,650,588*
Other / Deferred	$23,805	$20,726	$21,114	$0	$4,661,374	$3,712,844	$2,854,946	$45,762	$44,034	$110,811,553
Deposits as Guarantees	$21,000	$20,726	$21,114		$6,722	$2,857,465			$44,034	$51,751
Financing	$0				$0	$0				$110,759,802
Impuestos Pagados por Anticipado	*$2,806*				*$0*	*$775*	*$2,854,946*	*$45,762*		
Cash Available Previous Adminstrations					*$10,068*	*$0*				
Deudores Diversos Admon. Anterior					*$467,659*	*$0*				
Créditos Puentes por Recup Admon Ant					*$114,087*	*$0*				
Cuentas por Cobrar Admon. Anterior					*$1,510,178*	*$0*				
Sueldos y Prestaciones al Pnal Admon Ant					*$782,139*	*$0*				
Anticipos a Proveedores Admon Anterior					*$355,105*	*$0*				
Anticipos a Contratistas Admon Anterior					*$281,342*	*$0*				
Cargos Bancarios por Identificar Admon Ant					*$855,693*	*$854,605*				
Gastos por Comprobar Admon. Anterior					*$274,948*	*$0*				
Programa Mpal Mejor Vivienda Admon Ant					*$3,431*	*$0*				
OFF BALANCE SHEET	$0	$0	$0	$0	$20,302,923	$0	$19,098,268	$28,262,338	$32,808,947	
Responsabilidad Auditoria ORFIS					$20,229,563		$7,693,350	$20,280,736	$26,219,568	
IVA POR DECLARAR					*$73,361*		*$0*	*$0*	*$0*	
Fideicomiso Banco Serfin Decreto 5							$4,488,352	$1,283,356	$1,059,502	
Rescinded Contracts							$1,308,767	$5,498,918	$4,539,747	
Cancelled Debts							$5,607,799	$1,199,328	$990,131	

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Part B – 2001-2010 Liabilities and Patrimony

LIABILITIES PLUS EQUITY	$38,996,652	$43,803,912	$94,444,054	$107,669,162	$125,858,629	$134,702,375	$297,139,315	$382,219,495	$353,868,403	$813,330,030
LIABILITIES	$35,060,742	$47,224,712	$64,381,448	$70,977,759	$99,269,326	$100,254,077	$98,310,027	$83,352,082	$81,127,172	$153,351,886
Current	$6,147,354	$18,238,080	$37,699,693	$32,544,011	$39,339,843	$38,096,161	$37,215,142	$24,894,312	$39,472,706	$28,884,951
Accounts Payable	$1,156,414	$1,271,519	$3,274,843	$4,336,405	$3,652,600	$6,392,516	$10,120,792	$5,897,119	$2,525,261	$3,422,207
Suppliers	$0	$0	$0	$0	$16,345,242	$26,090,082	$15,230,384	$10,725,396	$11,613,232	$13,780,985
Suppliers 1999	*$5,044*	*$4,869*	*$4,364*	*$4,172*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Suppliers 1999 R-33	*$22,449*	*$4,249*	*$3,808*	*$3,641*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Suppliers 2000	*$28,053*	*$27,226*	*$24,401*	*$23,329*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Taxes Payable	$39,883	$122,750	$220,904	$635,119	$1,547,637	$247,292	$1,434,101	$2,199,248	$3,887,314	$8,011,129
Retentions	$791,706	$664,901	$338,107	$2,020,911	$1,205,469	$1,878,215	$2,053,431	$1,376,465	$1,669,317	$1,393,068
Other accounts payable	$119,228	$726,897	$2,101,550	$2,338,056	$100,038	$1,477,556	$3,984,894	$2,256,286	$17,863,919	$2,208,623
Cuentas por Pagar 2002-2003	*$0*	*$0*	*$0*	*$0*	*$1,949,518*	*$0*	*$0*	*$0*	*$0*	*$0*
Acreedores Diversos	$17,872	$54,881	$2,624,127	$760,514	$1,945	$12,265	$4,384,595	$2,439,799	$1,913,663	$68,939
Depositos por Identificar	$0	$0	$0	$0	$0	$10,301	$6,946	$0	$0	
Pasivo Suppliers 2001 R-33	*$1,061,945*	*$0*	*$0*	*$0*	*$0*	*$0*				
Suppliers 2001	*$2,904,692*	*$8,047*	*$51,897*	*$49,618*	*$0*	*$0*				
Retenciones por Aclarar	*$67*	*$0*	*$0*	*$0*	*$0*	*$0*				
Suppliers 2002	*$0*	*$9,779,024*	*$625,297*	*$571,544*	*$0*	*$0*				
Suppliers 2003	*$0*	*$0*	*$18,582,827*	*$5,416,856*	*$0*	*$0*				
Suppliers 2004	*$0*	*$0*	*$0*	*$13,615,998*	*$0*	*$0*				
Suppliers 2002-2005	*$0*	*$0*	*$0*	*$0*	*$13,602,992*	*$0*				
Créditos a Corto Plazo	*$0*	*$5,573,718*	*$9,847,569*	*$2,767,850*	*$934,402*	*$1,987,933*				
Long Term	$26,780,804	$25,325,764	$22,068,371	$31,556,606	$51,499,138	$51,433,630	$49,439,733	$46,291,928	$36,044,231	$110,759,802
Deuda Publica a Largo Plazo			$0	$10,547,265	$51,499,138	$51,433,630	$49,439,733	$46,291,928	$36,044,231	$110,759,802
Serfin UDIS a Largo Plazo	*$25,030,986*	*$24,312,283*	*$21,523,391*	*$20,488,296*						
FONAPO a Largo Plazo	*$1,749,818*	*$1,013,480*	*$544,980*	*$521,045*						
Accrued	$2,132,584	$3,660,868	$4,613,384	$6,877,142	$8,430,345	$10,724,286	$11,655,152	$12,165,842	$5,610,236	$13,707,133
Predial Cobrado por Anticipado	$2,132,584	$3,660,868	$4,613,384	$6,877,142	$8,430,345	$10,724,286	$11,655,152	$12,165,842	$5,610,236	$13,707,133
PATRIMONY	$3,935,911	-$3,420,800	$30,062,606	$36,691,403	$26,589,302	$34,448,298	$198,829,288	$298,867,413	$272,741,231	$659,978,144
Hacienda Municipal	$3,935,911	-$3,420,800	$30,062,606	$36,691,403	$26,589,302	$34,448,298	$198,829,288	$298,867,413	$272,741,231	$659,978,144
Inversiones Activo Fijo	$30,792,754	$35,180,536	$88,048,119	$97,632,692	$102,127,527	$109,500,903	$271,384,345	$352,962,232	$331,927,581	$662,784,184
Financiamientos	$0			$0	-$51,499,138	-$18,864,653	$0	$0	$2,173,045	$81,205,940
Financiamientos Pagados	*$0*			*$0*	*$32,610,459*	*$0*	*$0*	*$0*	*$0*	*$0*
Resultados de Ejercicios Anteriores	-$24,738,144	-$28,177,400	-$26,150,136	-$24,391,269	-$25,242,478	-$49,078,730	-$71,451,591	-$70,436,700	-$50,643,087	-$63,441,450
Resultados de Ejercicio 2001	*$0*		*-$1,496*	*-$111,468*	*-$115,537*	*$0*	*$0*	*$0*	*$0*	*$0*
Resultados de Ejercicio 2002	*$0*		*-$10,476,996*	*-$10,860,946*	*-$11,002,086*	*$0*	*$0*	*$0*	*$0*	*$0*
Resultados de Ejercicio 2003	*$0*		*$0*	*-$23,355,134*	*-$23,549,409*	*$0*	*$0*	*$0*	*$0*	*$0*
Resultados de Ejercicio 2004	*$0*		*$0*	*$0*	*-$4,589,602*	*$0*	*$0*	*$0*	*$0*	*$0*
Resultado Ejercicio Actual	*-$2,118,699*	*-$10,423,936*	*-$21,356,884*	*-$2,222,472*	*$7,849,566*	*-$7,109,221*	*-$1,103,465*	*$16,341,881*	*-$10,716,308*	*-$20,570,530*
OFF BALANCE SHEET							$19,098,268	$28,262,338	$32,808,947	
Responsabilidad Auditoria ORFIS					$20,229,563		$7,693,350	$20,280,736	$26,219,568	
IVA DECLARADO POR RECUPERAR					*$73,361*		*$0*	*$0*	*$0*	
Fideicomiso Banco Serfin Decreto 5							$4,488,352	$1,283,356	$1,059,502	
Rescision de Contrato							$1,308,767	$5,498,918	$4,539,747	
Adeudos Cancelados							$5,607,799	$1,199,328	$990,131	

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Appendix 9: 1993-2010 QR and BJ Indebtedness

Source:
http://www.hacienda.gob.mx/ESTADOS/DEUDA_PUBLICA_EFM/Paginas/Presentacion.aspx

Entidad	1993	1994	1995	1996	1997	1998	1999	2000
TTL NATL MXP	16,618.2	26,728.5	39,565.0	51,720.3	58,334.2	73,309.4	80,074.2	89,501.5
QR State + Muni	437.4	450.3	643.4	740.3	842.5	855.8	761.6	748.8
USD Exch	3.1152	3.3890	6.4268	7.5992	7.9167	9.1537	9.5532	9.4568
TTL Natl USD	5,334.6	7,886.9	6,156.2	6,806.0	7,368.5	8,008.7	8,381.9	9,464.2
QR State + Muni	140.4	132.9	100.1	97.4	106.4	93.5	79.7	79.2
QR POPULATION	619,058	660,985	703,536	745,463	787,390	829,317	871,244	874,963
Debt Per Capita in USD	$226.81	$201.02	$142.30	$130.68	$135.16	$112.73	$91.50	$90.50

Entidad	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TTL NATL MXP	99,062.8	113,702.1	123,278.2	130,719.5	143,193.8	160,093.5	186,470.0	203,070.2	252,153.5	314,664.5	
QR State + Muni	993.8	1,320.6	1,505.3	2,000.7	1,927.8	1,880.0	2,427.8	2,756.4	3,743.2	10,037.2	10,264.9
USD Exch	9.3360	9.6714	10.7913	11.2871	10.8895	10.9034	10.9274	11.1438	13.4983	12.6287	
TTL Natl USD	10,610.8	11,756.5	11,423.8	11,581.4	13,149.7	14,682.9	17,064.4	18,222.7	18,680.4	24,916.6	
QR State + Muni	106.4	136.5	139.5	177.3	177.0	172.4	222.2	247.3	277.3	794.8	
QR POPULATION	916,890	958,817	1,000,744	1,042,671	1,135,309	1,177,236	1,219,163	1,261,090	1,303,017	1,325,578	
Debt Per Capita in USD	$116.10	$142.41	$139.39	$170.00	$155.94	$146.46	$182.24	$196.14	$212.82	$599.58	

Appendix 10: 1995-2010 BJ Financial Performance Indicators
(Source: except where indicated 'mine', the indicators were derived from : Wilson and Kattelus, 2007)

US Exchange Rate	Population BJ	YEAR	Change in overall financial condition	Change per capita	Adjusted Change Per Capita (for land)	Liquidity: Quick Ratio	Level of reserves or deficit	Financing margin	Debt service load	Debt-to-asset leverage solvency	D-A Leverage adjusted for land
6.43	311,696	1995						$27	0.23		
7.60	333,316	1996						$29	0.68		
7.92	354,936	1997						$33	0.25		
9.15	376,556	1998						$28	0.30		
9.55	398,176	1999						$28	0.15		
9.46	419,815	2000						$31	0.10		
9.34	450,445	2001				1.33	0.04	$31	0.06		
9.67	481,075	2002	$4,807,260	$10		0.47	0.04	$31	0.09		
10.79	511,705	2003	$50,640,142	$99		0.17	-0.01	$42	0.03		
11.29	542,335	2004	$13,225,108	$24	$24	0.31	0.04	$46	0.04		
10.89	572,973	2005	$18,189,467	$32	$32	0.48	0.07	$63	0.37	0.41	0.413
10.90	590,613	2006	$8,843,747	$15	$15	0.56	0.08	$60	0.05	0.38	0.382
10.93	608,253	2007	$162,436,940	$267	$18	0.62	0.09	$95	0.05	0.17	0.340
11.14	625,893	2008	$85,080,180	$136	-$333	1.17	0.14	$79	0.05	0.12	0.523
13.50	643,533	2009	-$28,351,092	-$44	-$462	0.55	0.11	$87	0.07	0.10	0.424
12.63	661,176	2010	$459,461,626	$695	-$203	1.38	0.12	$75	0.68	0.14	0.504

From: {Wilson, 2007 #19731} except where indicated 'mine'.

Change in Overall Financial Condition - A measure of change from the prior period in total net assets

Mine - Change per capita - Financial condition over population

Mine - Adjusted change per capita net of land overvaluation, i.e. change with the original the land valuation of US$ 492,000

Liquidity - Current assets over Current liabilities

Level of reserves or deficit - Unrestricted net assets (cash and cash equivalents) divided by total revenues. This is an indicator of the government's ability to fund cash flow, emergencies or unexpected needs.

Financing Margin - Annual property taxes per capita to measure the government's ability to finance future services and capital needs

Debt Service Load - Interest and principal on long-term debt to operating expenses. An indicator of the proportion of current expenditures is composed of debt-service payments.

Mine - Debt Service adjusted for land overvaluation, i.e. the real debt service based on the original land valuation of US$ 492,000

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PART III: AN ACCOUNTING SYSTEM PROPOSAL FOR SUSTAINABLE COMMUNITIES: A BALANCE SHEET OF CANCÚN'S SUSTAINABILITY

Table of Contents

Tables and Illustrations

Abbreviations

CBA   -Cost Benefit Analysis (also Social Cost Benefit Analysis)

EGDP   -Environmentally Adjusted Gross National Product

ESA   -European System of Accounts

FCA   -Full Cost Analysis

FV   -Fair Value

GAAP   -Generally Accepted Accounting Principles

GDP   -Gross Domestic Product

GNP   -Gross National Product

GH   -Genuine Happiness

GS   -Genuine Savings

GPI   - Genuine Progress Indicator

HC   -Historical Cost Accounting

HDI   -Human Development Index

IMF   -International Monetary Fund

ISEW   -Indicator of Sustainable Economic Welfare

EA   -Economic (Man-Made) Assets

NA   -Natural Assets

NEA   -National Economic Accounting (also GDP accounting or national accounting)

NFP   -Not-for-Profit

NNP   -Net National Product

NWM   -National Wealth Models

OECD   -Organization of Economic Cooperation and Development

PSA   -Public Sector Accounting (also government accounting)

PSAA   -Public Sector Accrual Accounting

SCA   -Social-Cultural Assets

SEEA   -System of Integrated Environment and Economic Accounting

SNA   -System of National Accounts

UN   -United Nations

UNDP   -United Nations Development Program

WTA   -Willingness-to-Accept

WTP   -Willingness-to-Pay

WB   -World Bank

WWII   -World War II (1939 -1945)

Introduction to Part III

It is not that accounting serves the interests of the state. It is that the very notion of the state as we know it today is dependent on the elaboration of national accounting (Costanza, Hart, Posner, & Talberth, 2009: 101; Miller, 1986: 101).

The current national accounting system treats the earth as a business in liquidation. (Costanza, Hart, Posner, & Talberth, 2009: 66)

These two quotes summarize the role and responsibility of accounting. Governments employ, as well as deploy, accounting and statistics to create, develop, diminish, and even eliminate policies and programmes. In particular National Economic Accounting (NEA), operationalized as Gross Domestic Product (GDP) accounting, measures the value of all the output a nation produces over a year to determine economic prosperity and competitiveness (Moss, 2007). Rather than applying Generally Accepted Accounting Principles (GAAP), NEA reflects neo-classical economics wherein the ecosystem is assumed to be infinite in its capacity to fuel economic growth. For example, a capital asset under standard accounting is assumed to deplete or depreciate unless restored or maintained. NEA does not incorporate depletion, degradation or destruction of an asset unless it gives rise ex-post to some economic activity to repair or retard damage. The resulting GDP is the sum of all expenditures on final goods and services within a territory regardless of whether the transaction detracts from social well-being, such as clean-up costs of the Valdez oil spill, or an export depletes natural capital while consumed abroad such as Brazilian hardwood for flooring in a UK household. Despite potential negative effects of this focus, both the International Monetary Fund (IMF) and the World Bank (WB) use changes in GDP as a criterion in policy and funding (Costanza, Hart, Posner, & Talberth, 2009; Daly, 1996).

This purpose of this conceptual paper is to demonstrate the importance of focusing on assets to ensure quality of life for current and future generations (sustainability). The measure of assets rather than flows (such as those monitored by NEA and its touchstone metric GDP) ensures that the natural, social and economic capital on which our well-being depends also satisfies the minimum conditions for ecosystem resilience (Brand, 2009). However, this requires explaining why this is important and presenting a proposal to overcome current limitations. After an overview of the historical events behind today's economic hegemony, GDP accounting and public sector accounting, I discuss the key accounting principles and especially the principles of relevance and reliability. With a focus on relevance, I assess current valuation methods and models, and then propose a public sector balance sheet with key asset and depletion metrics. Rather than a new or adjusted metric to arrive at a new or improved indicator, I propose a new approach to existing metrics and indicators: presenting the assets in a balance sheet for enhanced visibility, transparency and interdependency. I test my proposal using Cancún as a case to illustrate the use of metrics and demonstrate how a balance sheet highlights long-term assets with short-term flows as the handmaiden, not vice versa as is now the actuality. Rather than ex-post study as the two previous sections, this is an ex-ante project to highlight potential problems, their costs and the interconnections before these problems become irreversable such as extensive reef damage that leaves hotels unprotected and the destination unattractive or social decline from insufficient municipal services that leads to insecurity and health risks such as a dengue outbreak.

The Hegemony of GDP

GDP is a product of macroeconomics which is an institutionalized social practice. An institutionalized social practice is a convention that is infused with value and embedded in networks of interdependence, thus constraining conduct and making it "hostage to its own history" (Selznick, 1996: 271). More optimistically, institutionalized social practices empower as well as constrain actors and define their available modes of action (Scott, 2001: 34). Other social practices include economics in general, accounting and statistics. All are forms of calculation and are based on specific conceptual categories. These social practices are reproduced through institutions that interweave shaping the fabric of social and organisational relations (Miller, 1986).

The transformation of social and organisational relations is a process of shifting political rationalities such as order, efficiency and modernization to sustainability. These changes or shifts are in response to unsolved problems. The "impetus for institutional creation is the development, recognition, and naming of a recurrent problem to which no existing institution provides a satisfactory repertoire of responses" (Scott, 2001: 96). Once the recurrent problem is named, new concepts are debated by personalities that support or subvert the process. The concepts that are finally embraced form the basis for the development of additional theories and practices. The concepts, theories and practices are then supported by fresh institutional frameworks such as new associations and ministries that further develop practices and structures.

Practices such as accounting, rather than simple techniques, are technologies because the series of procedures and rules that are introduced to provide information have the capacity to transform (Miller, 1986). Data is collected based on what needs to

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be made visible and managed as a function of the concepts embraced. Knowledge is thus constructed and codified which informs and constrains behaviour. "The construction of social reality is seen as ongoing continuously but also as providing models, schemas, and scripts to orient and guide current decision making" (Scott, 2008: 68).

The guidance of decisions is a function of the information available. As Scott (2001: 169) writes "information is more likely to be salient and used, simply because it is available... The availability of information thus, influences the attention structure of decision makers". NEA provides the numbers for the GDP which then drives macro-economic policy. Thus, the request for data and information rather than preceding decision-making and action is an action in itself that stimulates further action (Weick, Sutcliffe, & Obstfeld, 2005).

GDP and Dissonance

Weick et al, 2005 argue that sense-making results from disruptive ambiguity, when information discords with events and lived experiences.

> Answers to the question 'what's the story?' emerge from retrospect, connections with past experience, and dialogue among people who act on behalf of larger social units. Answers to the question 'now what?' emerge from presumptions about the future, articulation concurrent with action, and projects that become increasingly clear as they unfold. (Weick et al, 2005: 413)

Cobb et al asked the question why GDP was steadily increasing while the general population of the United States was experiencing lower standards of living (Cobb et al, 1995). This led to the conclusion that GDP doesn't adequately measure what is important such as stable employment and adequate security, both physical and financial. Sense-making follows dissonance, in other words "we expect to find explicit efforts at

sensemaking whenever the current state of the world is perceived to be different from the expected state of the world" (Weick, 2005: 414). Once the dissonance is recognized "problems must be bracketed from an amorphous stream of experience and be labeled as relevant before ongoing action can be focused on them" (Weick, 2005: 415). In other words, the dissonance leads to the formulation of issues which are debated and acted upon (Scott, 2001; Weick, 2005), and eventually displacement or deinstitutionalization (Scott, 2001).

> The organizing process of enactment incorporates the sensemaking activities of noticing and bracketing. These activities of noticing and bracketing, triggered by discrepancies and equivocality in ongoing projects, begin to change the flux of circumstances into the orderliness of situations. We emphasize "begin" because noticing and bracketing are relatively crude acts of categorization and the resulting data can mean several different things. The number of possible meanings gets reduced in the organizing process of selection. (Weick, Sutcliffe, & Obstfeld, 2005: 414)

There is an increasing discord between actual quality of life and the measures of that quality. A reduction in quality while measures such as the GDP indicate the opposite has led many in the USA and in other countries to search for metrics superior to the current touchstone of GDP. In the face of the obvious social inequities and environmental degradation, more and more governments and organizations are embracing sustainability. Sustainability emerged most prominently following the United Nation's World Commission on Environment and Development (the Brundtland Commission), in its report Our Common Future that defined sustainability as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN WCED, 1987). This definition is now abridged to 'intergenerational equity'.

Dissonance and Sustainability

The concept of sustainability, like its predecessors' progress and modernization, is ambiguous and subject to numerous interpretations. This ambiguity led to similar but competing definitions. Each definition gives rise to different technologies to proxy sustainability. For example, the Human Development Index (HDI) was introduced by the United Nations Development Programme to overcome the assumption that economic development is synonymous with human wellbeing (UNDP, 1990). The UNDP continues to calculate HDI bi-annually for all countries to compare substantive improvements in life quality. Another example is the Genuine Progress Indicator (GPI). A GPI has been calculated at the national level for more than ten countries and at the sub-national level for at least five countries. Despite these important efforts, these measures too have shortcomings.

One shortcoming is the data required to proxy this new concept is limited to the information provided by the system of the out-dated concept of GDP and NEA. For example, obesity is linked to a wide range of health problems and subsequent costs. Only in 2004, Statistics Canada administered a new survey to improve data accuracy on obesity (Pannozzo & Colman, 2009). In other words, technologies have yet to be fully developed and standardized for new data-collection to make visible and manageable conditions for sustainability. As sustainability has yet to be fully institutionalized, the debate continues on definitions and operationalizations of sustainability. Each set of definitions, measurements and aggregates results in different visibilities and therefore alternate policy directions.

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One of the most viable proposals, the GPI, rather than being 'new' as claimed by their authors, appears to be a shift away from accounting according to economists (e.g. NEA) back to accounting as practiced by accountants for centuries. In Pannozzo & Colman (2009) the word new was peppered throughout the document in reference to "a new generation of developing wellbeing indicators" (p.vi), "new economic paradigm" (p. vi) and "new measurement tools" (p.vi). Although the GPI is arguably very useful for "new policy recommendations" (p.v), "new form of budget estimates" (p. vi), and "a new openness to integrating social, economic, and environmental objectives" (p. vi), the method proposed is not new. The full recognition and valuation of all assets (man-made, cultural and natural) with the accompanying accumulation or depletion over time is the most fundamental principle in double-entry bookkeeping and accounting. Rather than accounting of a private entity, non-government entity or the government, these 'new' indicators are simply accounting at the level or entity of society, societal accounting. This 'new' accounting is fostered by economists because they are now the ultimate authorities on public policy. As Cobb et al (1995: 64) write, "Before the war [WWII], economists were rarely quoted in news stories except in some official capacity. Now their opinions were sought and cited as canonical truth."

The remainder of this paper is organized as follows. First is the more than four century evolution of the key concepts or issues from wealth to growth to sustainability. These concepts are institutionalized through distinctive forms, processes, strategies, outlooks, and competences (Selznick, 1996) which are examined next. Some of the key competencies to institutionalize conceptual categories include economics, accounting and statistics promoted by influential organisations such as the UN, the OECD and the

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WB. Lastly, these technologies are examined in relation to the different indicators now being developed as we move from GDP to Genuine Progress. Because the recent measures such as Genuine Progress continue to focus on flows over stocks, I propose a public sector balance sheet that monitors fundamental natural, social and economic assets and test the balance sheet using the case of Cancún, Mexico.

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Conceptual Changes: from Wealth to Sustainability

The central pillar of macroeconomics is output: the total amount of goods and services produced within a territory within a period of time (Moss, 2007). The fundamental macroeconomic model defines the economy as a closed system of flows of goods and services between firms (businesses) and households (individuals) measured in monetized transactions (Gutierrez, Glassman, Landefeld, & Marcuss, 2007a). The aggregate of these transactions supposedly determines the wealth and wellbeing of a nation and eventually the limits on funding public services.

If a nation is running a deficit on its current account (by importing more than it exports, for example), then it is using more output than it is producing, and it is borrowing the difference from foreigners, which registers as a surplus—a capital inflow—on the financial account of its Balance of Payments statement. The key point is that for a country, as for a person, the long-term constraint on consumption and investment is the amount of output that can be produced. A country, like a person, can use more output than it produces in the short run (by financing the difference through borrowing) but not over the long run. A nation's output—its GDP—thus represents its ultimate budget constraint, which is why the notion of national output lies at the heart of macroeconomics (Moss, 2007: Ch.1 Output).

Simply said, just as wages determine the limits to household purchases without long-term debt and personal bankruptcy, the overall sale of goods and services dictates the limits on spending and borrowing to avoid national insolvency.

The criticism of the neo-classical view of well-being is that the fixation on national output measured as a closed system excludes the environment with the underlying assumption that the environment is limitless (Callan & Thomas, 2007; Castañeda, 1999; Daly, 1996). Moreover, the GDP aggregates all activities whether they add or detract from social well-being. In other words, whether a car accident or a

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vacation, both events increase GDP per capita. So how did GDP and its accounting initiate and evolve into a touchstone for progress?

Wealth as Gold and Lands

GDP is a current calculative practice within national accounting that arose out of specific conceptual categories. "National accounting was from the start an accounting of national power, of its resources and objectives" (Miller, 1986: 83). Prior to the 17th century, power was measured by the quantity of gold and lands held by the monarchy (Natoli, 2008). In an age when England, France and the Netherlands were frequently at war, economic strength shifted to the productive capacity of subjects and not simply the unbridled extraction of resources to purchase more gold (Miller, 1986) and fuel territorial expansion. The realization that national power and wealth was a product of a nation´s subjects meant shifting measures to tangibles produced by the subjects, be it agriculture or manufactures. This shift was fuelled by new technologies such as 'political arithmetic' (i.e. statistics) and accounting methods advanced by Gregory King (Muller, 2003), William Petty (Costanza, Hart, Posner, & Talberth, 2009; Muller, 2003) in England and in France Vauban, Boisguilbert (Vanoli, 2008) and Count Mollien (Nikitin, 2001).

Wealth as Production

A key question, answered differently by different polities and at different times, is what constitutes production and what is unproductive. Prior to the First World War much of production was simply the material goods produced in the private sector. In France for example, production was primarily agricultural production. Britain, a more industrialized country, viewed production as both agricultural and manufactured goods (Cobb et al, 1995). Neither services nor the state was considered as part of production. At

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the end of the 19th century with the growing importance of finance in the UK, utility took priority over tangibility (Cobb et al, 1995). As such intangibles such as financial exchange and commissions as well as charges for services such as legal fees were added to the accounts.

The First World War made the state visible as a source of demand and production but also for governing resources (Miller, 1986). Government became increasing important for its consumption as well as territorial administration. One example, between 1926 and 2000 Canadian local, provincial and federal government expenditures increased from 13.1 percent of GDP to 42.6 percent (H. Rosen, 2007: 8). The Great Depression in the late 1920s signalled a need for more aggressive state intervention (Muller, 2003). In the 1930s Germany, France, the UK and the US governments assessed how to measure the national economy through an articulated system of national accounts. However, each polity designed the accounts according to its own conceptual categories.

The French continued to be concerned with production. As Miller (1986: 95) explains the "French system was an intermediary operation, somewhere between the micro-and the macroeconomic, one which went more into the detail of production in an attempt to reconstruct the major sectors of industry". Conversely, with the advent of Keynesian macroeconomics the UK focused on full employment and the "links between major aggregates - mainly income and its components, savings and consumption, and the savings-investment equilibrium" (Muller, 2003: 37-39). The US followed the UK's lead focusing on monetized value of goods and services exchanged in the market-place as the size of the national economy (Cobb et al, 1995).

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With the concept of monetized exchange value in mind, on request by the US Senate, the Commerce Department asked a young Simon Kuznets to develop a uniform set of national accounts in 1932. Kuznets accounts operationalized Keynes macroeconomic theories (Cobb et al, 1995). With the advent of WWII, these accounts and the GNP formed the basis of a war planning tool. "The accounts enabled the nation to locate unused capacity, and to exceed by far the production levels that conventional opinion thought possible" (Cobb et al, 1995: 63). Because of the importance of the accounts to taxation for war financing (Miller, 1986; Muller, 2003) and to unused capacity for war planning (Cobb et al, 1995) the GNP and macroeconomists became instrumental in government policy. Following WWII, the economic model for war was transformed into the model for peace and progress.

Growth and Development

In the aftermath of WWII, immediate concerns shifted to reconstruction and the avoidance of another Great Depression. In France, reconstruction was accompanied by "an ambitious project of political modernisation designed to eliminate elements of backwardness from French society. National accounting in France emerged within such a political project of modernisation" (Miller, 1986: 85). The UK and the USA, with a focus on consumption, aimed to control the dreaded business cycle and ensure prosperity through specifications and statistical measures of national output (Cobb et al, 1995). Thus the accounts were to provide indicators of 'modernization', 'growth' and 'prosperity' through the valuation of all market exchanges.

WWII also made governments more keenly aware of international interconnectedness and the role of trade in averting future global conflicts. The goal was

to foster global economic integration through free trade, free capital mobility and export-led growth (Daly, 1996).

Although sector or industry inputs were recognized starting with the 1968 System of National Accounts, inputs were counted only if they were marketable and monetized. Kuznets expressed concerns about reducing welfare to one indicator that is simply the sum of all marketed economic activity (Anielski, 2007; Castañeda, 1999; Costanza, Hart, Posner, & Talberth, 2009) although he did little at the time to introduce corrections (Muller, 2003). And despite Kuznets' stronger outcry in 1962, the calculation of national accounts and the use of GNP as a one-stop indicator of well-being was so entrenched that his appeal to distinguish "between quantity and quality of growth, between its costs and return, and between the short and the long run" fell on deaf ears (Kuznets, 1962 in Cobb et al, 1995: 67).

Some eighty years after Kuznets' first accounts, the US Commerce Department Bureau of Economic Analysis agrees that the "GDP is used as an indicator of economic progress, [but] it is not a measure of well-being (for example, it does not account for rates of poverty, crime, or literacy)" (Gutierrez et al, 2007: 2). Although there is recognition by the Bureau of Economic Analysis that the GDP is not a social indicator, there is no recognition or calculation of resource depletion to fuel the economic progress.

From GNP to GDP

While most of the nations calculated GDP since its introduction, only in 1991 did the USA switch from GNP to GDP as a measure of progress and economic growth (McCain, 2007). GDP is the imputed measure of all the economic activity. It is the market value of all goods and services consumed within a territory regardless of where

the goods or services are produced (Gutierrez, Glassman, Landefeld, & Marcuss, 2007b). The calculation is as follows:

GDP = private consumption + gross investment + government spending + (exports − imports)

In short, national output equals total expenditure on final goods and services, excluding imports (Moss, 2007) [1].

GNP, on the other hand, is the market value of all goods and services produced by residents of a territory regardless of the location of that production (Gutierrez, Glassman, Landefeld, & Marcuss, 2007b; Moss, 2007). Otherwise said, GNP measures the production using resources of a country's nationals (McCain, 2007).

GNP = GDP + net international factor payments

Unlike GDP, the GNP includes net income from overseas and excludes a portion of production within the territory by foreign companies, referred to as net international factor payments. Although for many countries the GNP and the GDP are similar, those countries with high rates of foreign investment and/or foreign workers (and therefore substantial remittances, e.g. the USA) will have a GNP lower than the GDP. Conversely,

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[1] Although not an economic paper, it is important to explain the GDP and other measures to avoid confusion. There are three methods for measuring GDP: the production approach, the income approach and the expenditure approach. Theoretically they should reveal the same results. However, the income approach (also called GDI) often differs from the production approach due to measurement errors in both approaches. The production approach is the sum of all goods and services produced while the income approach is the sum of all individuals' income. The expenditure approach is the sum of all expenditure, both public and private. As for other economic measures such as the GNI and GNP, the GNI differs from GNP in that the GNI includes indirect business taxes while GNP excludes them. Moreover, the GNI accounts for the balance of cross-country income, such as interest and dividends while the GNP does not.While North America prefers GDP, European countries prefer GNI

the nation that receives the remittances, e.g. Mexico, will have a GNP greater than the GDP. Policy analysts argue that GDP is more closely correlated with employment, productivity and fixed investment, and therefore a good short-term monitor. GNP is a measure of sources and uses of income, and a better measure of long-term investments (Moss, 2007). As Cobb et al (1995) explain, the change from GNP to GDP in 1991 in the USA was quiet but very important especially for countries heavily dependent on exports, the case of many emerging economies. This quiet shift has important implications for sustainability.

> Under the old measure, the GNP, the earnings of a multinational firm were attributed to the country where the firm was owned and where the profits would eventually return. Under GDP, the profits are attributed to the country where the factory or mine is located even though the profits are repatriated. This accounting shift has turned many struggling nations into statistical boomtowns while aiding the push for a global economy. Conveniently, it has hidden a basic fact: the nations of the North are walking off with the South's resources, and calling it a gain for the South (Cobb et al, 1995: 68).

Although many refer to this shift benignly as improving comparability between nations, this change has had the perverse effect of demonstrating explosive growth in emerging economies with important extractive industries and/or high exports of manually intensive goods. This record growth comes at the expense of the base that fuels the growth, especially in those countries heavily dependent on World Bank or International Monetary Fund approval. Attempts have been made to adjust the GDP to compensate for exporting environmental problems. One example is traditional economic methods such as environmental GDP (EGDP) accounting. However, this method falls short because some valuations assume that environmental damage is equivalent in all countries. In other words the same production in Canada and China emit similar

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quantities of CO_2 because the same technology is assumed to be available and used in both plants (Tukker et al., 2009). This and numerous other untenable assumptions have led to the search for new concepts, definitions and measures. As genuine wellbeing declines and the earth's resources are eroded, there has been a shift to models of equilibrium that recognize the need for balance between economic activity, social well-being and environmental protection.

Sustainability

Some 25 years ago a shift began from the long-run goal of 'modernization' and 'progress' (Miller, 1986; Costanza, 2009) to the goal of 'sustainability' or intergenerational equity (Daly, 1996). This relatively new public sector goal is a broad concept similar to the concept of 'growth' that has left ample room for a variety of interpretations. Until a few hundred years ago, the ecosystem dominated and endangered human activity (Hodge, 1997). As control over the environment and economics was rising, macroeconomics continued along on the premise of infinite and indestructible ecosystems (Castañeda, 1999). And now human activity is endangering the ecosystem requiring new collective symbols to be assessed in order to construct new strategies of action (Scott, 2008). This evolution is well described by Hodge (1997) as follows.

> Efforts to improve, add to, or displace these measures can be traced in the literature related to (1) economics (since the 1950s); (2) social indicators (since the 1960s); (3) quality of life (since the 1960s); (4) environment and natural resources (since the 1970s); (5) health information systems (since the 1970s); and (6) healthy communities (since the 1980s). The current interest in developing indicators of sustainability can thus be identified as at least the seventh phase of indicator activity since the 1940s (Hodge, 1997: 6).

To better capture the human-ecosystem relationship more than thirty conceptual models have been developed (Hodge, 1997). Hodge (1997) conducted a multi-disciplinary review and found that the most common models recognized the need for a balance between the economic, social and environmental spheres. The three-part model was useful because it illustrated the need to balance different values and goals. Moreover, the balance is more than simply between environment and economy. There is an important social dimension which must be recognized and reconciled.

The economic sphere is generally a means of satisfying material needs such as food, clothing and shelter. Rather than simple final consumption, it is the production, distribution as well as consumption of these goods and services (Herremans & Reid, 2002). The stocks and flows transacted in the marketplace are easily quantifiable in monetary terms. At the national level these activities are measured by GDP. This is the economic premise of wealth-maximizing, self-interested rational individuals acting based on conditions of scarcity. This sphere is referred to by economists as 'man-made capital' or the broad nebulous term of 'human(-made) capital'. The term selected here is 'economic assets' (EA) to refer to these goods produced for and exchanged in the marketplace.

The environmental sphere refers to the physical habitat and is often referred to as natural assets - NA (e.g. Hill in Hodge, 1997: 66-67). It is a "set of interacting physical components that can be identified and described in physical, chemical, and biological terms" (Hodge, 1997: 31). For some theorists, the environment is seen simply as an asset that provides material, energy and aesthetic resources to drive production and consumption activities within the economic system. Therefore, the key is to manage

resource use and waste within a closed loop to ensure adherence to the governing laws of thermodynamics (Daly, 1996). For other theorists, the environment not only drives production within the economic system but also the continued production and functioning of the ecosystem itself. Additionally it is the recognition that "flora and fauna might have value outside their abilities to satisfy the social and economic needs of individuals and societies" (Herremans & Reid, 2002: 18). The key distinction is whether or not the environment is considered to be at the service of humans or if it has intrinsic value beyond what humans' value.

Although there is general agreement among different academics as to the definitions of environment and the economy (Herremans & Reid, 2002; Hodge, 1997) the components of 'social' are often referred to variably as culture (Sadler, 1990), legal-administrative (Dorcey, 1991 in Hodge, 1997: 16-17) or political (CIDA, 1991 in Hodge, 1997: 20-21) in addition to the social. Within these compound conceptions, the social is simply health, education, civic participation and gender equity, whereas cultural references value-systems and even spirituality. The fundamental agreement about the social dimension is that the unit is groups or communities with shared values rather than self-interested individuals, and the concern is that of maintaining or improving human living standards beyond basic needs. For the purposes of this paper and to distinguish from EA, I use the expression social-cultural assets (SCA).

The definition of the social dimension preferred here is that provided by the World Conservation Union. Human well-being has been defined by the Millennium Ecosystem Assessment as people being able to live the kind of lives they may have reason to value in terms of: 1. access to basic materials for living (food, shelter, and

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clothing); 2. physical and mental health; 3. security in all its dimensions; 4. social/cultural interactions; and 5. the ability to choose how to achieve these components according to each individual's needs and wishes (IUCN, 2008: 9). More specifically these five components with the social refer to living materials such as food, water, housing, clothing, fuel; health including medicine, clean air and clean water; security defined as protection against disasters and against conflict over natural resources; interactions including recreation, spirituality, education, aesthetics and contentment; and lastly, choice meaning access to and control over natural resources, democracy and rights which include freedom, participation and gender equity.

Some argue that the similarity between the environment and social is that many of their components such as the value of clean air or gender equity are monetarily non-quantifiable.

> This environmental dimension has two characteristics that make it similar to the social dimension. First, it does not define wealth in terms of possessions that are valued only in the marketplace; the difficulty of determining the cost and benefits of initiatives designed to save the environment as efforts (costs) and accomplishments (benefits) cannot be quantified. Second, the value of the benefits is based on the value sets of a diverse group of stakeholders: that place different values on various elements of the environment. Therefore, the benefits derived from strong and healthy ecosystems are defined in terms of each individual's enhanced personal welfare. (Herremans & Reid, 2002: 18)

Although there is an ethical debate about monetizing the immaterial, Pannozzo & Colman (2009) argue that price signals strongly impact behaviour. With more than a decade of experience with indicators and accounting systems, the authors found that the accounting system had greater policy influence than indicators alone. This is because "the policy arena is dominated by concerns over budgets, costs, and savings, and that

expression of results in dollar terms reaches a much wider audience than expression in units specific to a particular indicator" (Pannozzo & Colman, 2009: 18). And as Hodge writes, sustainability is above all action using this new set of ideas. "The result is not a 'fixed state of harmony'. Rather, it is an ongoing process in which people take actions leading to development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Hodge, 1997: 9). In other words, sustainability is the persistence over time of the necessary and desired characteristics of both the ecosystem and the human subsystem. It is an iterative process of action and assessment, or sensemaking (Weick, Sutcliffe, & Obstfeld, 2005). And sense-making is facilitated by the signals provided through monetization.

Institutionalization of GNP/GDP and the different Accountings

Conceptual categories give rise to new rules and associated practices. Each shift from wealth-as-production (GNP) to prosperity-as-consumption (GDP) required a new series of rules, practices and organizations. The rules and practices have evolved from pure economics in the 1940s to a heightened sensibility towards the environment in the 1990s. Conceptual categories are reproduced and reinforced through institutions that contribute to the fabric of social and organisational relations (Miller, 1986).

After WWII, the overarching concerns were reconstruction and the avoidance of another Great Depression. As was demonstrated, the GDP was first developed by Kuznets and then calculated yearly through the establishment of NEA. This accounting method was developed by the economist Richard Stone (Muller, 2003). As the USA with the UK were the leaders of reconstruction following WWII, the practice of GDP/GNP, supported by the technology of NEA focused on income, savings and investment. (Muller, 2003). With these two nations at the helm of Bretton Woods and the subsequent IMF, GDP/GNP became institutionally diffused. Institutional diffusion requires normative and cultural carriers such as standards and standardization processes (Scott, 2001). And "standardization is routinely portrayed as the rational means to solve some of humanity's most serious problems" (Loya & Boli, 1999: 181).

Following is a brief description of the evolution of national accountings as institutional practices since WWII. Accountings is used in the plural as there are various forms which exist simultaneously and are often confused: NEA based on the System of National Accounts (SNA) and Public Sector Accounting (PSA) linked to public

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finance. These technologies first developed at the national levels based on local values. For example, France continued to account for national income based on production and mostly the agricultural sector (Miller, 1986). Conversely, the UK with a more advanced financial system accounted for national income based on investment (Muller, 2003). To improve comparability of national economies, standardized accounts were developed at the international level and then proposed to different nations. In the absence of means of coercion, adoption of the methods is voluntary. However, the extreme rationality and technicity of these standards are such that failure to implement at the national level is seen as irrational.

> The character of the standards and the nature of the processes by which they are generated -universal, consensually derived standards of unimpeachable technical merit - are themselves sufficient rational for their adoption. Add to that the compulsion of market competition and coercive mechanisms are entirely unnecessary in the increasingly integrated world economy. (Loya & Boli, 1999: 181)

Thus, international proposals for standardization filter back to the national level where they blend with local rules, practices and institutions. Some of the actors within the institutions then return to influence international standard setting bodies and their standards (e.g. see Muller, 2003). Essentially institutionalization of GDP, NEA, SNA and PSA is a story, both past and future, of standardization and legitimacy (Scott, 2001). In response to a variety of events, the importance of the balance sheet was overshadowed by the income statement flows within all practices of accounting (Buckmaster & Jones, 1997).

Practices of Accounting

Accounting can be defined functionally as the recording of economic transactions in monetary terms to provide financial statement users with the information needed for improved decision-making. Accounting is defined by the American Association of Certified Public Accountants as the "***art*** *of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof*" (emphasis mine). However, many of these definitions could equally apply to statistics. The distinction is that while statistics aggregate information, accounting allocates transactions and events by sources (inputs) and uses (outputs) to track stocks and flows within an entity and in monetized amounts. The purpose of accounting, again functionally speaking, is to provide useful information to users of the statements as to resources available to an organization (public, private or non-profit), a change in those resources to meet future obligations and the general governance of the organization (local, regional, national or international).

Economics as an institution has served to elaborate national policies. To design and deploy policies, activities need to be measured (statistics) and aggregated (accounting and indicators). Although often viewed and debated as an independent set of techniques, accounting is a central component within a broad range of economic calculation (Miller, 1990). Accounting attributes "financial values and rationales to a wide range of social practices, thereby according them specific visibility, calculability and operational utility" (Miller, 1990: 316-317). Accounting approximates economic reality pragmatically on the basis of particular norms (Mattessich, 1995). These

visibilities then become objects of policy and regulation (Miller, 1990). But which calculations come to be adopted is the subject of international standard setting and institutionalization.

To better understand the role of accounting in the deployment of policies, following is an explanation of PSA, NEA and SNA. Because PSA is often confused with national accounting, I begin with a brief summary of PSA. The sum of public sector accounts is just one element of national economic accounts as government spending is one component of the GDP. As nations often employ different norms for collecting and aggregating data (see Footnote 1 above), the SNA is a proposal for standardization to improve comparability of worldwide GDP. This comparability purportedly ensures that all countries are on the path of economic growth. According to the experts, growth is the only way to avoid another Great Depression, the spectre of which is being regularly evoked since 2009.

Flows versus Assets: Income Statement versus the Balance Sheet

The balance-sheet (or accounting) equation is familiar to all late twentieth century English-speaking accountants. The equation may be written either as

Assets (A) **minus Liabilities** (L) **= Equity** (E) or Capital, to express a proprietorship view of the firm, in which a firm's net assets are monitored and valued from the point of view of the proprietors; or as

$A = L + E$ (*or Capital*) to express an entity view of the firm, in which the assets (not the net assets) of the firm are regarded as being funded both by proprietors and by outside lenders. The proprietary view is a useful model of a firm controlled and managed

by its owners or citizens. The entity view is the better representation of a firm whose management is, so long as the firm (or government) remains a going concern, largely independent of the providers of funds. Whichever way the equation is written, the word "capital" represents a c1aim on assets, not the assets themselves. In economics, in contrast, and also in those areas of accounting strongly influenced by economics, "capital" is often used to signify not just capital c1aims (on the right-hand side of the equation) but also capital goods (on the left-hand side) (Parker, 1994: 76). Therefore, rather than 'capital', I prefer the more precise term 'assets' to express the left side of the balance sheet.

There is some debate as to when the income statement began to overshadow the balance sheet (Buckmaster & Jones, 1997). Although accounting historians suggest that the income statement overtook the balance sheet in importance sometime in the 1920s and especially following the Great Depression, Buckmaster & Jones (1997) show that both statements have had ebbs and flows. Following a study of practice and academic journals, they suggest that the increase in the income tax rate to 12 percent in 1918 may have made private enterprises focus more on income flows and net income. They also suggest that prior to the Great Depression, interest shifted back to the balance sheet to monitor the economic position of firms, in particular inflated assets and excessive debt. "Then after the stock market collapse and the onset of the depression the focus shifts back to the income statement as the profession attempts to regain public confidence and reacts to potential SEC regulations" (Buckmaster & Jones, 1997: 209). Although the exact moment that the income statement overshadows the balance sheet in importance is a point of contention, it is arguably the myopic emphasis on the annual income statement

over asset valuation and maintenance of the long-term and ongoing balance sheet that has made nations lose sight of their patrimony.

Public Sector Accounting (PSA)

PSA is a vast topic. Presented here is a brief summary in order to distinguish this accounting from financial accounting, NEA and the SNA. PSA is sometimes referred to as government accounting and is part of public finance (Pallot, 1992). Broadbent & Guthrie (1992: 3) define the public sector as "that part of a nation's economic activity which is traditionally owned and controlled by government. That is to say, the public sector is composed of those public organizations which provide utilities and services to the community and which traditionally have been seen as essential to the fabric of our society". Although initially easy to distinguish the public from the private sector, a shift from 'probity, compliance and control' to managerialism (efficiency, effectiveness, cost savings and performance) in the public sector led to new forms of delivering government services ranging from the traditional close control to new regulatory or shareholding control. Thus, determining the size of the public sector is increasingly complex.

As to accounting practices, broadly speaking profit-making entities report on the balance sheet their assets, liabilities and equity or net assets. The income statement[2] comprises revenue less expenses to arrive at net gain or loss (Fisher, 2008). Public sector accounting reports based on accrual accounting include the Statement of Financial Position (i.e. Balance Sheet) that reports on the assets (financial and non-financial), liabilities and surplus (or deficit) of the government (IPSAB, 2007; PSAB, 2009). The

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[2] The income statement is also called the statement of earnings and the statement of profit and loss.

Statement of Operations and Accumulated Debt records the revenues less the expenses to arrive at annual surplus or deficit (CGA Canada, 2007). In other words, the key difference in the accounts between private firms and the public sector is that 'Net Assets' in private firms is replaced with surplus or deficit.

With the advent of scientized economic efficiency introduced following WWII, the debate over improved efficiency in the public sector began in Canada in 1962. From this time the managerial techniques such as planning-programming-budgets and management by objectives were introduced. In the 1990s all levels of Canadian public sector embraced New Public Management reducing the number of departments and positions to streamline operations and reduce the deficit. (Rosen, 2007)

Since 1990s and the shift towards sustainability, discussion has turned to the introduction of accruals into PSA to monitor intergenerational equity. The essence of accruals as well as accounting, is that of assets (Potter, 1999). Assets are arguably the most basic element in accounting (Boulding, 2008; IFRS, 2010; Pallot, 1992; Storey, 2003). Liability can be regarded as negative assets (Boulding, 2008), revenue as a derivative of assets and equity as an alternative classification of assets (Boulding, 2008; Pallot, 1992). To incorporate sustainability, another approach is needed to government-managed assets of an infrastructural, cultural or environmental nature (Pallot, 1992).

A key debate surrounding government-managed assets is that of the valuation of these vital but non-market assets, determination of depreciation schedules and therefore, the reliability of such calculations (Carnegie & West, 2005). (A more complete review of relevance versus reliability is addressed below.) Although many accounting academics agree on the need for asset recognition, there is important discussion on the direction of

reforms to improve asset visibility, public sector accountability and policy decision-making utility (Carnegie & West, 2005) especially with the increased introduction of accrual accounting into public sector accounts worldwide.

A detailed examination of the issues surrounding the introduction of accruals to PSA is in a later section. However, important to keep in mind is that accruals will fundamentally alter government accounts and thus the GDP, i.e. international competitiveness. In 2000, of the world's eight richest nations the average government expenditure as a percentage of GDP was 40.5 percent (Rosen, 2007: 9). In other words, more than two-fifths of these countries' output is consumed by the public sector. This means that a change in NEA practices and GDP metrics could make a currently wealthy country appear less affluent. The impact of this consumption is the topic of the next section, NEA.

National Economic Accountiong (NEA)

NEA is sometimes confused with governmental or PSA. Although the public sector accounts are important in NEA, they are but one element in the calculation. Here, national accounting is used specifically to refer to accounts that measure the economic activity of a nation which includes production, income and expenditure activities of households, corporations and government. In addition to these current accounts, the accumulation accounts within NEA comprise capital accounts to record the net accumulation of non-financial assets; and the savings or borrowing activities as a result of the net accumulation. The financial accounts show the net acquisition of financial assets and the net incurrence of liabilities, the balance of which is the net change in financial position. Lastly is the balance sheet which records the stock of assets and net

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worth (SNA 2008, 2009). However, these accounts focus exclusively on "institutional units and the activities in which they engage, namely production, consumption and the accumulation of assets" (SNA 2008, 2009: Sec. 1-7) and only those units that give rise to a market-exchanged activity. The informal sector and the environment are satellite accounts.

Although PSA has three centuries of history, NEA has only one-half century. NEA is product of the Great Depression and WWII and the introduction of the GDP to measure national income (Muller, 2003; Vanoli, 2008). NEA is loosely based on standard accounting in that it employs double-entry to indicate the sources and uses of production. Also, NEA uses sector accounts grouping accounting entities and their transactions organized according to a sequence of sub-accounts. However, here the similarity ends. As mentioned previously, NEA does not incorporate depletion, degradation or destruction of an asset unless it gives rise ex-post to some economic activity to repair or retard damage. In other words, there is incomplete recognition of non-market assets.

More specifically, the current national accounts incorrectly sum social costs such as crime to social benefits such as road construction. In business, this is the equivalent of treating depreciation as income. Under national accounting, activities that erode the fabric of society are indistinguishable or unrecognized from activities that strengthen communities. And although statistics such as increasing illness and pollution may be presented, they are separate from the bottom line of national accounts. As Cobb et al observe, "the government obscures the impact of such policies by in effect keeping two sets of books - a visible one for the market and an invisible one for everything else. New

indicators would bring the two together, and better policy just might result" (Cobb et al, 1995: 73).

Another difference between the public sector and national accounting exists in the institutions that gather and aggregate the data. PSA is conducted by departments of finance in conjunction with a nation's treasury. NEA is the province of statistical departments such as the United Nations Statistics Division, Statistics Canada and *the Instituto Nacional de Estadisticas y Geografia* in Mexico. Exceptionally in the USA, it is the Bureau of Economic Analysis within the Commerce Department that collects information on national output. In any event, NEA is outside a nation's finance and treasury or revenue departments. It could even be argued that calling these aggregations 'accounts' and 'accounting' is a misnomer. Nonetheless, standardized 'accounts' exist to collect data and render visible certain aspects of society while obscuring others.

System of National Accounts (SNA)

To enhance comparability a key question was how to standardize national accounting. The first set of standardized accounts was proposed in the 1950s. However, the accounts, a synthesis of American and British methods, consisted of aggregates and disaggregates into broad categories. The institutional-sector accounts were deficient (Muller, 2003). Therefore a new SNA was developed in the 1960s which lead to the landmark publication in 1968. The revised system improved the industry sector accounts to better measure input. Moreover improvements were made by the inclusion of financial transactions; valuations at constant prices; breakdown of value changes into volume changes and price changes; improved valuation of transactions in goods and services;

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clarifications in the definition and measurement of aggregates, with GDP (gross domestic product) as the dominant concept (Muller, 2003: 39).

After 15 years, the UN statistical commission in conjunction with four key international organizations (OECD, IMF, WB, and European Communities) released in 2009 the SNA2008. The latest version incorporates the role of information and communication technologies in production. It also addresses some of the issues of accounting for intangibles. But the new version continues to exclude all household accounts except for imputed rent. The reason for the exclusion is as follows:

> 1.78 The production boundary of the system of national accounts is such that the services produced and consumed by households are not included except for the imputed rental of owner-occupied dwellings and the payments made to domestic staff. Similarly, no estimate is included in the SNA for the labour services of individuals provided without cost to non-profit institutions. In both these cases, the contribution of time increases the welfare of other individuals in the community. The exclusion of these services from the production boundary is not a denial of the welfare properties of the services but **a recognition that their inclusion would detract from rather than add to the usefulness of the SNA for the primary purposes for which it is designed, that is economic analysis, decision-taking and policymaking** (emphasis added, SNA 2008, 2009: 12)

Others argue that rather than improving policy-and decision-making, the "invisibility of the benefits of volunteerism in our current accounting system and economic growth-based measures of progress ensures that a major decline in social capital in recent years remains off the policy agenda of governments" (Pannozzo & Colman, 2009: 4). Moreover, a viable economic estimation called the 'third-person criterion' was outlined as far back as the 1930s. Recognizing the value to an economy of unpaid domestic and other work, Margaret Reid proposed that if a third person could be paid to perform an unpaid activity then it may be deemed work so long as the payor

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enjoys the benefits. One example is cooking as the payor receives a meal. Conversely, there is no value for eating as we cannot pay a third party to eat on our behalf. The majority of household production and voluntary work fits within this criterion as well as the SNA definition of production yet it remains unrecognized (Natoli, 2008).

Despite the absence of volunteerism and household work from the SNA which is admitted to increase welfare, Mamalakis (1996) argues that these accounts still measure welfare. "As economic development materializes both total welfare and the share of economic as well as SNA welfare in total welfare are likely to rise" (Mamalakis, 1996: 294). Essentially, monetized consumption will increase in certain measure with non-monetized welfare "as a consequence of production and consumption of such free commodities as air, water, sun, shelter, food and so forth" (Mamalakis, 1996: 295). Otherwise said, the commodities or activities the SNA excludes are implicitly free or of zero value. The imputation of zero value implies that these commodities are 'superabundant and nondestructible' (Daly, 1996) and therefore of lower scarcity than man-made capital. Undeniably, natural capital is endangered while man-made capital continues to increase thanks to science. Thus, if "natural capital is the limiting fact, then the proper measurement of income requires that natural capital take priority" (Daly, 1996: 79). Nonetheless, orthodox macroeconomists and public sector accountants continue to argue that the GDP is a measure of welfare and that including such items would obfuscate decision-and policy-making (Mamalakis, 1996; Muller, 2003; SNA 2008, 2009).

Rather than incorporation into the main accounts and thus GDP, accounts of household activity, health, the environment and tourism are to be kept in satellite

accounts (SNA 2008, 2009; xxxv). In short, many of the key components of life quality are stripped from the core measure. The continued debate over the exclusion of these components demonstrates more than a violation of fundamental accounting principles in the NEA but also macroeconomic arbitrary judgement of imputing zero value to a clean environment, stable households and healthy populations. This exclusion is systemic and standardized which further entrenches these illogical assumptions with each reproduction.

Standardization

Standardization, also called harmonization and even normalization (Baker & Barbu, 2007), and its processes are clear instances of institutionalized normative and cultural carriers (Scott, 2001). Membership into or compliance with standards bodies confers legitimacy. Iteratively, the greater the membership and compliance, the more entrenched the idea or value. These standards' bodies exercise extraordinary authority despite their relative lack of resources compared to private firms or governments. Their authority is evidenced by the fact that independent bodies challenging their sectorial monopolies do not arise (Loya & Boli, 1999).

The authority of standards' bodies is social-contractual, "voluntaristic action by rational actors in a frame of universal knowledge and principles generates standards for behaviour (informal laws) that reason obligates the actors to accept" (Loya & Boli, 1999: 193). Control or domination is not charismatic nor patriarchal or legal. Their authority "derives from the truth presumably embodied in science and technique, from the righteousness presumably embodied in the principles of governance by which the standards operate (equality, fairness, non-partisanship), and from the presumed self-

interest of the lower-level actors that comprise them" (Loya & Boli, 1999: 193). Rather than control of resources or coercive power, these organizations have discursive legitimacy (Boli & Thomas, 1999; Hardy & Phillips, 1998).

The ubiquity of GDP/GNP calculations and accounts is the outcome of the standardization of national accounting culturally carried by the League of Nations in the aftermath of WWII and then by the United Nations. The first international standard was published in 1953. However, far more instrumental were the standards published in 1968, 1993 and now the latest version in 2009. The GDP accounts are promoted and even audited by the influential international organizations of the WB and the IMF as part of their solution to poverty. Alleviation of poverty requires economic growth and thus the necessary assumption that the environment is a subset of the economy, and not vice versa (Daly, 1996). The standardization of national accounting continues to reproduce the subordination of the environment.

Normatively speaking an accounting principle is defined as a "general law or rule adopted or professed as a guide to action; a settled ground or basis of conduct or practice" (Accounting Research Bulletin No. 7 in Storey, 2003: 1-4). And standardization, harmonization or normalization of accounting refers to a process of negotiation to reduce accounting choices in order to increase uniformity and comparability (Baker & Barbu, 2007). Therefore guidelines or rules ensure uniformity and comparability of accounts. The need to collect and present numbers in a certain form leads to uniformity of processes and practices, and ultimately to isomorphism of organizations. As Loya & Boli (1999) observe isomorphism is a prerequisite to and result of membership in global bodies.

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International Organizations

More powerful than international non-governmental organizations (INGOs), the United Nations (and its predecessor the League of Nations), the WB and the IMF are international governmental organizations (IGOs) that possess some characteristics of nation-states. Like INGOs, these IGOs have discursive legitimacy. But unlike INGOs they have control of important resources. These IGOs are differentiated from nation-states only by an inability to rely on strong coercion and direct authority over organizations within a nation-state. They are similar to what Scott (2001: 127) refers to as a 'weak state' in that they "exert their influence by stimulating normative pressures that induce change among targeted organizations".

The Bretton Woods conference of 1944, dominated by the USA and the UK, created the International Bank for Reconstruction and Development (now the WB) and its sister institution, the International Monetary Fund (IMF), to administer loans for reconstruction and development in the aftermath of WWII. From the outset and still today, these two institutions serve two distinct but interrelated functions: "the Bank is primarily a development institution; the IMF is a cooperative institution that seeks to maintain an orderly system of payments and receipts between nations"[3]. Today, the top indicator of economic development is GDP, promoted by the WB, the IMF, and the OECD. In fact the website of 'Principle Global Indicators'[4] states "Real Gross Domestic Product is the most commonly used measure of a country's overall economic activity. It

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[3] From the IMF website at: http://www.imf.org/external/pubs/ft/exrp/ differ/differ.htm

[4] See www.principalglobalindicators.org

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represents the total value at constant prices of final goods and services produced within a country during a specified time period, such as one year." The WB, the IMF and now the European Union use national accounts and the GDP to control access to membership as well as resources.

> Certain aggregates (GDP or GNP) had been used fairly early for administrative purposes such as country contributions to international organizations, eligibility thresholds to preferential World Bank loans, regional allocation of European structural funds, and the 'Fourth own budgetary resource' of the Community budget. However, the debate over accession criteria to the European Economic and Monetary Union (the creation of the euro) marked a qualitative jump in the consideration of national accounting by policymakers and public opinion. Most Maastricht criteria were defined in reference to the ESA (ratios of public deficit and public debt to GDP). The ESA [European System of Accounts] became compulsory for member states of the European Union. (Vanoli, 2008)

A recent IMF report on national accounting in Sub-Saharan Africa criticized the poor data collection, inadequate methodological rigour and erratic dissemination of national accounting results (Pastor, 2009). The report addresses the "concerns of economists working closely with policymakers in the context of surveillance and/or fund programs. Currently, all AFW [African Statistical Assistance] member countries, except Mauritania, have active PRGF [Poverty Reduction and Growth Facility] programs. Financial programming exercises underpinning those programs rely, to a significant degree, on the available national accounts data" (Pastor, 2009: 6). In other words, continued funding is contingent on reporting findings consistent with the form and content expected by the IMF. To provide consistent reports, statistics must be collected and aggregated according to specified formulas and within certain timeframes. The collection and aggregation makes visible certain resource use while obfuscating or

ignoring other activities. For example, the report mentions that "limited information about the informal sector and the use of often-obsolete household budget and consumption surveys undermine the source data quality" (Pastor, 2009: 9). The informal sector is called 'informal' because it is that portion of economic activity not captured by the SNA and aggregated to the GDP. So this observation, while a recognition of the importance of the informal sector in the economy especially in developing countries, is self-contradictory.

National Organizations

Economic theory is the driver of changes in national accounting (Muller, 2003). Statistics collection is vital to operationalize and materialize economic theory. Keynesian macro-economic principles were operationalized through improved statistical collection that had preceded as well as followed the economic concepts. Technological advances in data collection, analysis and communication have strengthened the institutionalization of the GDP. The strong institutionalization of the GDP is a measure of the success of standardization of the SNA in the face of a variety of national systems which were often difficult to reconcile even among those countries that adopted, in principle, the same comprehensive concept of production (Vanoli, 2008). Unlike the UK, the USA and Canada, France had a narrower measure of production limited to market goods and services. The Soviet Union and the Soviet bloc had an even more restricted use limited to production and 'material' services, mostly transportation. Key to the implementation of the SNA is statistical coordination futher entrenching GDP metrics.

Other differences include the linkage between statistics and accounting that differ by country as well. Muller (2003) suggests that countries with a strong statistics base

such as the US and the UK fuel the national accounting system whereas in France their strong accounting base fuels the statistics. Whatever the motor, technologies and concepts are not linear but iterative and mutually reinforcing. As Miller (1990: 333) explains

> …the term "technologies" is used to emphasize the transformative effects that certain routine calculations can bring about. Technologies are ways of representing and acting upon processes and activities. It is argued that technologies understood in these terms play a central role in the elaboration and operationalization of specific "state projects", enabling these to be translated into attempts to intervene in an enterprise, an economy or a society.

These technologies are linked to particular conceptions of government. "Likewise, the construction and elaboration of governmental programmes are processes that often call upon the calculative practices of accounting to make their objectives operable" (Miller, 1990: 316). Technologies such as accounting are called upon to document the progress towards abstract aims such as order, efficiency and now sustainability and wellbeing. However, the institutionalization or adoption of new concepts, norms and regulations such as sustainability may require the deinstitutionalization of the GDP, NEA and SNA.

Deinstitutionalization refers to the process by which institutions weaken and disappear. Depending on the level of analysis (regulations, norms or cognition) the catalyst differs. At the level of cognition, also referred to as culture, it is the increased questioning of previously taken-for-granted assumptions (Scott, 2001) or increased sensemaking (Weick, Sutcliffe, & Obstfeld, 2005) that catalyzes institutional displacement. As beliefs diverge, the interests that previously supported institutional

arrangements now shift their loyalties. Decreased legitimacy of institutions erodes the roles of institutional promoters and occupants. Deinstitutionalization is subtle and overt examples are rare. However, the search for new technologies is evidence of sense-making to better align indicators and true wellbeing.

Accounting Principles and Measures of Equity

The increasing dissonance between quality of life indicators such as GDP and actual quality of life is a possible first step to the deinstitutionalization of the GDP and its accompanying technologies of NEA and the SNA. For a long time it was theorized that institutional stability or persistence is the normal state (Scott, 2008: 23, 152). It was then suggested that persistence requires actors to continuously produce and reproduce rules, norms and beliefs. When beliefs, norms and rules are sufficiently challenged, value systems are re-examined, existing norms erode and noncompliance with regulations increases (Scott, 2008). Key to detecting deinstitutionalization is observing changes in routinized patterns of activity. As Scott (2001: 182) observes "changes in ideas and expectations put pressure on related activities". One of these activities is the criticism of the GDP and countervailing proposals of new concepts and processes to define and measure sustainability. The various models proposed to date, which I refer to collectively as National Wealth Models (NWM), can be heuristically divided into market proposals and *polis* (community-based) proposals. In general, market models seek to supplement current GDP to overcome the criticisms that this measure is a distortion because of its narrow focus on man-made capital (EA). The *polis* models deviate, sometimes radically, from GDP hegemony rejecting outright the use of GDP as a starting point. The *polis* models begin with the assumption that actions are based on shared values within a community, not lone actors. Decisions are collective and the result of ideas, persuasion and alliances, not simply wealth-maximization (Stone, 2002).

In the following section, the key monitors proposed to date are examined and then a modification to one of the most important *polis* models, the Genuine Progress

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Indicator, is proposed and tested using Cancún as a case. Just as NEA and the SNA are criticized for arbitrariness, subjectivity and bias (unreliability), the same can be said of any indicator. Each indicator including the entrenched GDP suffers from extrapolation and estimation in varying degrees. Many of the current shortcomings of these metrics are those that accounting theory addresses: recognition, reliability, relevance and comparability. Each proposal is assessed in terms of these criteria and especially the treatment of natural and heritage assets. The fatal flaw of NEA is the non-recognition of assets and asset depletion (or stocks and stock maintenance as economists call them), the most basic element in accounting (Pallot, 1992). A viable model contains five elements: the recognition of all assets and not simply EA; the incorporation of a viable valuation or measure of assets especially in the absence of market exchange; the information provided is reliable over measures, measurements and measurers; the results are comparable between entities; and the information is overall relevant to decision-and policy-making.

Due to competing (almost opposing) views of economic reality (market v. *polis*), controversy surrounds which assets to recognize, how to value those assets and what information to provide. Wallman (1996) proposes layers that are recognized as providing valuable and timely information while transparently moving away by increments from the key criteria of objective and unbiased measurement. The information provided in subsequent layers is inevitably less objective and verifiable via market mechanisms yet relevant to better orient policies that strengthen communities. Strong communities and civil society have been shown to reduce civil unrest, alienation, crime, drug abuse and other dysfunctional activities (Pannozzo & Colman, 2009). To assess these indicators as proxies for community betterment, the next section briefly introduces the linkage

between a selected reality and the resulting calculations. The description of economic realities is followed by a general definition of the market versus the *polis* and the categorization of the different models. Regardless of the category, each model is then assessed as to adherence to fundamental accounting principles of recognition, relevance, reliability and comparability.

Layers of Economic Reality

An organization is either for-profit or not-for-profit (NFP)[5]. The profit-seeking motive means that this type of organization is subject to the discipline of the market whereas a NFP relies more on spending mandates and budgets to control uses of resources (CGA Canada, 2007; Storey, 2003: 1-63). Despite these distinctions, fundamental accounting concepts for reporting remain the same for all entities since all users of accounting information have the same goal: to determine management stewardship of resources. To ensure stewardship several core concepts are necessary: relevance, reliability (now faithful representation), recognition and comparability (IFRS, 2010; Potter, 1999; Storey, 2003).

Reliability and Relevance

Storey (2003) provides an illustrative hierarchy of accounting concepts and qualities. The highest quality is information usefulness. To be useful, the information must be reliable and relevant (Storey, 2003: 1-70). Information is relevant if it incorporates

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[5] The CICA Handbook separates government organizations and school boards from NFP. However, this separation does not change the argument I make here which is that the concepts are the same.

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predictive value and feedback value. Information is reliable if it is verifiable and neutral. Storey (2003) depicts this hierarchy and the interrelationships as follows:

Figure 1: Hierarchy of Accounting Concepts
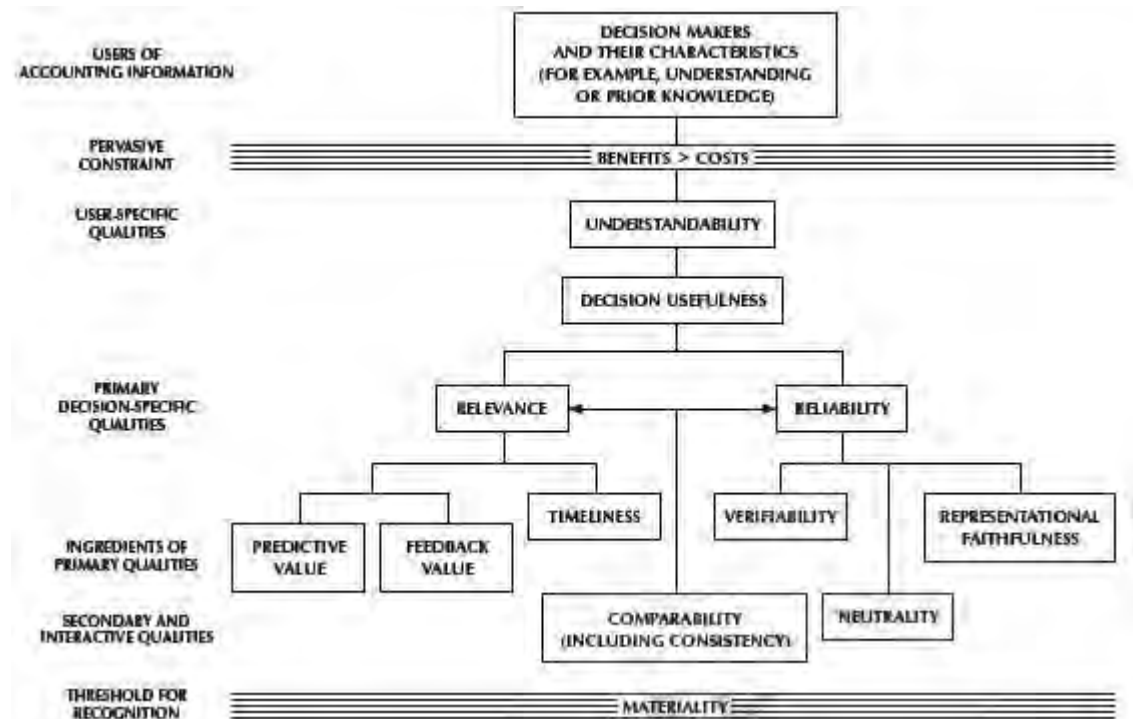
Source: Reproduced from Storey, 2003: 1-71

As illustrated in this chart, the two boundaries or constraints are that the benefits of information gathering and dissemination should exceed the costs. The second boundary, materiality, means that information should be included (excluded) if it would (not) alter decisions made. If the information provided informs decisions and helps to form predictions (predictive value) or confirm expectations (feedback value) then the information is relevant (Storey, 2003). Last but not least, the information must be provided before it loses its capacity to influence decisions, referred to as timeliness.

As for reliability, this concept incorporates the notions of representation, verification and neutrality. Verification and neutrality refer to a lack of bias in the

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measurement, the measure and the measurer. Lack of bias simply means that different measurers would obtain the same results (Storey, 2003). However, this requires assurance that the measurement used is valid since the measure is nothing more than a proxy for an event. Otherwise stated, if the measurement is distorted, the measure will not represent faithfully the phenomenon even if the measurers' results correspond.

To achieve representational faithfulness, the proxy used to measure an event should properly reflect the thing being represented. However, accounting is not expected to provide perfect information as such does not exist. The goal is to achieve as much correspondence as possible between the model (accounting) and the source (reality). For information to appropriately represent, it must be as complete as possible. Fundamental to representational faithfulness is completeness which is defined as inclusion of everything material that is necessary to accurately portray the relevant phenomena. "Financial statements are incomplete, and therefore not representationally faithful, if, for example, an enterprise owns an office structure but reports no "building" or similar asset on its balance sheet" (Storey, 2003: 1-74). The incompleteness of current NEA is the essence of its inability to proxy for sustainability and therefore an unreliable reflection of events and outcomes.

The terms of relevance, reliability, verification, neutrality and others are the source of much accounting ontological and epistemological debate which is beyond the scope of this paper. However, pertinent to this discussion is that the above definitions describe the means to achieve the ends of providing useful information. The next section addresses the means-ends debate which highlights crucial issues of asset recognition and comparability.

Means – Ends Debate

A common debate in much of accounting theory is the need for greater focus on the ends (relevance) that accounting reporting rather than the current fixation on the means (i.e. reliability) of reporting economic events (Chua, 1986; Mattessich, 1995; Wallman, 1996). An agreement on the ends of reporting is a function of societal values. Values that are socially shared lead to agreements on a set of ends which different accounting systems can address based on the informational requirements of the users (Chua, 1986). To arrive at an agreement of ends, it is necessary to agree on what constitutes economic reality and how to measure that 'reality', in particular assets, to achieve comparability (Mattessich, 1995).

In Storey's (2003) hierarchy above, relevance and reliability are treated equally. Yet current accounting texts instruct students that "the qualitative characteristic of **relevance** should be applied first because it would help identify what specific information that would affect decisions….Once relevance is applied, **faithful representation** [followed by] **comparability** and **understandability**" (Kimmel, Weygandt, Kieso, & Trenholm, 2009:53-54). However, in practice, reliability takes precedence over relevance. This resulted in to a focus on tangibility and verifiability through market-exchange at the expense of information utility. Wallman (1996) comments that in the New Economy wealth is created more often through intangibles such as brand names, intellectual capital, patents, copyrights, expenditures for research and development and human resources. Yet most current reporting does not reflect this wealth.

By their nature, intangibles are harder to measure, to quantify, to manage - harder even to define - than tangibles. For the most part, they do not appear on the balance sheets of corporation, nor are they recorded in the national accounts as part of the national wealth. When they are acquired or developed, they are treated more like consumption than as additions to net worth. Indeed, there is no common language for talking about intangible sources of value, and what language there is tends to be ad hoc, and descriptive rather than quantitative and concrete, making comparisons from one institutional situation to the next impossible. (Blair & Wallman, 2001: 2)

Objectivity, tangibility and exchange-value do not satisfy the quality of all assets or the information requirements of all end-users. More and more of the wealth-creating assets are 'soft' items such as human and intellectual capital. And within communities, wealth is also a function of natural resources such as parks and cultural resources such as museums. The measurement of human, intellectual, natural and cultural capital poses challenges in terms of verifiability. However, asset non-recognition profoundly misrepresents current realities.

Currently much relevant information regarding intangibles is provided as non-financial information. Although there is an increased cost of providing this information it has been shown that non-financial information is as useful as financial information (Riley, Pearson, & Trompeter, 2003). In the public sector, non-financial cues improve budget resource allocation by decreasing uncertainty (Reed, 1986). Despite its importance, non-financial information that is provided is rudimentary, subject to few rules and often situation-specific (Blair & Wallman, 2001). This makes information difficult to compare and reduces the effectiveness of potentially material information.

Due to growing importance of intangibles Wallman (1996) proposed a modified accounting framework based on five 'layers' of information. In subsequent studies, the

layers were clarified through notions of delimitation and control of intangibles: assets that are owned, separable and can be sold; assets that are not separable but with control and value; and assets that are not separable and not wholly controlled (Blair, Hoffman, & Tamburo, 2001; Blair & Wallman, 2001). These layers are visualized as follows:

Figure 2: Five Layers of Accounting Information

	ASSETS			RELIABILITY			RELEVANCE
	eparable	Not Separable					
	angible or Not	angible or Not	ntan-gible	ull	artial	o	Yes
LAYER 1	🟥			🟦			🟩
LAYER 2	🟥				🟦		🟩
LAYER 3		🟥			🟦		🟩
LAYER 4			🟥		🟦		🟩
LAYER 5			🟥			🟦	🟩

These differing notions of assets combined with reliability and relevance are:

- **Layer 1**: Fully recognized assets. The item fulfills all criteria to be defined as an asset under current standards. It is measurable, the measure is reliable and the information is relevant. In other words, these assets can be separated and traded in an efficient marketplace allowing for actualized prices. This is the case of EA such as private property, plant and equipment, and even purchased goodwill (Wallman, 1996). In the public sector, these assets are those over which the government has both title and beneficial use such as vehicles, furniture, office space and perhaps government business enterprises (Pallot, 1992). In general, this layer makes up current financial statements.

- **Layer 2**: Tangible or intangible assets that raise reliability issues. Information at this level is relevant but measurement is less reliable. Examples of these items include research and development, advertising and brand-names (Wallman, 1996). In the public sector, these are roads, dams and infrastructure in general for which future benefits may be difficult to assess. Although the assets belong to the government,

beneficial use accrues to the public (Pallot, 1992). Blondal (2003) observes that determining the depreciation schedules of these assets with extremely long useful lives is difficult:

> In this context, there are examples of [OECD] member countries that do not depreciate these assets but rather certify that the assets are being maintained to such an extent that they have infinite life-spans. Second, the recognition of infrastructure assets also highlights the need for maintenance expenditures, expenditures that are often neglected in member countries. Third, it is often very difficult to estimate the original acquisition costs of such assets if the historic cost method is being used. This is both due to their old age and the difficulties in separating out original investments and maintenance costs. Fourth, the selection of valuation methods (historic cost versus current value) has an exceptionally high impact on these assets.(Blondal, 2003: 46)

In short, Layer 2 assets begin to raise some reliability issues but several generally accepted valuation methods exist.

- **Layer 3:** Tangible or intangible assets that are not separable or saleable and raise reliability issues. Examples of these measures are customer satisfaction which contributes to future earnings capacity (Wallman, 1996). In the public domain these assets include items such as government managed assets of a cultural or environmental nature. The government has an obligation to manage and make available the property to the public (Pallot, 1992: 38). These assets are fundamental measures of intergenerational equity and an important indication of future wealth in a world of diminishing NA. Asset measurement is varied and non-standardized confounding comparability. For example,

> heritage assets are very different from other types of assets. They have very long life cycles – generally measured in hundreds of years. Their value does not diminish over time due to wear and tear (but there can be significant upkeep costs); in fact, they are more likely to increase in value over time. Their acquisition costs are generally not known and are in most cases totally irrelevant for today's valuation purposes. The acquisition of the assets may have occurred through non-orthodox means, such as being appropriated during wars. The assets are generally not marketable in any sense, as their sale is generally prohibited by law. And, by their nature, they do not have any replacement value. (Blondal, 2003: 46)

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To summarize, these are assets that have no value in exchange but important value in use to the extent that their value increases over time.

- **Layer 4**: <u>Intangible asset performance proxies and measurable</u>. Rather than assets, this layer is a reporting of second order effects of assets. An example includes risk measurement practices which could provide important information to users (Wallman, 1996). In the public sector, these refer to long-term commitments such as social and natural resource protection. One example is estimating costs of potential environmental accidents and the disclosure of prevention costs. Another example is social programmes such as old-age pensions that represent huge future obligations. There is debate about including pensions, health care and education as liabilities since all are important long-term government commitments (Blondal, 2003).

- **Layer 5**: <u>Intangible asset performance proxies difficult to measure consistently but relevant.</u> For example items providing such relevant information to users include going-concern value and elements of SCA such as intellectual capital. These items are difficult to valuate consistently and time-series studies are rare (Smith, 2007). This information is often presented in physical units with little or no comparability between entities. But the information is highly relevant to national wealth within the entity. One example of layer 5 information is education and what should proxy for education. Pannozzo & Colman (2009: 14) argue that the "increased focus on the role of education in serving the economy has often been marginalized and come at the expense of broader considerations, such as the role of education in advancing social justice and environmental sustainability, of spreading civic values, and of transmitting cultural values. And the focus on education in the service of economic productivity and competitiveness may even be anti-educational...". Therefore, current statistics on graduation and literacy may not be good indicators of intellectual capital.

Rather than independent information each layer builds on to the previous. Simply put the further from the core the less auditable and less objective the information becomes but materiality is at least maintained. Moreover, items are not static. As data-collection and methodologies improve, assets can gravitate towards the core or Layer 1.

Information equivalent to Layers 3 to 5 are sometimes provided in the disclosure notes and supplements to financial statements. However, studies have shown that the use of notes to convey important information such as environmental reparation vary as to the level of detail between organizations and over time may vary even within the same organization (Alciatore, Dee, & Easton, 2004). Rather than being ad hoc and discretionary, the numbered layers would signal information reliability while allowing "us to make finer distinctions among various types of information, thereby avoiding the daunting task of determining whether items that are close to the recognition/non-recognition line are in or out of the financial reporting paradigm" (Wallman, 1996: 52). Although this entails additional costs to preparers, the benefits are improved quality and comparability of stocks and depletion of assets, both tangible and intangible.

Changes in Approach

Currently, recognition and reliability are the starting point instead of relevance. According to current accounting principles, to recognize an item it must be a form of an asset (positive, negative, derivative or alternative). Once the asset is defined, it is measured. The measure should be reliable. The information provided should represent faithfully the entity's stewardship. The information thus supplied is expected to provide a prediction of future wealth or feedback in order to make decisions.

To assess the models, rather than starting with recognition, here the starting point is relevance. If the information is relevant, then the next question regards control, ownership and/or obligations. Finally, reliability will determine the specific layer assigned. To summarize, once the information is considered material and relevant, a combination of asset control and reliability will determine the Layer, not vice versa.

Each of the market models such as Net National Product and Genuine Savings, and *polis* models, for example the Genuine Progress Indictor, will be examined for its conceptual framework. The framework will be overlaid by the accounting conceptual framework above using the following questions as a guideline.

1. **Information users**: To who is the information primarily directed? What information do they require to evaluate stewardship?

2. **Relevance**: Are assets or income the primary source of information? Is the information a proxy for past events, current events or an estimation of future events? What is the implicit or explicit measure of sustainability: weak or strong?

3. **Recognition**: Are the assets man-made, natural or cultural? Do the assets consist only of tangibles? Is the measurement based on value-in-exchange or value-in-use?

4. **Reliability**: What is the valuation technique(s) used to measure the assets? Is the valuation monetary, volumetric or other?

5. **Comparability**: How many regions have conducted studies and over what period of time? How consistently was the methodology applied over time and over space?

The strongest model is that which most closely couples with accounting fundamentals over the broadest range of assets. It would provide information at all the five layers while the weakest model would be that which fulfills only the basic requirements of Layer 1, i.e. doesn't fully recognize assets important to society. Rather than paradoxical aggregates that defy reality such as GDP, users, both policy-makers and

the public, now want information that effectively proxies for sustainability and faithfully represents efforts to maintain assets and intergenerational equity. In order to answer the above questions, first are a few accounting dimensions directly referent to sustainability.

Relevance and Costing in Measuring Sustainability

Although relevance and costing appear to make strange bedfellows, they are connected. If only what is objectively observable is what should be measured and reported then historical cost is preferable to replacement cost (Anthony, 1976). However, this led to the critique that "we devote an inordinate amount of attention to assessing whether a given item satisfies all of the recognition criteria, even to the extent of losing sight of the overall goal of providing information that is useful" (Wallman, 1996: 43). In other words, historical cost based exclusively on market prices may not satisfy the information requirements of providing relevant information to end users. So what information is relevant in assessing sustainability?

Criteria for Relevance to Measure Sustainability

First, the criteria for relevance are prediction (future directions) and/or feedback (resource stewardship, i.e. performance) in a timely manner. Welfare is acknowledgement of current conditions such as income disparities whereas sustainability concerns future conditions such as a reduction in biodiversity diminishing resources for future generations. Although some argue that current conditions are not always indicative of future events, e.g. poverty today does not mean a family will remain poor (Neumayer, 2000), trending of current events allows for prediction. Welfare and sustainability are highly correlated yet distinct. The two should not be confounded.

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Second, fundamental to any discussion is the acknowledgement that sustainability is a focus on assets (stocks) and asset management. However, economic models are often more concerned with flows or incomes which are asset derivatives, e.g. Cost-Benefit Analysis. Assets (stocks) must take precedence over income (or flows) if sustainability is the goal.

Third, all three dimensions of sustainability or capitals must be recognized: NA, SCA, and EA, and in that order. The goal of society is wellbeing which is reflected in SCA. Some portion of SCA is provided by EA but the sum of SCA is greater than EA. However, very commonly only the environment (NA) is addressed as indicative of sustainability (e.g. environmental accounting) and SCA are excluded from the indicators and/or accounts (e.g. NEA and SEEA). Therefore a model provides relevant information to policy-makers if it nests all three dimensions: EA within SCA within NA, in a hierarchy of relationships. Only full incorporation of and linkages between the three dimensions faithfully represents the ecosystem and the human subsystem of which EA is but one part (Daly, 1996; Hodge, 1997).

Fourth, what constitutes sustainable behaviour? Can all resources be replaced by EA (i.e. weak sustainability) or are there resources for which there is no replacement and need to be maintained indefinitely (i.e. strong sustainability)? Both weak and strong sustainability require that the sum of EA, SCA and NA are constant. The difference is that weak sustainability assumes that depleting NA can be replaced by EA such that the sum is constant. Conversely, strong sustainability requires further that the value of NA remains constant in addition to the total value (Neumayer, 1999) because there are

resources which are irreplaceable and essential to life. Therefore models based on strong sustainability are more representationally faithful.

Fifth, irrespective of whether or not the model aggregates results to a single summary number (ex. GDP, ISEW...); more important is that the assets are monetized and trended. Although there is an ethical debate about monetizing the immaterial and that monetizing only confuses policy-making (Aaheim & Nyborg, 1995), Pannozzo & Colman (2009) argue that changes in behaviour are more likely with price signals. Over a decade, the authors observed that the monetization of SCA had greater decision-making utility than the indicators. An accounting system differs from a project appraisal in that accounting records all elements relevant to an entity or an undertaking whereas a project appraisal such as Cost-Benefit Analysis is a trade-off. A project is selected when the benefits are greater than those of a substitute project. Estimation accuracy and errors impact project selection. Therefore, in spite of the value-judgements and bias required to monetize the invaluable, any asset amount recognized under an accounting system is informationally superior to imputing a zero-value economic return on assets (Cobb et al, 1995; Daly, 1996; Pannozzo & Colman, 2009).

To summarize, the optimal model is one that identifies users' information requirements, supplies relevant information, recognizes all three types of assets (NA, SCA, EA), transparently indicates layers of reliability, and provides the greatest comparison over time and space in specific reference to sustainability. To specifically address sustainability, in addition to the five accounting criteria above, the optimal model:

➢ distinguishes current welfare from future sustainable resource use although both are necessary for feedback and prediction;

➢ prioritizes asset management over income flows because income is derived from assets, not vice versa;

➢ incorporates all three forms of assets (NA, SCA and EA) nested in a hierarchical relationship;

➢ applies strong sustainability as a more faithful representation;

➢ calculates monetized amounts from the physical units in order to provide comparable data and clearer signals for policy-making.

To clarify some of the approaches to costing and valuation[6], briefly presented here are definitions of accounting valuation methods which include Historical Cost and Fair Value both of which are used in public sector accrual accounting. Economic methods include Full Cost Analysis and Cost-Benefit Analysis (CBA) presented later.

Traditional Accounting Valuation Methods

Historical Cost (HC)

Historical cost is an orthodox accounting measurement based on the cash outlays for the purchase of assets. Historical costs are highly reliable but impractical for non-traded public goods. A public good is one that can simultaneously benefit more than

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[6] Cost and value are used interchangeably although 'cost' is far more concrete than value. According to the Canadian General Accountants' Glossary, cost is the amount of consideration given up to acquire, construct, develop, or better a capital asset. Value is not defined in the glossary but broadly defined as worth or import and more specifically as a return in money (Berg Flexner & Crary Hauck, 1987). A discussion of the word 'value' is beyond the scope of this paper. Here the two words are being used synonymously because value is difficult to determine (reliably) except when referring to cost. The assumption is that the value of the item is identified by its cost if the market is perfect.

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one user and exclusion of users or non-payers is difficult (H. S. Rosen, 1995). Pallot (1992) refers to these as community assets. Under current standards, the costing of community assets (public goods) is often impossible or irrelevant due to untimeliness (i.e. no longer useful for decision-making). Nonetheless, historical cost is still the norm, especially public sector accounts in Canada as well as Mexico (PSAB, 2009). This norm not only is problematic for informational relevance, it limits the types of assets that are recognized and reported. Despite both countries continued focus on historical costs, international public sector pronouncements recognize the use of both historical costs and current costs offering recommendations as to the application of current costs to improve inter-period comparability (IFAC, 2010).

Fair Value Accounting

Unlike historical costs, fair value focuses on the present, rather than the past. It is the current cost that would be paid in an arm's-length transaction between knowledgeable, willing parties who are under no compulsion to act. In the absence of an active market, fair value employs methods such as net realizable value, residual value, replacement cost and net present value (NPV). Net realizable value is the amount of funds expected to be received upon the sale or liquidation of an asset net of disposal expenses. A similar calculation at the end of an asset's useful life is called its recoverable amount or residual value. Replacement cost is the cash outlay required to replace the same or a similar asset. NPV is another costing method that is the present value of the net cash flows from an asset or project minus the net cost of the investment. Although fair value is less reliable than historical cost, information using fair value is often more relevant due to a focus on the present and the future rather than the past.

Accrual Accounting and the Public Sector

If historic costs and current costs are valuations for assets, accruals are measurements of income that impact the value of the asset carried on the balance sheet. Rather than cash outlays, revenues are recognized when they are earned and expenses are matched with the revenues they generate. Cash inflows and outflows may occur before or after related revenues and expenses so accruals better match an entity's activities to the timing of its obligations. Although cash accounting is rare in private enterprise, most government accounting worldwide elaborates budgets and reports based on cash. Of the thirty member countries of the OECD in 2003, only six countries applied accruals for national budgeting and seven countries used accruals in national financial statements (Blondal, 2003). Despite their limited but expanding use, public sector accruals are an important tool to enhance government decision-making by capturing full costs of policies and long-term obligations to the public (Blondal, 2003).

With government expenditure often representing upwards of 40 percent of national wealth, the selected accounting treatment of assets has a major impact on national wealth estimates. For example public sector cash accounting, the most common form currently used, accounts for the cash transaction value of the entire asset at the time of purchase. This favours short-term over long-term decisions. Accruals account for the asset over its useful life. Decision-making requires a longer view because of the impact on the surplus or deficit. Accruals are particularly complicated for the valuation of community assets and the revaluation (e.g. museums and their collections) or devaluation, e.g. over-fishing. These corrections to aid decision-making could impact a

nation's competitiveness and thus its ability to obtain loans to finance a deficit. However, these challenges are minor compared to informational deficit of non-recognition.

The introduction of accruals into PSA is said to improve transparency, resource allocation and efficiency. Robinson (1998) argues that accrual accounting in the core public sector is an indicator of the intergenerational equity. Detractors argue that deferral burdens future taxpayers, accrual is unreliable and unfair, and the arguments of accountability, transparency and equity are unsubstantiated (Vinnari & Nasi, 2008).

The International Public Sector Accounting Standards Board (IPSASB) forms part of the International Federation of Accountants (IFAC) with the objective of developing and issuing under its own authority International Public Sector Accounting Standards (IPSASs). Their goal is for governing bodies worldwide to introduce accruals for increased relevance (IPSAB, 2007). Although standards are being developed (IFAC, 2010; IPSAB, 2007), adoption is mixed. The reason is that accounting standards have historically been set by the finance ministries. Thus far meetings to set international public-sector standards have had little finance ministry involvement. This raises questions about OECD member adoption and future comparability (Blondal, 2003).

To explore accruals as an indicator of sustainability as well as the impact on national wealth, the next section provides a brief discussion of accruals in terms of relevance. Do accruals aid in the determination of asset recognition and current and future resource use? The conclusion is that in the absence of accruals and current costs, public sector accounts are not reliable measures of current wealth or intergenerational equity.

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Accounting Technologies Old and New

Public Sector Accounting Accruals (PSAA)

Public Sector Accounting (PSA) is a subset of public finance which focuses on the taxing and spending activities of the government and their influences on the allocation of resources and distribution of income (H. Rosen, 2007). Measures of public sector consumption and resource stewardship fundamentally alter aggregates and therefore the focus of policies. The majority of countries still use a system of cash and current obligations. Few countries have introduced accruals and none are identical (Dees & Neelissen, 2004). While few countries have introduced accruals, PSAA should be the first line of defence in the management of a nation's resources. Moreover, accruals are reported to enhance government performance by providing more accurate feedback on managerial activities. Expensing according to use rather than purchase is a better measure of sustainability.

The PSA in Canada is an accrual-based model that gives primacy to recognition over relevance. An item is recognized in the financial statements when it meets the following recognition criteria : (a) the item has an appropriate basis of measurement, and a reasonable estimate can be made of the amount involved; and (b) for an item that involves obtaining or giving up future economic benefits, it is expected that such benefits will be obtained or given up (PS 1000 in PSAB, 2009). Unlike standard accounting, there are no specific requirements for comprehensive revaluation of assets and liabilities.

PSA refers to general purpose financial reporting by governments. Entities within the government may apply PSA standards if not otherwise directed by the

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standards of private enterprises or non-profit enterprises. In other words, if an entity does not fall under private enterprise reporting or not-for-profit reporting then the entity will report using PSA (PS1000 in PSAB, 2009). Under regular accounting, elements include assets, liabilities, equity/net assets, revenues, expenses, gains and losses while PSA elements are assets (financial and non-financial), liabilities, revenues and expenses. Although Canada has more conservative standards than those recommended by the IPSAB, it has moved farther than most countries. Proof of this is the use of accruals and the extensive reports required under accrual accounting. The reports are: (a) cash resources (financial assets); (b) net debt position (liabilities minus financial assets); (c) non-financial assets available for service provision; and (d) accumulated surplus or deficit. Prior year comparatives are presented on the statement of financial position (PS 1200 in PSAB, 2009).

Although the IPSAB recommends valuation using current costs, the few countries that have introduced accruals still valuate assets at historic costs. This limits the recognition of assets and excludes critical resources such as forests. The focus on cash and income renders some NA and SCA invisible. And although sustainability could be achieved through a generational 'balanced budget', accounts are still annual not generational. In short, relevance is subservient to reliability.

Users and Informational Requirements

PSA provides broad accountability to citizens rather than a narrow accountability to private enterprise. More specifically it serves the information needs of external users including the public, legislators, councillors, investors, analysts and other governments (PS1000 in PSAB, 2009). However, the key users are elected and appointed

policymakers and administrators who together perform the executive function (PS1000.02 in PSAB, 2009).

Current and Future Resources

Currently in Canada[7], despite the shift to accruals for income, public sector accounts continue to promote historical costs over fair value or future-oriented information in general (PS1000 inPSAB, 2009)[8]. Historical costs are not a viable method of providing relevant information about resource use. Moreover, current welfare is accounted for but not intergenerational equity. In limited circumstances, other bases of measurement are used including replacement cost and realizable value. These too provide information about the present. A future-oriented technique is net-present-value to estimate the current value of future cash flows (PSAB, 2009).

Assets or Income

A historical cost, market-centred approach using accrual accounting is an indication that income is of greater importance than assets. Although the public sector entities are required to publicly account for public resources, current Canadian PSA has a more limited recognition of assets than the private sector. The Canadian PSA Handbook (PS1000 and PS1200 in PSAB, 2009) defines assets as economic resources controlled by a government as a result of past transactions or events and from which future economic

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[7] Mexico introduced only in 2009 accrual accounting for federal level government entities. As of 2012, all levels of government (municipal, state and federal) are to report using accrual accounting. Therefore, here I focus on Canadian PSA to better illustrate accruals and sustainability.

[8] Unlike 4250 of the CICA Handbook which addresses the measurement, presentation and disclosure of future-oriented financial information, there are no specific requirements in the PSA Handbook.

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benefits are expected to be obtained. If there is no reliable estimate of economic benefits, there is not recognition.

Financial assets are resources that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations. As such they may include inventories or items for sale. The indicator of net debt is determined by deducting the financial assets from liabilities. A non-financial asset is any asset acquired, constructed or developed that does not normally provide resources to discharge existing liabilities, but instead: (a) is normally employed to deliver government services; (b) may be consumed in the normal course of operations; and (c) is not for sale in the normal course of operations (PS1000 in PSAB, 2009).

PS1200 and PS3500 further specify that items inherited by right of the Crown, such as Crown lands, forests, water and mineral resources, are not recognized in government financial statements (PSAB, 2009). Tangible capital assets are recorded at cost. Write-downs are recorded when the asset no longer contributes to the government's ability to provide goods and services, or when the value of future economic benefits is less than its book value. Such write-downs are not reversed. To summarize, intangible assets, natural resources and lands held by a government that were not purchased are not recognized. Assets that are not 'productive' are written down (PS1000 in PSAB, 2009).

More specifically, although the Canadian government has moved from partial to full accruals, the non-financial assets recognized fail to include key assets of NA and SCA despite the fact that the recognition does not impact debt and would decrease accumulated deficit. Under partial accrual accounting, future cash liabilities and entitlements such as leases are recognized. Full accrual accounting adds to the above the

accrual treatment of capital. Under cash accounting and partial accruals net public debt and accumulated deficit are the same. Full accrual accounting requires the deduction of non-financial assets from net debt thereby differentiating accumulated deficit from net public debt (Finance Canada, 2002).

Nested relationship of NA, SCA and EA

Blondal (2003) observes that while valuation of 'heritage assets' and some national capital poses challenges, it does not have material impact on the short term fiscal management of the public sector. Yet governments remain conservative and do not account for these assets. The focus on income rather than assets is also an indication that EA is given primacy over SCA and NA. If an item is not for obtaining or giving up future economic benefits and those benefits cannot be reliably measured, the item is not recognized. Even contingent liabilities are only recognized when it is a likely future event and the amount can be reasonably estimated. A contingent liability is derecognized when settled or otherwise extinguished, or when the existence of a liability at the financial statement date is unlikely (PS3300 in PSAB, 2009).

Strong or Weak Sustainability

Assumptions of the type of sustainability are not explicit in PSA. Instead, the position is often deduced through accounting treatment. For example, in Canada the non-recognition of crucial assets and the recognition of environmental losses at cost, is a sign of weak, if any, sustainability. Weak sustainability is also recommended by Robinson (1998) who argues for receipts and expenditures to be balanced over a generation not annually. Rather than simply paying for the current generation, a balanced budget is

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essential to pay for this generation's use of inherited 'productive' assets and to guarantee the availability of these assets to future generations.

If one reformulates the `traditional' intergenerational equity principle so that it requires each birth cohort 'generation' to pay lifetime taxes which cover the lifetime value of all the costs of government expenditure attributable to it, it can be shown that this yields a fiscal rule which is simply a more general version of the time period accrual balanced budget rule. That rule is that public sector net worth plus the present value of the future net lifetime fiscal contributions of presently alive generations (i.e. tax contributions by those generations minus costs of government services attributable to them) should be maintained constant. (Robinson, 1998: 33)

Governments should maintain a positive net worth over the generational cycle of productive assets. As a generation is a cohort of birth years, there is much overlap between generations. The key is to observe the total tax burden over the life of the cohort/generation "to ensure equity between generations in terms of their lifetime tax contributions" (Robinson, 1998: 33). As only productive assets enter into the balance to the exclusion of irreplaceable assets and/or those with intrinsic value, Robinson (1998) is arguing weak sustainability.

Monetization or Physical Units

As PSA is an accounting system, productive resources are monetized. However, indispensable assets currently non-productive are accounted for in physical units only and often recorded by statistics departments not finance departments.

Comparability

Comparability is fundamental for inter-period comparisons within a nation. National comparability is privileged over materiality. Differing applications of accruals render international comparisons difficult (Blondal, 2003) although the introduction of

the proposed international public sector standards would improve international comparisons.

Conclusion: PSA's Ability to address Sustainability

In order to measure community assets, introduction of accruals to PSA is an attempt to measure the depletion of social and physical assets. In other words, this new objective led to renewed interest in PSA and debate as to appropriate technologies such as heritage asset valuation and the location of these assets within the Statement of Financial Position. Pallot (1992) argues that the key difference between private and communal property is exclusion. As private property, the owner has the right to exclude others. In the case of communal property a citizen has the right not to be excluded. And between private property of private individuals and community property such as parks and highways belonging to all citizens, lays the private assets of the government (government property). The issue is to properly recognize and account for community property. Without community property there is no community and no recognition of inter-generational issues such as environmental degradation. Neoclassical economic arguments of market valuation through exchange for government accounting are inappropriate. Rather than a market-centred approach to value-in-use communal assets, the legal concept of power and obligations in the use of community property and resources would lead to improved accountability by producing numbers substantially different from the current system.

To illustrate the decoupling between standards and organization reality, Wallman (1996) asks the key questions of who is the organization, when to report, what to value and where to communicate. Wallman (1996) argues that the boundaries of organizations

are changing. As with private firms, the public sector is expected to reduce in size. An increasing number of entities form and dissolve as tasks are commenced and completed. Many public sector services are now outsourced or loosely controlled[9] (Broadbent & Guthrie, 1992). More and more of the key assets are 'soft' items such as human and intellectual capital. Also we have unique natural assets that fulfil functions essential to a community (Pallot, 1992) such as parks and recreation areas. These need to be monitored and reported on a timely basis. Thus the primary issue of these assets is that of valuation followed by the delivery of crucial information to users.

However, most nations employ cash accounting rather than accruals which privileges short-term decisions and depletion over long-term management. Moreover accruals based on historic costs and productive resources fail to incorporate indispensable assets which are currently non-productive. Weak sustainability is implied as EA are given primacy over SCA and NA. The current conservative accounting standards would appear to guarantee reliability and comparability but differing applications of accruals and valuations make comparability difficult. Despite a public sector goal of resource stewardship for the common good, nations emulate economic methods of individual wealth maximization, obsess over recognition and ignore the highest accounting principle, that of relevance. Although some accounting academics resist the notion of monetizing the invaluable in the public sector (see Carnegie & West, 2005), I argue that many refer to conventional market-centred valuation techniques and have failed to consider recent advances in valuation.

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[9] PS1300 and 2500 both address issues of government control of an entity. Also PS 3100 looks at restricted use of assets.

Non-conventional methods of valuation

Arguably, economists' current significant contributions lie in non-market valuation methods, the domain of micro-economics and the recent field of environmental economics (Callan & Thomas, 2007). Four important non-market methods include contingent valuation, replacement cost, damage and control assessment (Pannozzo & Colman, 2009), and full cost analysis, all used in cost-benefit analysis (Callan & Thomas, 2007; Kirkpatrick & Weiss, 1996b; S. L. J. Smith, 1995). The importance of this discussion lies in critiquing these non-market methods and demonstrating their possible application to accounting in the provision of relevant information.

Contingent Valuation

Contingent valuation consists of the controversial willingness-to-pay (WTP). The WTP is a survey of resource-users who indicate a hypothetical amount they are prepared to pay for a specific ecosystem service (e.g. scuba diving) or environmental good (e.g. fishing). These surveys are criticized for their subjectivity because the respondent is assumed to have perfect information about the resource and provide an accurate price. Ecosystems are complex with critical linkages and interdependent relationships requiring substantial information to accurately assess value. In addition to insufficient information, valuation of a resource will vary based on frequency of use: the greater the use the greater the value. To overcome these limitations, willingness-to-pay can also be assessed or supplemented by the indirect method of observing actual behaviours such as how much people actually spend travelling to and visiting certain destinations, called the travel cost method (Callan & Thomas, 2007; Smith, 1995). As parks and other publicly

held lands are not traded, contingent valuation is frequently used to assign values to lands and other natural resources, the most difficult of all assets to valuate.

Replacement Cost Method

Replacement cost is simply the cost to replace an asset, be it traded or non-market. In the case of non-market, it is the cost of replacing volunteer hours with paid workers to arrive at an estimate of the worth of volunteering to an organization. In terms of pollution, it is the cost of removing waste products from water or the cost of replacing fish stocks. The criticism of replacement cost is the assumption that all resources can be repaired to equivalent status through some form of manufacture, for example non-renewable energy is completely replaceable with renewable energy sources (Hamilton, 1999). Although not an exact measure, the information proxies the value of a resource instead of imputing a zero value due to its exclusion.

Damage and Control Costing

Damage and control costs are the expenditure required to avoid or repair damage, also known as defensive expenditures. Essentially the costs of repairing damage are compared to the estimated expenditures to contain the damage. For example, the direct health costs plus the indirect productivity loss due to smoking are compared to an aggressive anti-smoking campaign and legislation. Calculation begins with risk assessments of different scenarios, an estimation of populations at risk and then monetization of different alternatives. Again, much is highly speculative but the exercise itself helps to re-focus attention on current well-being and intergenerational equity and away from the assumption that all activity is growth.

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Full Costs[10]

Full-costs is a form of economic analysis similar to fair-value. Full-costs goes a step further by including estimations of 'externalities' such as environmental impacts and the valuation of non-market assets[11]. This costing method incorporates depreciating capital (accrual accounting) rather than a one-time cash outlay (cash accounting and historical costs). In addition to accruals and depreciation, full costs mean valuating gifts, donations and transfers which are normally excluded in national accounts. Examples include volunteering and unpaid domestic labour. Full-costs is a major step towards faithful representation because the internalization of 'externalities' incorporates the true full cost of production and therefore consumption (Pannozzo & Colman, 2009).

The shift from historical (market) costs to full-costs reduces reliability but increases relevance. In both fair-value and full-costs the market is not the exclusive determinant of asset recognition. This expansion of the boundaries of recognized assets is a trade-off between objectivity and information usefulness. Both the above nonconventional valuation methods as well as conventional valuation methods have been used in Cost-Benefit Analysis described following because of CBA's long history and ubiquity for project selection in the public sector. Moreover, recent advances in Portfolio CBA are remarkably similar to the World Bank's Genuine Savings Indicator, a market-centred national wealth model explained later.

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[10] Although the term is Full Cost Accounting, I resist the full name as it is a valuation method rather than an accounting system as the full name would imply.

[11] An externality is defined as the activity of one agent affecting the welfare of another in a way that is outside the market. In the presence of an externality, the market may fail to allocate resources efficiently (Rosen, 1995: 62)

Cost-Benefit Analysis (CBA)

CBA, rather than an ongoing indicator or an accounting system, is an economic appraisal of projects to aid decision-making about the undertaking of a project or in selecting between projects. It is based on the assumption of self-interested individuals and relatively efficient markets providing the required signals to select optimal projects. All the estimated costs are subtracted from the estimated benefits to determine the most economically efficient public sector investments offering the greatest returns to the community (Debreceny, Gray, & Rahman, 2002). In classic CBA, costs were limited to costs of construction and benefits were simply direct, quantifiable benefits with little concern for wider social issues (Pearce et al, 2006: 33-34). Despite the continued focus on individuals, more recently market models incorporate costs or depletion of public goods in order to measure broader social costs and to assess sustainable projects (Pearce, Atkinson, & Mourato, 2006; Pearce & Atkinson, 1993).

CBA was first proposed in the mid-19th century by a French engineer and economist, Jules Dupuit, but was operationalized only one century later to assess dam projects in the USA (Pearce, 1998). In the first half of the 20th century, it was used in highly industrialized countries to evaluate public sector infrastructural projects, in particular waterways and roadways (Smith, 1995; Pearce, 1998; Veal, 2002). Because of its usefulness in the developed countries, CBA was introduced as a decision-making tool for projects in developing countries (Kirkpatrick & Weiss, 1996a). In the 1960s, Little & Mirrlees refined long-standing infrastructure CBA to developing countries by introducing adjustments for their smaller, less efficient markets. As markets are smaller and currencies sometimes controlled, economic values are based on world prices instead

of national prices. Adjustments are made for a smaller savings pool as well as income disparities (Kirkpatrick & Weiss, 1996a). Although very much embraced in the 1960s and 1970s, interest in CBA declined in the 1980s. Since the 1990s there has been an upsurge in its use due to the expansion of analysis from local, easily observable costs and benefits of tangible projects to the wider societal costs and benefits of certain public policies. Examples include environmental taxes (Tukker et al., 2009), total economic value of ecosystem change (Pearce, Atkinson, & Mourato, 2006), setting environmental standards (Pearce, 1998) and even sustainability (Pearce, Atkinson, & Mourato, 2006; Pearce & Atkinson, 1993). In short, the method has been refined and its application expanded from public sector investments to public policy analysis.

The basics of CBA are that for a project to be justified, the benefits should outweigh the costs. Economic values used are market prices under the assumption of efficient markets. However, for goods and services with no direct market value (e.g. a museum) or no appropriate market values (e.g. production that causes environmental damage which is excluded from the market price) values are based on shadow pricing defined as what an individual must give up to gain an extra unit of the product or service. In some cases the shadow price is lower than the market price. One example is the higher real wages in Cancún during its initial construction were such that they drew more than 10,000 workers is less than one year because of high unemployment. The shadow price would have been lower to signal the employment benefits of such a project. Conversely, the current shadow price of a tourist package to Cancún is higher today because of the environmental damage of tourism that is not charged to the tourism companies. Shadow prices can be obtained using stated or revealed preferences, a contingent valuation

method called a willingness-to-pay (WTP) and, in the event of losses, a willingness-to-accept (WTA) or compensation.

CBA analysis is said to be superior to several decision-making project evaluation techniques because CBA monetizes both the costs and the benefits. Rather than arguably biased expert opinion, CBA relies on household surveys of WTP and WTA. As projects have costs and benefits that extend over periods of time, CBA incorporates the time value of money using net present value which is the net cash flow from an asset or project minus the net cost of the investment. Judgement is required to estimate the appropriate interest rate factor to apply and the timing and amount of the cash flows.

It was through CBA that many of the valuation and costing methods employed in accounting and economic systems were developed. Although not an accounting system, CBA differentiates current and future information. Although current CBA increasingly incorporates NA, the continued focus on income reduces NA to the handmaiden of EA and wealth. CBA applies weak sustainability assumption rather than strong sustainability but CBA does monetize physical units for comparability of optimal projects. The biggest shortcoming is that the net-present-value calculations can reduce critical resources to almost zero value which detracts from sustainability discussed following in greater detail.

<u>Informational Requirements and Accuracy</u>

CBA clearly acknowledges that the method applies to project appraisal. Using current data, CBA aids in the selection of optimal projects that maximize future benefits. Pearce et al (2006) argue that CBA is the most comprehensive method of project

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appraisal as it incorporates more social costs and benefits than other methods as well as adjusts for income disparities.

Other authors are sceptical about CBA. Ex-post verification of projects has shown that the value judgements for project approval lead to an overestimation of benefits and underestimation of costs by planners (Flyvbjerg, 2005; Smith, 1995: 289). Flyvberg (2005: 2) found that there were cost overruns in 90 percent of infrastructure projects in all twenty countries and all five continents analysed. Benefit shortfalls were common due to excessive costs and delays. Costs were understated and benefits overstated due to erroneous forecasting from optimism bias as well as political pressures to push uneconomic projects.

Assets or Income

CBA is clearly a focus on income and future income flows. In the absence of market prices, income flows are estimated using contingent valuation methods such as WTP (household surveys) or shadow pricing, the maximum price that management is willing to pay for an extra unit of a given limited resource. There is also the issue of appraising expansions, sustainability and the environment. For additions to existing projects, CBA does not consider existing benefits or sunk costs, only future benefits and new costs (Smith, 1995). Expansions could look attractive since damage inflicted by the initial project on NA is ignored.

Nested relationship of NA, SCA and EA

Environmental CBA is an explicit recognition of the importance of NA to sustainability. For example, Total Economic Value is just one of the methods to measure

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the economic value of an environmental asset (Pearce, Atkinson, & Mourato, 2006). The limitation is that only environmental assets with economic (productive) value are recognized. The lack of recognition of the intrinsic value of some environmental assets demonstrates that NA is nested within EA, not the reverse.

Strong or Weak Sustainability

As for sustainability, traditional CBA assumes weak sustainability: the substitution of man-made assets for natural capital. But more recently, environmentally sensitive CBA has introduced the idea of a project portfolio of offsetting projects and an attempt to introduce strong sustainability. As Pearce et al (2006: 237) explain, 'portfolio sustainability' starts from the assertion that certain natural assets are so important or critical (for future, and perhaps current, generations) so as to warrant protection at some target level. In methodological terms, this has resulted in the idea of a shadow or compensating project meaning that projects causing environmental damage are "covered off" by projects that result in environmental improvements. The overall consequence is that projects in the portfolio maintain the environmental status quo.

The offsetting of NA with environmental improvements (human intervention) is the operationalization of weak sustainability. Although this is a step to recognizing and compensating environmental damage, key questions to be addressed to delimit the portfolio include the planning horizon and the incorporated territory for an offsetting portfolio (Pearce et al, 2006). As with any balance sheet, asset boundaries and treatment of assets alter representation of the entity.

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There are two categories of resource valuation methods: replacement cost with its concomitant assumption of weak sustainability and resource rents for irreplaceable resources, i.e. strong sustainability. The resource rent method is inspired by the idea of sustainable income and aims to separate the sustainable from the non-sustainable income portions As non-renewable resources are irreversibly lost in the process of use, non-renewable resource extraction represents the incremental liquidation of an existing asset. Rental income that accrues from resource extraction is, therefore non-sustainable into the future and should either fully or partly deducted as a function of extraction (Neumayer, 2000). The critique of resource rents is that it requires the valuation, often complicated, of the entire asset from which rents are subsequently deducted. Nonetheless, it is a more faithful representation of current and future stocks.

Monetization or Physical Units

One of the values of CBA is the monetization of non-traded public goods to improve comparability of different options. But because CBA is clearly not an accounting system, the values are not added to the balance sheet. Instead, valuation of events critical to intergenerational equity is used in the calculation of net-present-value and the comparison of projects. The current valuation of distant future cash flows to the present can reduce to negligible amounts, even zero, the benefits/costs of events that are crucial to sustainability.

Net-present-value is one of the most important tools in the CBA. The calculation requires judgement to estimate the appropriate interest rate factor to apply and the timing and amount of the cash flows. The criticism of net-present-value is that it potentially

reduces intuitively large problems faced by future generations to virtually zero because future cash flows once discounted over a long time horizon net out to nothing.

<u>Reliability and Comparability</u>

Although CBA does recognize and attempt to quantify NA, it references income and costs rather than assets and depletion. Moreover, questions arise as to valuations methods. CBA has been criticized because of the subjectivity required in the determination of which costs, which benefits, who benefits and the amounts estimated to be willingly paid or received for social goods and services (Pearce et al, 2006). Although CBA acknowledges and tests how society values non-traded public goods, the use of WTP surveys as proxies for price has been criticized as skewed in favour of higher-income households (Pearce et al, 2006: 31). Households unfamiliar with resources, e.g. a ski hill to a low-income family, may not have a clear sense of the consequences of the good or service for which they are being asked to pay (Cameron, 2008). Those with lower household budgets are further disadvantaged with substandard services and environment quality because their budgets and experience constrain their responses.

Another example is the method used to estimate environmental damage. In the absence of local information cost estimates may be derived from one region and applied to another region. This assumes that environmental impact within one country equates damage in any country. Otherwise stated, the technologies used and emissions produced are the same worldwide (Tukker et al., 2009). Such assumptions influence outcomes that alter estimated benefits (positively or negatively) and heavily influence the approval or rejection of the proposed project.

Conclusion

CBA was presented here not because it is in itself a valuation method or an accounting system. However, through CBA many valuation methods have been developed and tested which are necessary to move away from market-centred, value-in-exchange measurements and experiment with value-in-use measurements. It is value-in-use that better proxies for sustainability. Despite the limitations, contingency valuation and net-present- value are better measures than none at all.

For more complete models, five accounting models are examined for their conceptual frameworks and accounting methods, all of which employ the valuation methods just presented. The goal is to determine the model that best couples with accounting fundamentals over the broadest range of assets to provide relevant information about sustainability within the national or sub-national territory. The most complete model is one that acknowledges that welfare is current whereas sustainability is about the future. Ensuring the future means a focus on NA, SCA and EA. All three asset categories are included and correctly nested. The management of the assets should be guided by strong sustainability. To facilitate comparability and policy-making information is monetized. Following is a description of the five models and assessment of each to determine the fulfillment of the above criteria.

National Wealth Models to address Sustainability

Sustainability measures are a growing area of interest for academics and practitioners in terms of both theory and practice. A trend in the sustainability literature, for example, is to examine sustainability conceptually (Daly, 1996; Hodge, 1997) and more recently to move from the conceptual framework to models for measurement (Costanza et al., 2004; Dietz & Neumayer, 2007) in order to determine genuine progress and direct policy.

To measure economic wealth, development and sustainability, several National Wealth Models (NWM) have been proposed over the past decades. Rather than an exhaustive review, I will review the most important methods which have been heuristically divided into market models and *polis* models. Market models are based on assumptions of rationality and market efficiency through fully-informed self-interested individuals seeking to maximize personal wealth. Market-based sustainability models seek to supplement the GDP and still begin with NEA and SNA. Within the category of market models and a focus on efficiency, I include the System of Integrated Environment and Economic Accounting (SEEA), and Genuine Savings (GS). These technologies originate from economics and rely on (relatively) efficient markets to determine prices. Public policy is based on the assumption that aggregate income, however generated, is the best outcome (Kirkpatrick & Weiss, 1996a). Jackson & Roberts (2006) call this 'tonnage ideology'.

Conversely, the *polis* models are based on the assumptions of the advancement of public interest, cooperation as well as competition, and acceptance of the ambiguity of information rather than assuming perfection. Conflicts that arise are between public

interest and self-interest, referred to as commons problems (Stone, 2002). These models reject the GDP and forge new trails because the GDP is based on the untenable assumption that greater production and consumption necessarily signal progress. These models include the Human Development Index (HDI) and the Index of Sustainable Economic Welfare (ISEW), the predecessor to the GPI. Debate is continuous on how to quantify ambiguous but essential measures of true wealth. Wealth is not simply 'tonnage' but a host of qualities such as health, leisure time, heritage sites and security which impact wellbeing. Although these models also have their origins in economics, they have deviated sharply due to the recognition that increased material output is not always synonymous with improved well-being. However, these models are difficult to operationalize due to widespread debate over valuation methods coupled with techniques for statistics-gathering still heavily focused on macro-economic models of individualistic material output, equilibrium and efficiency.

Both categories of models will be evaluated based on the identification of users' information requirements and relevance of information supplied; the range of assets that are recognized and nested (EA within SCA within NA). Are assets such as NA or heritage properties 'on the books'? If so, are they treated as consumption (i.e. income) or an asset? How is the asset valued and is the method reliable, verifiable or at least transparent in terms of layers of reliability? Lastly, does the information proxy for strong sustainability? The information, to be useful, should have the broadest comparability over time (within an entity) and over space (between similar entities).

Market Models

Rather than one proposal, the 'Green' National Accounting includes a variety of NEA derivatives including Net National Product-NNP and Environmentally-Adjusted GDP - EGDP (Smulders, 2008). Of the numerous, overlapping and often confusing proposals, the models selected for examination here are those that are carried and diffused by influential international organizations such as the UN, the WB and the OECD. All offer detailed, practical manuals offering norms and rules for their proper deployment. One is an extension of the NEA, the environment satellite accounts in the SNA, sometimes called 'green' GDP (Pannozzo & Colman, 2009) and officially called the SEEA. The most recent manual dates from 2003 (SNA 2008, 2009; United Nations, 2003). Another and more recent method is Adjusted Net Savings, also called Genuine Savings (GS), developed and diffused by the WB (Bolt, Matete, & Clemens, 2002).

Green National Accounting attempts to link consumption per capita with its contribution to individual wellbeing (Smulders, 2008) by subtracting undesirable by-products of production such as costs of pollution and depletion of non-renewable resources. GNA seeks "to measure to what degree the lifetime utility of **the representative agent** in a country increases over time" (emphasis added, Smulders, 2008). Therefore, public welfare is the sum of all private consumption, i.e. no public goods within intrinsic value. These models start from the premise that undistorted markets can exist. At one extreme, that of national accounting, if there is no marketplace there is no recognition. For example, there is limited recognition of community assets such as museums and national parks, and no recognition of assets with no ownership

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such as oceans despite economic benefits from fishing (SNA 2008). Primarily man-made assets (fixed, produced capital) are recognized, valued and depreciated.

The World Bank's Genuine Savings is a major improvement over GDP/GNP thanks to an expanded definition of what constitutes an asset both natural and human, and therefore what needs to be protected from over-exploitation or reinforced such as education. The sum of these three capitals (built, natural and human) is the WB's measure of national wellbeing. However, the calculation starts with the GDP and then adds or subtracts to adjust the GDP. The assumption that the GDP is a viable springboard places the Genuine Savings model within market models.

In the following section there is a discussion of SEEA first introduced in 1993, in other words how the SNA recommends treatment of NA within the satellite accounts to arrive at a measure of sustainability. Next is GS and the World Bank's Development Index based on the GS which has been published since 1999 and calculated for many countries since 1970 (Bolt, Matete, & Clemens, 2002). As these models often start from Net National Product (NNP), I start with a brief explanation of NNP. Each is assessed for relevance, recognition, reliability and comparability as pertains to sustainability.

Net National Product (NNP)

NNP is GNP less capital cost allowance (CCA)[12]. Net Domestic Product (NDP) is GDP less CCA. In short,

NNP [NDP] = GNP [GDP] minus CCA.

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[12] Economists often refer to CCA as depreciation. However, depreciation is calculated based on accounting principles whereas CCA is the amount regulated by the government to be allowed as an annual deduction for capital depletion. To avoid confusion, CCA is used instead of depreciation.

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NNP measures the EA available for all uses without reducing the country's productive capacity.

The concept behind NNP was introduced by Sir John Hicks in 1946 who proposed a calculation of income that indicates the sustainable level of consumption to avoid creeping impoverishment (Daly, 1996). The deduction of CCA adjusts GNP for the depletion of machines, buildings, roads, etc. This net amount is to guide policy-makers and the public of excessive consumption levels. However, Daly (1996) questions whether the deduction of CCA alone indicates sustainable consumption. He argues that "because the production of NNP requires supporting activities that are not biophysically sustainable, and the measurement of NNP overestimates the maximum net product available for consumption, NNP fails to account for the depreciation of reproducible national capital (forests, fisheries) and for the liquidation of nonreproducible natural inventories (oil, gas)" (Daly, 1996: 100). In other words, NNP is an inflated measure of income due to the non-recognition of vital NA. Moreover, the addition rather than the subtraction of defensive expenditures (oil-spill cleanup) is a failure to recognize "mutually interfering, self-cancelling activities" (Daly, 1996: 101). These serious flaws make NNP [NDP] measures that do not satisfy the information requirements of providing relevant information to end users. NNP [NDP] provides at best Layer 1 information: that which is separable and completely reliable. Information to be relevant must incorporate predictive value and feedback value which NNP measures fail to accomplish.[13]

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[13] As for comparability, NNP [NDP] suffers from further complication common to most methods of incomparability internationally because CCA rules vary by country.

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Daly (1996) recommends the deduction of both defensive expenditures and natural asset depletion to better approximate sustainability. These relatively simple deductions entail no changes in the current structure of the SNA but simply sum the two accounts. In the following section on SEEA 2003, the inclusion of NA and defensive expenditures are explored more thoroughly.

System of Integrated Environmental and Economic Accounting (SEEA)

While the SNA has a history of more than 50 years, the practical application the System of Integrated Environmental and Economic Accounting (SEEA) is less than two decades old. The first draft of the SEEA manual was published in 1993 based on pilot studies in Papua New Guinea and Mexico (Natoli, 2008). The goal was to establish an environmentally corrected Net Domestic Product (Aaheim & Nyborg, 1995) because of the importance of NEA to policy as explained here.

> National income accounts are crucial because they constitute the primary source of information about the economy and are widely used for assessment of economic performance and policy analysis in all countries. However, the national income accounts have a number of well-known shortcomings regarding the treatment of the environment. For example, while the income from extracting minerals or harvesting timber from natural forests is recorded in the national accounts, the simultaneous depletion of minerals and natural forest assets is not; perhaps more importantly, essential life-support services provided by forest ecosystems are not recognized at all. This can result in quite misleading economic signals about economic growth and development. (Lange, 2007: 589)

In the 1993 manual and the follow-up 2003 manual, these satellite accounts are first estimated by resource accounts in physical units, the core accounts in tonnes, adjusted for environmental depletion to arrive at a net amount in tonnes (see SNA2008, Chapter 29 - Satellite Accounts). Then the depletion is monetized using one of three

recommended methods: (1) market valuation; (2) maintenance costs; and (3) a combination of market valuation and willingness to pay.

Valuation

Maintenance costs are the costs of avoiding the damage or depletion at the outset. If the costs of prevention are low, this valuation could lower the value of the assets. Another maintenance cost is the cost of repairing damage. Because the cure is often more expensive than prevention, this valuation is often much higher. In the absence of market values, WTP or willingness-to-accept (WTA) by those most affected by the damage are other methods to estimate asset cost and depletion. However, the amounts resulting from avoidance costs, repair costs, WTP and WTA will differ. The policy signal of how to protect or repair public goods differs depending on the valuation method (Aaheim & Nyborg, 1995).

Then there is the valuation of traded resources such as timber (renewable) and non-renewables such as coal and petroleum. Two approaches are suggested: the depreciation method and the User-Cost method. Under depreciation the full value of the environmental stock is estimated and then depreciated based on extraction. This is similar to depreciation of EA. The difficulty is valuating the entire stock of the resource. Therefore, the User-Cost method is said to be simpler. Rather than a focus on total stocks minus depreciation, User-Cost is a focus on value-added (El Serafy, 1997). El Serafy's method proposes estimating the maintainable income flow that could be produced from the earnings of the resource depletion. "If part of the revenues were invested, then future returns on that capital would allow for a higher sustainable consumption than if the country did not possess the natural resource in the first place" (Aaheim & Nyborg, 1995:

63). However, the User-Cost method is based on the unrealistic assumption of constant prices and extraction levels.

In short, many economists do not trust non-market valuation methods such as WTP for the reasons previously explained and therefore, as the name implies, these accounts are peripheral to the main GNP accounts so that the imputed costs do not contaminate the GNP figures (Aaheim & Nyborg, 1995; Natoli, 2008). However, it is unclear why estimates of Research and Development can be included in the core GNP accounts while natural resources are relegated to the satellite (SEEA) accounts. Although both are controversial in terms of valuation, arguably R&D is more controversial as it also poses a problem with recognition.

A3.47 ...R&D in this way, several issues have to be addressed. These include deriving measures of research and development, price indices and service lives. (SNA 2008, 2009: 585)

Weak Sustainability and Asset Priority

Other issues involving valuation is the estimation of maintenance of lifetime utility which is based on the clear assumption of weak sustainability, that non-renewable resources can be replaced with man-made resources (Lange, 2007). Although SEEA applies weak sustainability, Dietz & Neumayer (2007) argue that it is possible to calculate strong sustainability (Dietz & Neumayer, 2007). Even so, the location of these accounts as satellite means that NA are the handmaiden of EA. Moreover, as an extension of the SNA, the institutions responsible for data-collection and calculation are

the same as those for the SNA and the calculation of the GDP: the Bureau of Economic Analysis in the USA and Statistics Canada.

Flows versus Stocks

As to my criteria this calculation is recognition of the need to provide more information to users as to environmental damage and an attempt to monetize the damage to send signals to policy-makers. However, the satellite accounts only address NA not SCA, and are criticized for being nothing more than a refinement of value-added rather than a measurement of welfare (Aaheim & Nyborg, 1995).

As to asset recognition, income is given primacy over tangible assets. "Assets as defined in the SNA are entities that must be owned by some unit, or units, and from which economic benefits are derived by their owner(s) by holding or using them over a period of time" (SNA 2008, 2009: 7). As the atmosphere is not owned, damage from GhG is not accounted for. Because assets are not fully recognized, similarly treated is asset depletion or degradation. Moreover, not only are tangible assets not fully recorded, intangible assets such as 'life-support services' are not recognized at all (Lange, 2007). The outcome is incomplete information, distorted representation and poor decisions.

In short, asset accounts to measure national wealth are rare. Smith (2007) observes that "relatively few countries compile national balance sheet accounts, despite the obvious importance in all nations of measuring national wealth and its evolution. The one element of the system that no country ignores is the income and expenditure accounts, as these are the basis for estimating the widely used economic indicator Gross Domestic Product" (Smith, 2007: 595).

As many authors observe, environmentally adjusted satellite accounts repeat the errors of GDP/GNP in giving primacy to flows over stocks and value-added over welfare. Moreover, SCA are not recognized. The World Bank's Genuine Savings, discussed next, corrects some of the shortcomings of the SEEA.

Genuine Savings (GS)

The closest to pure economic theory of green national accounting is genuine savings as it corrects for consumption of resources, damages to the environment and unlike SEEA recognizes investment in education (Smulders, 2008).

> Standard national accounts label as an investment less than ten percent of this amount, that portion which is spent on fixed capital such as school buildings. Non-fixed-capital expenditures on education (called "current expenditures") include teachers' salaries and the purchase of books, and are treated strictly as consumption—a disinvestment in the future. Within the adjusted net savings framework, however, this is clearly incorrect (Bolt, Matete, & Clemens, 2002: 7)

Recognition

GS is a calculation of assets key to development: produced capital, natural resources and human capital. By treating economic development as a process of portfolio management, the authors argue that "investments in produced capital, human capital, and governance, combined with saving efforts aimed at offsetting the depletion of natural resources, can lead to future welfare increases in developing countries" (World Bank, 2006: ixi). Note that his method is similar to 'portfolio CBA' explained above. As to recognition, it treats as assets non-capital expenditure on education that is calculated as consumption and flows under regular GDP. Moreover, it recognizes non-owned assets

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such as the atmosphere through damage caused by carbon dioxide emissions. Elements of the calculation include loss of welfare through human sickness and health.

Although the inclusion of education in the accounts is a positive step, some authors argue that education expenditure is highest in high-income countries and therefore skewed. GS is often found to be positive in Europe and Japan (thanks to high savings and investment in education) and negative for Africa and oil-producing countries (due to the depletion of oil reserves). The latter results are quite sensitive to the way resource depletion is accounted for. Although an improvement over other market models and an aid to assessing stewardship, GS is more a measure of unsustainability than sustainability.

<u>Relevance</u>

The GS uses assets as the primary source of information and reclassifies education as an asset. However, the method is criticized for the calculation of rents to proxy for depletion and the assumption of weak sustainability: perfect substitution of environmental damage through man-made capital. Strong sustainability requires the maintenance of NA such that the ecological integrity remains intact (Pillarisetti, 2005). Weak sustainability is an untenable assumption when applied to total ecosystems especially in developing countries where the GS is said to be of greatest value.

> as environmental degradation in the early stages of growth are reversed at later stages such that environmental quality will improve… This relationship is most likely to hold for environmental quality variables such as purity of drinking water, sanitation and others but less likely to hold for factors like carbon emissions, loss of forest cover and other, such that it is unable to provide insights on system-wide consequences of growth. (Pillarisetti, 2005: 600)

Furthermore, authors have found that a country's outcome as a positive or negative Genuine Saver is very sensitive to rent charged on environmental assets. In one study, African countries went from a negative GS to a positive GS resource rent by adjusting the percentage rent. Applying the correct rent is important because it heavily influences the net outcome of a nation and possible policy decisions made as a result (Natoli, 2008; Neumayer, 2000).

<u>Comparability</u>

Despite these drawbacks, the GS has the major advantage of having been calculated for more than 120 countries and for more than a decade. But comparability is relatively unimportant if the wrong signals are being sent.

> explicitly accounting for the different components of wealth, have at least brought to the fore the concept of an expanded measure of wealth that includes HC [Human Capital] and NC [Natural Capital]. Unfortunately though, the GS falls into the same trap as the GDP by preferring quantification and aggregation at the exclusion of a multidisciplinary approach. By aligning itself to the market, the GS national wealth calculations devalue all that is excluded, whether it is household duties, HC or the environment (both physical and natural). The end result is that the GS is a measure that continues to neglect important factors critical to progress, thus justifying the continuation of unsustainable practices. (Natoli, 2008: 72)

In general, market-centred models lose their rigour once they enter into areas where there is no market. Moreover, the results continue to make the environment a handmaiden to the economy and often reflect current welfare while ignoring long-term consequences. This shortcoming gave rise to alternative progress measures attempting to better reflect the community and well-being. The next section will review the ***polis***

models, in particular the Human Development Index and the Genuine Progress Indicators (GPI) before proposing my own Balance Sheet for Intergenerational Equity.

Polis Models

In an effort to better measure intergenerational equity and improve policy-making various organizations and academics are developing alternative measures to the current market-centered, exchange-value monetized accounts. Some academics argue that GDP cannot be simply adjusted because neo-classical theory is based on restrictive assumptions of perfect markets in equilibrium, perfect information and no public goods. Under these assumptions value-in-exchange and value-in-use are equal. Thus, future cash inflows from asset use equal its real or estimated value-in-exchange. This assumption is problematic because "basing the valuation of public heritage assets on their physical similarity to privately held assets ignores the types of goods and services they produce and the social, institutional and legal constraints imposed on their use" (Stanton & Stanton, 1998: 195). Without community property there is no community and no recognition of inter-generational issues such as environmental degradation (Pallot, 1992). Another contradiction between neo-classical economic rationality of equilibrium and accounting is that accounting is designed to monitor performance and improve accountability under the assumption that the current use of resources is imperfect (Stanton & Stanton, 1998: 195).

Within the category of *polis* models there are numerous and novel alternatives, some of which are simple variations of the original (ex. the Genuine Progress Indicator is a modification of the Index of Sustainable Economic Welfare). Those selected here for examination are proposed by organizations currently less influential than the market-

model organizations but with increasing legitimacy. They are the UNDP and organizations such as Redefining Progress (USA) and GPIAtlantic (Nova Scotia, Canada). Like market models, these organizations also offer detailed manuals outlining norms and rules for the proper deployment of their method.

The Human Development Index (HDI) was developed by the United Nations Development Programme in 1990 (UNDP, 1990). It is community-centred around the notion of human capabilities of which GDP per capita is but one element, the economic, of five basic freedoms for wellbeing. The HDI deducts, rather than adds as does GDP, detrimental components such as the cost of crime and pollution (McGillivray & Shorrocks, 2005). The HDI is one of the most influential well-being indicators and each year the UNDP produces a Human Development Report.

The second model is the Index of Sustainable Economic Welfare (ISEW), the precursor to the GPI. It was introduced and advanced by influential economists such as William Nordhaus, James Tobin, John Cobb and Herman Daly (Cobb et al, 1995). As they are closely related, the ISEW is evaluated very briefly in conjunction with the GPI.

While some authors use Green National Accounting in reference to the ISEW and the GPI (Smulders, 2008), these models start from the premise that markets alone are insufficient to determine welfare. They evaluate social norms via a list of indicators to incorporate non-market goods and services. In fact, the premise of the HDI is that economic wellbeing is not even the correct starting point. In the following sections there is a brief discussion of each model, its components and the treatment of SCA, NA and EA. Each model is assessed for relevance, recognition, reliability and comparability. Last but not least, rather than develop another new indicator, I use many of the above

indicators and locate the most salient on a balance sheet to illustrate the use of my proposal: a balance sheet for community sustainability.

Human Development Index (HDI)

The HDI was developed to shift attention from the GDP as an indication of well-being. GDP per capita compared via purchasing power parity is incorporated as a measure of standard of living. But equally important, and therefore equally weighted, are education measured by adult literacy[14] (two-.thirds of the education weight) and enrolment (one-third of the education rate) and life expectancy (Natoli, 2008). The HDI has been calculated for more than a decade and for more than 170 countries which means that for international comparability the HDI is very useful. In terms of information users and policy-making, the international legitimacy of the HDI encourages policy-makers to shift resources from economic projects to health and education projects as appears to be the case in Mexico that now spends 40 percent of all public investment, up from 25 percent in 1970, on social projects (UNDP - PNUD, 2011a). Mexico's HDI has increased from 0.614 in 1980 to .077 in 2010[15] (UNDP - PNUD, 2011b).

As the HDI is a non-monetized index and a focus on social assets, it fails in terms of relevance and recognition especially in terms of sustainability of assets in general and NA in particular. NA are recognized only as a subset of living conditions proxied by longevity. Implicitly the HDI nests NA within EA within SCA, again making NA a handmaiden to man-made and human capital. As such, the HDI has little relevance to

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[14] In 2010, the HDI was changed to mean years of schooling and expected years of schooling from literacy and enrollment rates.

[15] See Part III for more details on Mexico's development.

sustainability because income is a key source of information, the focus is current and if there is a measure of sustainability, it is implicitly weak sustainability.

To better reflect NA, Neumayer (2001) proposes an adjustment of per capita GDP to incorporate net depreciation. He argues that if net depreciation of its manufactured and natural capital stock is bigger than its investment then a country is 'mortgaging the choices of future generations' (Neumayer, 2001). However, this is simply tinkering with the index and does not resolve the key issue of NA as the foundation of any measure. The ISEW first developed by the economists William Nordhaus, James Tobin, John Cobb and Herman Daly (Cobb et al, 1995) attempts to shift the focus to NA in its measure.

Index of Sustainable Economic Welfare and the Genuine Progress Indicator (GPI)

Another well-known indicator is the index of sustainable economic welfare (ISEW, initiated by Daly and Cobb, 1989). It is an extended measure of green NNP (and therefore aimed at measuring welfare) that starts from conventional income, adds changes in environmental quality, imputes value of non-marketed activities (particularly household work), subtracts consumption expenditures that do not directly contribute to welfare (such as health and pollution abatement expenditures), and weighs on an ad hoc basis remaining expenditures by measure of income inequality. Roughly the formula is:

ISEW = personal consumption

Plus non-defensive public expenditures

   Minus defensive private expenditures

Plus capital formation

Plus services from domestic labour

<u>Minus</u>   costs of environmental degradation

<u>Minus</u>   depreciation of natural capital

While some argue that it is an improvement on GDP (Stockhammer, Hochreiter, Obermayr, & Steiner, 1997), others argue that if differing valuations methods are used for different components, consistency is not always guaranteed and therefore the results are not robust (Neumayer, 1999, 2000). Calculations of ISEW for richer countries show that ISEW is decelerating compared to calculations and comparisons of conventional NNP. One reason is that the ISEW is more synonymous with NA than SCA. For example, the value of leisure time is not included while household work is, and investment in education and technological change are omitted. In an effort to correct these omissions, the next generation ISEW, now called the GPI, adjusts not only for environmental depredation, but also income distribution, housework, volunteering, crime, changes in leisure time, and life-span of consumer durables and public infrastructures. In short, GPI goes much further than the ISEW to integrate the three elements of sustainability: EA, NA and SCA

<u>An Introduction to Genuine Progress Indices (GPI)</u>

A method now being calculated in several countries is the Genuine Progress Indicator (GPI). Although not a complete break from GNP it does challenge the 'growth is good' assumption. This method starts with aggregate personal consumption, rather than production, weighted by the Gini coefficient to adjust for income disparities. From this adjusted consumption value, components are added that reflect improved wellbeing such as household and community work. Then deductions are made for costs of defensive expenditures on health and education, and other costs such as pollution, accidents and

crime (Cobb et al, 1995; Cobb et al, 1999; Natoli, 2008). GPI figures have been calculated for, among others, the United States, United Kingdom, Austria, Sweden, Germany, the Netherlands, Italy and Australia (Hamilton, 1999; Natoli, 2008). Sub-national GPIs have been calculated in Canada for the provinces of Alberta (Anielski, 2001) and Nova Scotia (Pannozzo & Colman, 2009; Pannozzo et al., 2009). As for developing countries to apply it, Chile was the first (Castañeda, 1999) and more recently Thailand (Clarke & Islam, 2005) and China (Wen, Zhang, Du, Li, & Li, 2007). Not only do the results of the GPI confront the notion that growth and wellbeing are synonymous, but the increasing interest in the GPI demonstrates a broad-based movement towards more accurate measures.

GPI is not without its detractors. As with the other measures, criticisms refer to items included or excluded and valuation techniques. For example, GPI while adjusting for income disparities, does not account for gender inequalities. As to valuation, one example is the controversy over the valuation of depletion costs of non-renewable resources, one of the largest deductions to arrive at GPI. The GPI assumption is that non-renewable sources are completely replaceable by renewable energy sources. Additionally, Hamilton (1999) argues that the $75 per barrel replacement cost used in the USA overstates US GPI in view of the declining prices of renewable energy alternatives. Notably, this criticism of inclusion / exclusion and valuation is common to all selected measures from public sector accrual accounting to the GPI calculation. But the GPI's advantage is that it privileges human development and intergenerational equity over a narrower focus on economic production and short-term growth.

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<u>Comparability: Applications of the GPI</u>

As mentioned above at least nine countries have calculated their GPI. However, each study has made adjustments based on an assessment of the GPI methodological shortcomings and needs for the particular region (Clarke & Lawn, 2008). For example, Austria uses a coefficient different from the Gini coefficient to adjust for distributional inequities (Natoli, 2008). In calculating Australia's GPI, Hamilton (1998) adds all public-sector spending unless it is clearly defensive, a sharp contrast to the US GPI. The US GPI omits key progress indicators such as health and education. Both the GPI for Australia and Nova Scotia include them (Hamilton, 1998; Pannozzo & Colman, 2009). The GPI for Thailand calculated the costs of corruption and the commercial sex trade (Clarke & Islam, 2005). And although Cobb et al (1999) arrive at a net GPI, Pannozzo & Colman (2009) have warned against the reduction to one number as they found that the "aggregate index was fraught with serious accounting problems, data shortcomings, excessive subjective valuations and weighting, and the omissions of key progress components" (Pannozzo & Colman, 2009: iv). Instead they recommend a series of indicators to assess progress combined with accounts to assess value in order to build an economic valuation onto the measures of progress. As Pannozzo & Colman explain

> Accounts form the basis of government financial incentives and penalties—including taxes, subsidies, and investments in particular sectors of the economy. And those financial incentives and penalties in turn affect price—which is the most immediate, powerful, and effective determinant of behavioural change. (Pannozzo & Colman, 2009: 16)

While Pannozo & Colman warn against a reduction or summary to one number, a single-figure, monetized aggregate to indicate trends is arguably the seduction of the GDP.

One last methodological limitation is the selection of the indicators. A statistic is not an indicator and not all indicators are of equal value. Good indicators are those that provide a clear and accepted benchmark, are readily understood, feasibly collected, and measure what they are intended to measure (Pannozzo & Colman, 2009). Otherwise said, the measure should be a faithful representation of what is being measured. Pannozzo & Colman (2009) give one example in reference to education. They suggest the need for new surveys to better capture the quality of education. School enrolment and graduation rates such as those used in the HDI indicate quantity of students but fail to capture the quality of education. However if statistics and surveys are not available at the national level, it is unlikely the information is collected at the sub-national level.

Yet subnational studies are of equal or greater importance than national studies to assess development strategies such as regional tourism. While national GPIs point to overall trends, sub-national studies serve to focus regional policies on specific attributes of that region often dependent on mono-industries as is the case of Cancún. However, the problems of comparability indicated above are complicated by two further but interrelated problems in conducting sub-national studies: data availability and extrapolation. Local or regional data or surveys are often lacking especially for the environment (Wen et al, 2007; Clark & Lawn, 2008). Also complicating calculations is the overlap effects of neighbouring localities, i.e. how to account for pollution in the study locality that originates in a neighbouring locality? Assumptions are made, values

are extrapolated and estimated redundancies deducted exposing the GPI figures to further criticism.

The GPI Advantage and Emerging Economies

As mentioned above, GDP is particularly misleading for countries heavily dependent on primary sector exports and ecosystem services, the case of most less-developed-countries (LDCs). For example, natural resources account for 80 percent of all exports in Chile. Depletion of the forests is underestimated because soil erosion and biodiversity loss is unaccounted for. As for ecosystem services, the top twenty-five nations ranked according to the contribution of tourism to GDP are island destinations. Beach erosion from unsustainable construction and coral reef destruction from disasters and abuse, reduce the attraction of these destinations but yet is unaccounted for. The measurement of environmental degradation in LDCs is particularly important because of the strong links between the environment and poverty (Castañeda, 1998). This is referred to as the 'Resource Curse', that most developing countries endowed with great natural wealth have performed worse, economically, than developing countries not 'cursed' with such wealth (Lange, 2007). Moreover, in LDCs much production takes place in the household economy and/or outside the formal economy hidden from GDP measures. Therefore, a development strategy based on raising the GDP undermines the environment and the household economy, and diminishes the well-being of the nation's people while destroying the habitat (Cobb et al, 1995).

Although national GPIs point to overall trends, sub-national studies are necessary to better focus regional policies on specific attributes of that region. As Clarke & Lawn (2008) observe, the GPI is less than perfect but its imperfections are not so grave as to

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make it redundant. The role of the GPI is to spur debate about policy directions and resource allocation. Many of these questions currently addressed by economists could also be analyzed by public sector accountants who regularly debate similar issues: relevance, reliability, measurability and comparability. Information relevance to improve decision-making is a subject raised regularly by accountants (ex. Mattessich, 1995; Wallman, 1996). Measurability is a major issue now that many countries are moving to public sector accrual accounting (OECD, 2000, Pallot, 1992; Stanton & Stanton, 1998). As for comparability, just as the SNA (SNA 2008, 2009) define core accounts and satellite accounts, it is important to agree on the core measures of the GPI (Clark & Lawn, 2008). These core measures can then be supplemented with localized accounts to provide a second bottom-line. In short, many of the current shortcomings of the GPI are those that accounting in general and PSA in particular struggle.

GPI's Disadvantage: Failure to Recognize Assets

One limitation of the new measures is that the data required to proxy for sustainability is limited to the information provided by statistical collection based on measuring growth and the calculative practice of GDP accounting. By using the data provided by this accounting, GPI measures are considered unreliable due to excessive estimations and extrapolations (Neumayer, 2000). Arguably this criticism is unjust because accounting approximates economic reality pragmatically on the basis of particular norms (Mattessich, 1995). Accounting is expected to achieve fair representation not perfection. Another criticism regards the monetization of indicators, the ethical question of monetizing the invaluable. Pannozzo et al (2009: p. 29) argue that monetization is not to compensate for the full extent of loss or gain in human terms but is

a market-based proxy for far-reaching values that draws more attention, speaks to a larger audience and allows for decision-making.

Improved data and valuation are increasingly reliable and the information presented is highly relevant. While there is recognition of broader assets and beneficial expenditures such as health prevention and defensive expenditures such as prisons, the GPIs main failing is the focus on adjustments to national income (flows) rather than asset recognition and sustaining these assets. The numerous monetized indicators are not formatted into a balance sheet despite much talk of 'new accounting' within GPIAtlantic's documents. The absence of a balance sheet means that asset maintenance is obscured and important linkages between maintenance and depletion are not coupled. Subsequently, policy focus is still limited to disparate indicators and bounded disciplines rather than remedial action based on broader outcomes. In the absence of a balance sheet, GPI is a measure of **un**sustainability.

A Balance Sheet for Asset Sustainability

To make the impact of policy decisions affecting important assets more visible, a balance sheet is fundamental. Normally the balance sheet is arranged from higher to lower liquidity. Here I propose that assets be arranged from greater to lesser longevity. Otherwise said, the left-hand (asset) side is arranged by fleeting EA on the bottom, more permanent SCA in the center and long-term NA top the list. The right-hand side comprises liabilities such as overuse, abuse and borrowing. These are events, natural and human, that deplete the assets on which future generations depend for their social and economic benefit. In addition to NA depletion, human insecurity (financial, economic and physical) is a deduction from SCA and EA. High interest rates, job insecurity and

physical danger are costs that diminish disposable income for housing and education (SCA). The sum of assets (NA+SCA+EA) minus depletion equals intergenerational equity. Otherwise said intergenerational equity is the net claim on NA, SCA and EA pursuant to borrowing on those assets by the current generation through environmental depletion and human insecurity.

Figure 3: Outline of Proposed Community Balance Sheet

ASSETS	DEPLETION (Liabilities)
Natural Assets (NA)	Environmental Depletion
Social-Cultural Assets (NA)	Human Insecurity
Economic Assets (EA)	TOTAL DEPLETION
TOTAL ASSETS	INTERGENERATIONAL EQUITY

Separating the depletion from the assets allow for the manifold effects of degradation to become visible without specific attribution to any one asset which could be insufficient, inappropriate and/or spurious. Moreover, a separate depletion account facilitates policy-making by highlighting the costs of poor decisions or inaction. The main limitation of this model is the implicit assumption of weak sustainability in that the maintenance of total assets would not affect intergenerational equity. However, strong sustainability could be introduced through an explicit rule that NA must remain constant while only SCA and EA can be modified for the sum of total assets to properly represent intergenerational equity.

To test this proposal, following is the case study of the marine parks adjoining Cancún and a pilot 2005 balance sheet to increase visibilities of the importance of Cancún's marine parks (CMP) to sub-national intergenerational equity.

## Case: The Value of Marine Parks to Cancún, Mexico

Located in the municipality of Benito Juárez, Cancún is the northern-most city of the eastern-most state of Quintana Roo (QR state) in México. From a population of 25,000 in 1975 and 300,000 in 1995, Benito Juárez's (from here simply referred to as Cancún) population reached 526,701 habitants in 2005 (INEGI, 2006) and in 2010, 610,000 (INEGI, 2011). Over the same period, the population of neighbouring Isla Mujeres grew from 10,000 to 13,315 to 16,203 inhabitants.

Despite the permanent resident growth which encourages economic diversification, Cancún remains almost exclusively dependent on tourism. Cancún has more than 139 hotels and 27,880 rooms of which 88 hotels and 25,283 rooms are in the Hotel Zone (91 percent) (Mora Flores & Moncada Jimenez, 2008). Cancún receives more than 3 million tourists annually up from 2 million tourists in 1995. Tourists spend an average US $1000 per person per trip which translates into more than US $3 billion annually up from US $2 billion annually in 1995 (Mora Flores & Moncada Jimenez, 2008).

To maintain its allure, Cancún depends entirely on natural resources: sandy beaches, crystalline waters and water-related activities. For this reason, three reserves were established in July 1996: the west coast of Isla Mujeres, Punta Cancún and Punta Nizuc. The three 'polygons' form part of the system of Mesoamerican Reefs originating slightly north of Cancún in Cabo Catoche and extending more than one thousand kilometres to the south through Belize, Guatemala and Honduras. The three polygons cover a total of 8,673 hectares of coastal waters adjoining Isla Mujeres and Cancún. As

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such, they are referred to as 'urban marine parks' and in this study called collectively Cancún's Marine Parks (CMP).

Figure 4: Cancún's Marine Parks
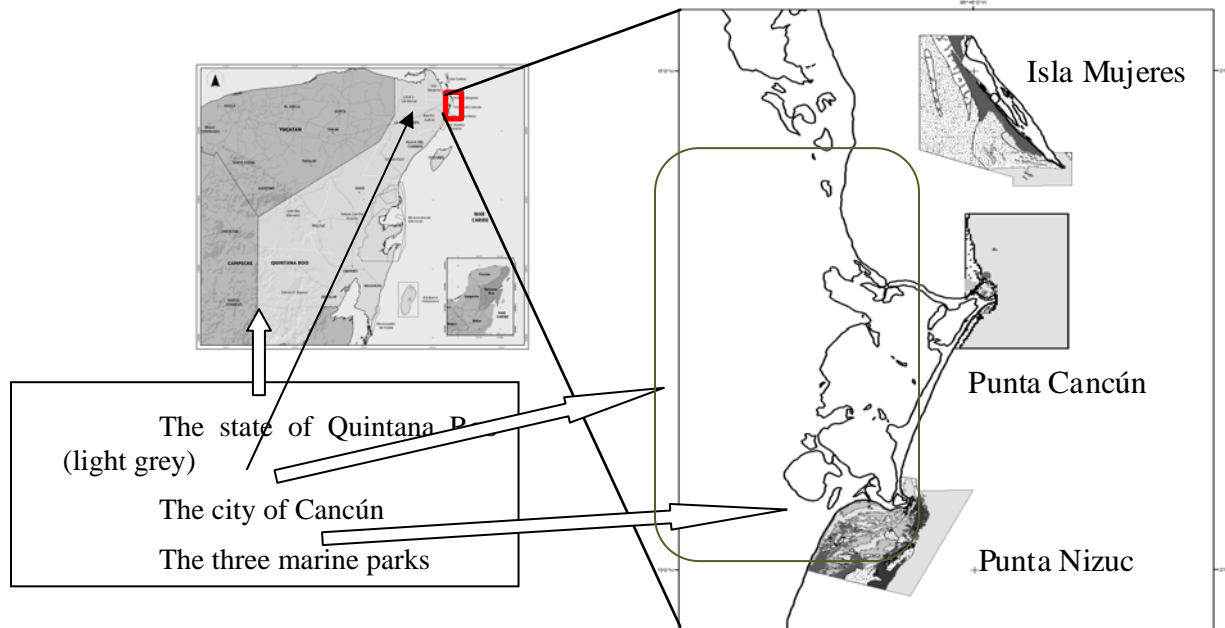
Tourism is a resource-based industry heavily dependent on eco-system services. Eroding beaches from unsustainable construction, increasing hurricanes, contaminated water and site overuse all deplete natural assets which devalue the destination. Devaluation leads to declining numbers of tourists, increased unemployment and hotel price-wars which reduce profitability handicapping hotel maintenance. Unemployment is correlated to increased crime and insecurity leading to more defensive expenditures on security systems reduced disposable income for beneficial expenses such as education and housing. As one example, Cancún tourists and residents produce more than 850 tonnes of solid waste per day dumped in an enormous landfill of 2.6 million tonnes located to the north of the city. This landfill produces 2,300 m3 of biogas per hour. In addition to solid waste, the Nichupté Lagoon is heavily contaminated with illegal waste-

water flowing directly from some hotels and road runoff. The Lagoon emits odours but more serious is the polluted water that contaminates the marine reserve Punta Nizuc most directly in contact with the lagoon. In contrast to the two other polygons, the polygon Punta Nizuc suffers from high algae growth and high rates of coral mortality yet it is the most common destination for Cancún snorkelers.

The following is a proposed methodology for determining the value of healthy marine environments to the city of Cancún. I stress that the balance sheet does not fully represent the benefits provided by the three asset accounts of natural, social-cultural and economic. Nor does it represent all the possible costs of asset depletion. Instead the balance sheet is the 'canary in the coalmine', an early-warning system and a visual aid to problem areas. And monetization, rather than valuating the invaluable, provides a common denominator for the components and as a shared signalling device between policymakers, stakeholders and the general public.

Marine Parks Balance Sheet

Although tourism is the mono-industry of the region and tourists come for the resources, those who actually profit from the resources are the residents who obtain employment and enjoyment from them. Since this is accounting of and for the community, it is the local residents and their wellbeing that are accounted for. This method of defining beneficiaries is defined in Reed et al (2006) as top-down because the context is land use or environmental system in which the indicators are developed (M. S. Reed, Fraser, & Dougill, 2006). Although top-down is criticized as being too complicated and difficult for local populations to use and understand, the bottom-up approach of community consultation to establish webs of inter-relations often lacks

rigour and clear boundaries for measurement. In order to adhere to accounting conservatism and measurability, I determined to limite the measurement to the direct beneficiaries of a resource, marine parks. These beneficiares include the real-estate (hotels) directly adjoining the three polygons, the tour operators who offer the park services to divers and snorkelers, and the Parks' Commission (*Comisión Nacional de Áreas Naturales Protegidas),* hereafter CONANP.

The proposed balance sheet for intergenerational equity is based on proprietorship view of Intergenerational Equity equals Assets minus Liabilities in that Mexican citizens are the owners of the natural assets of the region[16]. The bedrock in the calculation of the Parks' contribution to the community via the economic activity of tourism is as follows:

Figure 5: **Coastal and Reef Community Balance Sheet for Intergenerational Equity**

ASSETS		LIABILITIES	
Natural Assets		**Environmental Impact**	
Bellwether Species	Reef Assoc. Species	Species Depletion	Invasive Species
Reef Services	Park Use		Overfishing
	Coastal Protection	Reef Degradation	Reef Damage
	Sand Production		Ecological Foot & GhG

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[16] The opposing view is that of the entity or A = L + E (or Capital) being funded both by proprietors and by outside lenders, and stewarded by directors or politicians (see Flows versus Assets: Income Statement versus the Balance Sheet). The entity view is the better representation of a firm whose management is, so long as the firm (or government) remains a going concern, largely independent of the providers of funds, the case of tax collection by governments.

Social-Cultural Assets					Water Quality
Volunteerism	Asset Maintenance		**Insecurity**		
	Students		Financial		Debt Levels
	Research		Economic		Household Head
Education	Park Employees				Minors & Elders
	Tour Operators				Health
Housing	Park Employees		Physical		Self-Inflicted Violence
	Tour Operators				Interpersonal Violence
Economic Assets					Household Protection
Parks'	Prop, Plant, Equip		**TOTAL LIABILITIES**		**Impact + Insecurity**
Tour Operators'	Prop, Plant, Equip				
Hotels'	Prop, Plant, Equip		**INTERGEN EQUITY**		**ASSETS minus**
TOTAL ASSETS	**NA+SCA+EA**		**(Net Wealth)**		**LIABILITIES**

Arguably the balance sheet is controversial and contains weaknesses. Nonetheless NA and SCA are more visible, interconnections between the environment, social and economic are made explicit, and policies can be assessed to determine the broader implications. Following is an explanation of the method used to select each account and the valuation methods used for quantification and monetization, the results of which Cancún having lost up to one (1) percent of its finite assets in half a decade.

Method

The recent field of environmental economics has refined methods, especially non-market assets, which allows for an approximation of intergenerational equity. Most important to this study are those based on observed behaviour in humans (WRI, 2009). These include economic impacts, replacement cost, travel cost method, total economic value, and damage and control assessment (Pannozzo & Colman, 2009; Rudd, Tupper, Folmer, & Van Kooten, 2003; WRI, 2009) the latter a form of cost-benefit analysis (Callan & Thomas, 2007; Kirkpatrick & Weiss, 1996b; S. L. J. Smith, 1995). And relatively recent is the non-behavioural method called the habitat equivalency analysis to valuate marine damage and recovery (Milon & Dodge, 2001).

These valuation methods were selected following extensive research, compilation and comparison of existing indices such as the different Genuine Progress Indicators/Indices (for example, Cobb et al, 1995; Cobb et al, 1999; Natoli, 2008; Pannozzo et al, 2009), the United Nations' Human Development Index, the World Bank's Genuine Savings (Bolt, Matete, & Clemens, 2002), and many others previously discussed.

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Figure 6: **Summary of Proxies, Methods and Data Sources used in the Balance Sheet**

ASSETS					
Natural Assets	**Accounts**	**Justification**	**Proxy(s)**	**Method(s)**	**Data Source(s)**
Bellwether Species	Reef Assoc. Species	Food; tourist attraction	High Trophic bellwether species abundance and density: sharks & rays, barracuda and grouper	US$/tonne of sustainable reef fishing	Interviews; FishBase.org; Sea Around Us, 2010; Sumaila et al, 2007; SIIM, 2010
Reef Services	Park Use	Tourism & Recreation	# tourist-days annually attributable to parks	US$ ave. daily total expend **X** #tourists **X** # room-nights (WRI, 2009)	CONANP Data; Cancun's Hotel Association
	Coastal Protection	Real Estate	Km of ocean-front real estate development protected by the reefs	US$ construction per room **X** #hotel rooms	WRI, 2009; CONANP Map; Cancun Hotel Directory; FONATUR
	Sand	Tourism & Recreation	Beach nourishment	US$ / km to replenish Cancun's beach following hurricanes	Welland, 2009; local media
Social-Cultural Assets (SCA)		**Justification**	**Proxy(s)**	**Method(s)**	**Data Source(s)**
Volunteerism - CMP	Asset Maintenance	Community identity	# diver hours volunteered	US$/specialist hour **X** # hours	CONANP information
	Student Svcs (training)	Training students; services to alleviate tight budgets	# student hours	US$/generalist hour **X** # hours	CONANP information
	Research	Community identity; services to alleviate CMP budget	# reseacher hours	US$ / hourly opportunity cost or specialist hour	Researcher information
Education	CMP Employees & Chd	Current wellbeing & long term investment	Total formal education cost of employee plus total cost of two children to similar educational level	Percentage of household expenditure + Per student non-current and recurrent govt expenditure (Genuine Savings)	Mexican Opinion Polls National Socio-Economic Levels 1995 to present; Secretaría de Educación Pública; Comisión Nacional de la Población
	Tour Operators & Chd	Same as above	Same as above	Same as above	Same as above
Housing	CMP Employees	Current wellbeing (health and security) & patrimony	Average house price	Sum of US$ per ave. house per socio-economic level **X** # Wage-Earners per socio-economic level.	Mexican Opinion Polls National Socio-Economic Levels 1995 to present; Internet Real Estate websites
	Tour Operators	Same as above	Same as above	Same as above	Same as above
Economic Assets (EA)		**Justification**	**Proxy(s)**	**Method(s)**	**Data Source(s)**
Parks' Commission	Prop, Plant & Equip	Current and future economic benefits	Undepreciated PPE	US$ Value of equipment, boats and vehicles	CONANP inventory and information
Tour Operators	Prop, Plant & Equip	Same as above	Same as above	Same as above	Same as above
(- Adjoining Hotels)	above				
DEPLETION					
Environmental		**Justification**	**Proxy(s)**	**Method(s)**	**Data Source(s)**
Species Depletion	Invasive Species	Degradation of marine environment; indicators of climate change; Danger to tourists;	Abundance and density of box jellyfish, starfish and lionfish	US$ per kg to eradicate or fish X Av. Weight per fish X density per hectare	Interviews; FishBase.org; Sea Around Us, 2010; Sumaila et al, 2007; NSF, 2010; Sea Turtle Conservancy
Reef Degradation	Reef Damage	Reduction of reef protection; unattractive to tourists	HEA or estimated value based on reef protection	US$ per m2 X m2 damaged	CONANP, 2010; Burke & Maidens, 2004; reefbase.org
	Ecological Footprint & GhG	Coral reef disintegration; water pollution	Costs of cleanup and reduction and/or replacement with biofuels	US$ net benefits per kg of GhG reduction **X** kg/tourist **X** # tourists	Walker et al 2001; Universidad del Caribe Tourism Bulletins
	Water Quality	Transparent marines for reef growth and tourism attraction. Also health concerns	Costs of cleanup, catchment, treatment and reduction	US$ per m for catchment + connection to sewage system and installation of oil traps + institutional resources to monitor and sanction	CONANP 2010; Charles et al, 2002;
Living Standards and Insecurity		**Justification**	**Proxy(s)**	**Method(s)**	**Data Source(s)**
Financial Insecurity	Interest paid over 5 years	Onerous debt levels and interest payments leading to economic instability	Percentage of monthly income for debt	Sum of US$ per ave. house per socio-economic level **X** # Percentage debt per socio-economic level.	Mexican Opinion Polls National Socio-Economic Levels 1995 to present;
Economic Insecurity	Household Head	Unemployment seasonal or permanent reducing household income	Productivity Loss	Inactive days **X** hourly wage **X** #%age workforce affected **X** #Workers	Instituto Nacional de Estadisticas y Geografía (INEGI)
	Minors & Elders	Additional stress on household economy	Increased number of dependents per household; uninsured for pensions and healthcare; teenage pregnancies	US$ per person for food, clothing and housing per socio-econ level **X** increase in dependents per category	Universidad del Caribe Observatorio; Report Salud Quintana Roo
	Health	Stresses on household economy	Dengue from increased water levels; Obesity due to changes in diet and the lack of exercise	US$ per person for treatment **X** % population affected **X** #workers + (Inactive days **X** hourly wage if household head)	Universidad del Caribe Observatorio; Report Salud Quintana Roo
Physical Insecurity	Interpersonal and self-directed violence	Increased defensive expenditures; reduction in disposable income; productivity loss	Direct cost of medical and non-medical + Indirect cost of lost productivity	US$ per person for fatal, serious and slight injuries **X** % population affected **X** #workers + (Inactive days X hourly wage if household head)	WHO - Buchart, 2008; Universidad del Caribe Observatorio; Report Salud Quintana Roo
	Household Protection	Increased defensive expenditures; reduction in disposable income; productivity loss	The sum of household defensive expenditures 5 yrs	US$ annual expense for protection **X** #workers	Universidad del Caribe Observatorio Survey on Violence

Variables and Valuation Methods

The balance sheet of a locality, region or nation includes financial assets and produced capital such as physical plant and equipment but most importantly its natural resource stocks. These stocks increase through conservation and decline due to natural and human disturbance. Similarly, investment in health and education increases social capital while crime and obesity depreciates it.

As for flows, these include local production (goods and services produced and paid for in the market) but equally the value of unpaid work. As with any accounting, costs include depreciation and here we include more than depreciation of plant and equipment but also of natural and social capital. These last two are referred to in classical economics as externalities and excluded. Full cost accounting requires the 'internalization' of social and environmental impacts of economic activity in order to reflect the true costs of production and an accurate market price (Pannozzo & Colman, 2009). To account for these impacts, non-market assets must be valuated because they have real societal value (use-value) in the absence of exchange (Smith, 1995).

Once assets and activities have been identified and valuated (see above Non-conventional methods of valuation), monetization of environmental impacts need to be correctly allocated on the balance sheet (assets minus depreciation) and the income statement (depreciation expense) using fundamental accounting principles whereby conservancy and ecosystem health increases the balance sheet while depletion and destruction decreases assets or increases liability. Ecosystem health thanks to environmental management is intimately linked to socioeconomic progress and the

wellbeing of neighbouring communities (Pannozzo & Colman, 2009). To supplement the environmental data, the monetization of various social indicators will also modify the balance sheet totals. It is long-term trends in the balance sheet, and especially a net increase in assets, that are fundamental to societal wealth and sustainability.

Valuation Variables

Although tourism is the mono-industry of the region and tourists come for the resources, those who profit from the resources are the residents that obtain employment and enjoyment from them. Since this is accounting of and for the community, it is the local residents and their wellbeing that is accounted for. While GPIAtlantci does not summarize indicators in a balance sheet (see above An Introduction to Genuine Progress Indices (GPI)) it website is very comprehensive in terms of methods and recommendations following more than a decade of calculating the GPI in Nova Scotia, Canada. Since the question was one of a municipality and a tourism destination, the question was how to delimit the resident beneficiaries of the marine parks? I followed the Atlantic GPI methodology wherever possible, but this was not always possible, e.g. the actual balance sheet and elements such as education, due to data limitations.

The starting point was social capital (volunteerism) for no particular reason other than it seemed the simplest. However, the first question was how to define volunteerism for this particular case. For example, the GPI Nova Scotia looked at region-wide at the permanent residents. After estimating the total number of volunteer hours, both formal and informal, GPI Atlantic calculated different totals under assumptions varying from generalist to specialist. Whether low or high, the amounts were significant.

In the case of understanding the importance of a healthy park, the question was the limits of civic service both voluntary and involuntary (i.e. community service as part of university requirements). Since operators are those who decide to offer park visits I limited the study to volunteerism of park employees, institutions and operators, all of whom are resident in Cancún. The Atlantic GPI offered a clear method to determine a monetized value (see Colman, 1998).

Human capital was far more complicated as the Atlantic GPI does not monetize formal and informal education. The education results for Nova Scotia were discussed in detail, sometimes extrapolated from national statistics, and trends monitored. However, no dollar amount was provided. Therefore, I returned to the other methodologies to find a monetization of education. The most common is the cost of formal education calculated in Genuine Savings (see page 366).

The most challenging of all was the valuation of natural capital. For this I worked with expert biologists with years of experience in the area such as Martha Abundes from the Mexican College of Biologists, Jaime Gonzalez Cano, the Parks' Director, and Roberto Iglesias Prieto, Director of the Ocean Sciences Institute, Reef Systems, of the Universidad Nacional Autonoma de Mexico, Mexico's most important national university. With special collaboration from the biologist Martha Abundes, we asked these distinguished biologists three questions:

➢ -What reef species are barometers for reef ecosystem health?

➢ -Of these species of plants or animals, which are the highest on the food chain thus an indicator also of animals lower on the chain as well?

➤ -Which of these higher-level species is iconic: easily recognizable by the general public?

From the species selected, we chose those which had a market value internationally such as sharks in the Chinese market, sea cucumber for Asian market in general and lobster from the North American market. The next question was: in a healthy reef system untouched by humans, what is the density of these animals we would find in a certain area? Then based on the GPI methodology, I simply multiplied the 'healthy asset' numbers per hectare by the number of hectares in the parks by the market price for a first approach to the asset value (Charles, Boyd, Lavers, & Benjamin, 2002).

In addition to these easily recognizable species, the question became the importance of valuating the coral reefs themselves. Reefs, in addition to the important tourist attraction of stunning views and recreation for snorkelers and divers, are vital to mitigating damage to beaches and real estate during hurricanes and other storm systems (Hoegh-Guldberg et al., 2007). As Dr. Roberto Iglesias Prieto explained, the reef is an underwater mountain which buffers the nearby beaches from the explosive energy injected into the water by the accelerating winds. Thus the question was to valuate the ecosystem services performed by the coral reefs in terms of the cost of the hotel damage following a hurricane. To determine the 'damage and control' costs, the loss of property and tourist revenues from three previous hurricanes were used: Gilberto (1986), Earl (2005) and Wilma (2005). This last one was a devastating Category four hurricane that hovered over Cancun for three days. Based on principles of accounting conservatism, only the ocean-front properties are considered as these attract the majority of tourists.

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Last but not least is the water quality. For this valuation, again the GPI was used as reference (Justine-Wilson, 2000) with special attention to water-based recreation value, wetland (mangrove) value, plus hypothetical defensive expenditures of costs to improve wastewater disposal. Large quantities of waste water and road runoff have caused a catastrophe in the Laguna Nichupté. This heavily polluted water flows from the lagoon of 6,873 hectares in the center of the Cancun hotel zone to the nearby shores and reefs killing coral and infecting the beaches.

A summary of the methods, method source and formulas was provided above. Following is a first approximation of these calculations as pertains to the 8,673 hectares of CMP, 30 km. of prime real estate plus the estimated 930 individuals that depend directly on the resource as tour operators and park employees.

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Balance Sheet Accounts

Figure 7: Balance Sheet for Community Sustainability based on the NA of Cancún's Marine Parks

2005 COMMUNITY -FOCUSED BALANCE SHEET FOR CANCUN					
ASSETS		in 2005 US$	**LIABILITIES (Depletion)**		in 2005 US$
Natural Assets (NA)			**Environmental Impact**		
Bellwether Species	Reef Assoc. Species	$ 43,365,300	Species Depletion	Invasive Species	$ 849,954
Reef Services	Park Use	$ 84,590,082		Overfishing	In Progress
	Coastal Protection	$ 115,108,006	Reef Degradation	Reef Damage	$ 1,323,000
	Sand	$ 220,000,000		Ecological Footprint & GhG***	$ 5,678,501
TOTAL NA		**$ 463,063,388**		Water Quality	$ 325,000
Social-Cultural Assets (SCA)			**TOTAL Environmental Impact**		**$ 8,176,455**
Volunteerism - Park**	Asset Maintenance	$ 16,000			
	Student Svcs (training)	$ 8,000	**Living Standards and Insecurity**		
	Research	$ 2,500	Financial Insecurity	Interest paid over 5 years	$ 2,111,651
Education	Park Employees & Chd	$ 1,714,048	Economic Insecurity	Household Head	$ 988,976
	Tour Operators & Chd	$ 44,696,631		Minors & Elders**	$ 764,568
Housing	Park Employees	$ 1,733,000		Health Problems	$ 44,914
	Tour Operators	$ 31,721,609	Physical Insecurity	Self-inflicted Violence	In Progress
				Interpersonal Violence	$ 2,932,920
TOTAL SCA		**$ 79,891,788**		Household Protection	$ 2,279,833
			TOTAL Insecurity		**$ 6,843,029**
Economic Assets (EA)					
Parks' Commission*	Prop, Plant & Equip	$ 462,000	**TOTAL DEPLETION**		**$ 15,019,484**
Tour Operators*	Prop, Plant & Equip	$ 20,618,500			
Hotels (net of protection)	Prop, Plant & Equip	$ 1,929,691,994	**INTERGENERATIONAL EQUITY (Net Wealth)**		
TOTAL EA		**$ 1,950,772,494**	**Claims on Assets**		**$2,478,708,186**
TOTAL ASSETS	NA+SCA+EA	**$ 2,493,727,670**	**FUNDING OF ECONOMIC PROGRESS***		**$ 2,493,727,670**

* Still under review to refine the actual numbers
In the interim this is 2009-2010 estimate and min. wage
*** **assets plus borrowing (debt or depletion) on assets**
** 2005 alone

Assets

For the CMP, NA include the marine life and reef services such as park use, coastal protection and sand production (see Balance Sheet: Natural Assets). Conservation increases asset value through increased animal abundance and coral reef growth. Insufficient resources and/or authority leads to CMP depletion from overuse, pollution, accidents and natural catastrophes.

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SCA are proxied by volunteerism, education and housing. To effect conservation, CONANP employs a staff of twenty including the CMP director. To supplement full-time staff, volunteers include researchers conducting studies, university students completing practicums and divers assisting in special events. Volunteers and CONANP employees aside, an estimated 910 tour operator employees also depend on the park directly for employment. With steady employment long-term assets of permanent housing and formal education are assured (see Balance Sheet: Social-Cultural Assets). Large SCA signal stable and secure communities while expenditures for debt, illness and crime signal decreasing SCA.

EA consists of the CMP plant and equipment to monitor and maintain the parks. Also, properly maintained property, plant and equipment of tour operators and hotels ensures a steady flow of clients (tourists). If tourist boats are maintained and upgraded greenhouse gas (GhG) emissions are reduced and less fossil fuel is spilled. If hotels are connected to sewage lines and install oil traps, Nichupté Lagoon is less contaminated. Following is a detailed proposal to quantify and monetize each of the accounts based on currently available valuation methods and data for the region.

<u>Natural Assets</u>

The marine environment is the area that has most suffered from the narrow focus of the GDP (Charles, Boyd, Lavers, & Benjamin, 2002). Annual revenue from the fishing industry and park user fees is captured in GDP while ignoring the value of the fish remaining or a park that is healthy thanks to conservancy efforts. To valuate natural capital four dimensions have been selected: abundance of native high trophic level

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organisms, park use, coastal protection and sand production (CONANP, 2010a; Cooper, Burke, & Bood, 2008; Rudd, Tupper, Folmer, & Van Kooten, 2003; WRI, 2009).

High trophic levels as bellwethers

Coral reefs are some of the most biodiverse and therefore complex natural areas in the world. An indicator of a healthy reef is the presence of high trophic level species because their absence or presence cascades to lower level trophic organisms, they are easily recognizable by the general public, and have medium to high market-values (SIIM, 2010; Sumaila, Marsden, Watson, & Pauly, 2007). Abundance and size also reflects preference for large piscivores by fishers but also for viewing by snorkelers and scuba divers (Rudd, Tupper, Folmer, & Van Kooten, 2003). The bellwether animals selected include shark & rays, groupers, and barracudas.

The benchmark mean trophic level is 3.25 (Sea Around Us, 2010). The Caribbean declined from that mean to currently 3.15 indicating 'fishing down the web', i.e. fishing lower-level species and smaller sizes. Balance requires the maintenance of trophic level species of 4.0 and higher (out of 5.0). The three bellwether groups fulfil this requirement, are of low resilience needing up to 14 years to double in population and considered highly vulnerable (Sea Around Us, 2010).

An example of their importance to reef health is the grouper. This species promotes reef growth by feeding on a small fish that eats adjoining coral to discourage competitors from moving in. Overfishing of grouper has seriously reduced their numbers such that two species, the Nassau and Warsaw groupers, are on the Endangered Species List. The longer a grouper lives in its lifespan of up to 40 years, the higher its

reproduction. The loss of larger, more mature females has had disastrous effects on reproductive potential and therefore reefs (Coleman et al., 2000).

Ideally the normal density and age of the animals would be multiplied by the area to calculate 'healthy asset' numbers(Charles, Boyd, Lavers, & Benjamin, 2002). One estimate by Octavio Aburto-Oropeza of Scripps Institution of Oceanography at UC San Diego is five tons of biomass per hectare (500 tons per km2) of which 60 percent are large predators such as sharks. As to sustainable extraction, one study found that sustainable artisanal reef fishing varies between 0.2 and 30 tons per Km^2 (100 hectares) with an annual average of 5 tons per Km^2 or 50 kg per hectare per year (Jennings & Polunin, 1995). Reef fish are worth between US $15,000 and US $150,000 per Km^2 based on a market value of US $1 to US $15 per Kg (CONANP, 2010a: 153). With sustainable extraction of 5 tonnes per Km^2, a market value of $75,000 per Km^2, an area of 8,673 hectares or 86.73 Km^2, the annual marketable value is US $6.5 million annually (SIIM, 2010). As the bellwethers require a median of 10 years to double, their asset valuation is 10 years x US $6.5 million or a total of $65 million (see Balance Sheet: Natural Assets - sub-account Bellwether Species). Otherwise said, if 7 tonnes per hectare per year are removed, conservatively two tonnes represent depletion equivalent to $13.0 million annually.

Coral Reef Services to Humans

The second element is the valuation of the coral reefs themselves. "Coral reefs occupy less than one quarter of one percent of the Earth's marine environment, yet [...]are home to more than one quarter of all known marine fish species and tens of

thousands of other species, many of which are found nowhere else on earth" (WRI, 2009: 2). In the CMP, the number of species found is: algaes 187, sponges 47, soft coral 31, hard coral 33, black coral 3, mollusks 43, annelids (segmented worms) 65, crustaceans 37, equinoderms 24, fish 164, reptiles 6, birds 32 and mammals 11 (CONANP, 2010b).

Reefs, in addition to the important contribution to aesthetics and to recreation for snorkelers and divers, are fundamental to the production of sand and to mitigate damage to beaches and real estate during hurricanes and other storm systems (Cooper, Burke, & Bood, 2008; Hoegh-Guldberg et al., 2007). The reef is an underwater mountain serving as a natural breakwater to buffer the nearby beaches from the explosive energy injected into the water by the accelerating winds (WRI, 2009).

Park Use

The World Resources Institute (WRI) has developed a simple, reliable and low-cost method using data that exists in most countries (WRI, 2009). The method consists of the economic benefits for formal and informal fishers; the tourism benefits; and coastal protection. As fishing is prohibited in the CMP and I propose a calculation of the market value of bellwethers, this calculation is already addressed. As for the tourism benefits, the method is a simplified Travel Cost Method. It consists of assessing reef-related tourism based on how many tourists visit to use the reefs and the number of tourist-nights attributable to the day(s) spent in CMP. For example, scuba divers in Belize travel exclusively for the reefs therefore the full cost of their vacation is attributable to the reefs. In the case of Cancún, most tourists will spend one or two days of their vacation on

reef-related activities and therefore the travel costs of accommodation, recreation, taxes & fees, and other expenses must be pro-rated.

The use of CMP requires the purchase of a US $2. In addition to this small income, the bracelets serve to collect statistics on the numbers of park visitors as well as boats with permits. For example, the number of users peaked in 2004 with 680,000 bracelets. Following various crises, the average is down to 550,000 annually with 2/3 of the visitors in the polygon Punta Nizuc. With the average vacation in the region of five days and $1000 per tourist per vacation, the amount attributable to the CMP is US $200 per day x 550,000 visitors annually. In sum, conservatively the park use is estimated at US $110 million annually (see Balance Sheet: Natural Assets -sub-accounts Reef Services -Park Use).

Coastal Protection

As for coastal protection against erosion and storm-system damage, again the WRI has developed a relatively simple four-step calculation. First, identify land which is vulnerable. Next identify coastline that is protected by reefs or mangroves. Third, estimate shoreline stability and determine the shoreline stability attributable to the reefs and/or mangroves. Finally, estimate the damage avoided based on property market values of those properties on vulnerable land protected by the reefs and mangroves (WRI, 2009).

Cancún and Isla Mujeres are high density resorts. From an inventory of only those hotels that directly adjoin the CMP, there are 2,055 rooms in the four-star category and 10,077 room in the five-star category. Isla Mujeres has a total of 1,318 rooms in

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three categories. In 2005 the estimated cost of hotel construction was per room US $150,000 for five-star, $100,000 for four-star and $50,000 for three-star. The reefs cover 3.4 percent of the Park surface and therefore provide protection to the 15,700 rooms adjoining the CMP have an estimated worth of US $115 million on a total real estate value of over US $1.6 billion (see Balance Sheet: Natural Assets -sub-accounts Reef Services -Coastal Protection).

Sand Production

Last but not least is the value of the sand and the replenishment called 'Beach Nourishment'. Each kilogram of sand requires 9-10 kilograms of coral (personal interview). The value of this sand can be determined because of the worldwide practice of 'nourishment'. Following Hurricane Wilma and the loss of huge tracts of beach, the Mexican federal government authorized the replacement with sand removed from beaches of Cozumel Island. The cost of an initial failed project was US $19 million (Welland, 2009), approximately US $2 million per kilometre for 10 kilometres. The subsequent 2009-2010 project cost US $80 million for 10 kilometres with a total of 5.5 million m3 of sand (Martoccía, 2010). The adjoining parks cover 22 kilometres between Cancún (15 km) and Isla Mujeres (7 km) and beach nourishment costs US$10 million/ km for a total US $220 million.

Figure 8: Photo of Cancún's Beach Nourishment

Social-Cultural Assets

Volunteerism

Although unaccounted for in GDP, civic activity has a direct economic benefit and proxies for the strength of social networks. When voluntary work is withdrawn, activities often essential to wellbeing are reduced or eliminated due to a lack of resources. As volunteerism is unmeasured it is also insufficiently valued and given secondary priority in policy planning (Colman, 1998: 7).

Volunteerism differs from unpaid household work in that it is work performed outside the home. This form of unpaid work includes assisting charities called formal voluntary work, or assisting neighbours called informal voluntary work. Here the focus is the hours provided as formal voluntary work to the parks to determine the unrecognised economic value that the park is receiving. In view of the current government budget crisis, volunteers from local universities trained tour operators in best practices, conducted research into park use and resources, and recently scuba divers helped to

install the underwater museum. Over time the goal is to determine if volunteer hours increase (asset appreciation) or decrease (asset depletion) to indicate the strength of social networks.

Colman (1998: 17-20) suggests three monetary valuations: specialist replacement, generalist replacement and opportunity cost. Although accurate data on volunteers to CMP is being collected, as an estimate if 5 divers at US $8 per hour provided 400 hours of voluntary services to place the underwater statues for the museum, five students US $4 per hour provided 400 hours per student of practicum and five researchers US $5 per hour volunteered 100 hours on research project, the total value is more than US $26,000 per year (see Balance Sheet: SCA -sub-account Volunteerism).

The exclusion of the economic value of voluntary work understates the important contribution economically and socially. Economically these services ease budgetary constraints. Socially, volunteerism proxies the underlying non-market value of strong community networks and identification with that community. Lastly, volunteerism is an indirect form of skills training by providing specialized knowledge of parks' management and research to volunteers.

Education

As mentioned in the previous section, park volunteerism is an economic benefit to the park as well as a provision of indirect skills training to the volunteers. Many organizations such as the OECD and the United Nations recognize that learning occurs in formal school settings as well as settings outside the school and through media other than print. For these reasons, formal schooling, informal learning and competencies are

needed to improve wellbeing. Competencies are those skills that add to literacy which improve employability and therefore living standards. These include science, ecology, health, nutrition and civic culture because "a basic knowledge of health is required to improve population health; political knowledge is required for effective civic engagement; and knowledge of sustainable living practices is required for ecosystem health" (Pannozzo, Hayward, Colman, & Hayward, 2008: 1).

However, if countries such as Canada have a paucity of reliable data on key competencies and skills learned in formal and informal settings then there is little likelihood of such data existing for Mexico. Therefore, we are left with the traditional input measures of investment in property and equipment accounted for in national accounts plus current expenditures on teachers' salaries, books and materials, the method used by the World Bank to calculate Genuine Savings (Bolt, Matete, & Clemens, 2002). To this per capita amount is added household expenditure on education by the 930 households that depend on CMP for wages.

As there is no perfect measure, I look at household characteristics of employees and percentage of disposable income spent on education per income level. The Mexican Association of Opinion Polls (AMAI) produces an annual report on Mexican living conditions based on five socio-economic profiles (Lopez Romo, 2009b). The monthly salaries of CMP employees and tour operators operating in the CMP is superimposed over the profiles to produce an approximation of total costs, personal and public, to formally educate the employees and their family and household members(Pannozzo, Hayward, Colman, & Hayward, 2008; SEP, 2010). The amount conservatively estimated

is more than US $45 million for the estimated 930 wage-earners and their children (see Balance Sheet: SCA -sub-account Education and Appendix for calculation).

Housing

Taken for granted and undervalued is health and clean water. Thus, proper housing with access to municipal services is an indicator of healthy communities. Housing in Cancún has improved substantially. A 2000 report of 39 cities indicated Cancún as average to poor with 24 percent of the houses lacking concrete floors, solid walls or a permanent roof. In terms of size, Cancún's houses were amongst the smallest in the country with 64 percent of houses with two bedrooms or less while lodging six persons or more. And for basic services, Cancún was the third lowest with 43 percent of houses without water, drainage or electricity (Garcia Leon Loza, 2008). By 2005, solid buildings including concrete floor increased to 96 percent; the number of houses with more than three persons per bedroom had dropped from 27 percent to 12 percent; and houses with water, light and telephone increased from 33 percent to 75 percent (Observatorio Unicaribe, 2010).

Again using the AMAI socio-economic levels, that average house value is multiplied by the estimated home-owners within a given category. SCA asset value of home-owner housing is estimated at over US $32.5 million for the 930 wage-earners. Housing, education and time available for volunteerism are a function of steady employment provided by assets of the CMP and the tour operators, the topic of the following.

<u>Economic Assets</u>

While the tourists are the visitors, the economic beneficiaries of the parks are those who obtain economic gain from the parks. Hotel property was recognized in NA under reef protection so here I estimate the non-current assets of tour operators and park management, particularly property, plant and equipment (see the Balance Sheet: Economic Assets).

Tour Operators

All operators that offer activities in the CMP require registration with CONANP and must purchase a park bracelet for each visitor. In Cancún there are a total of 35 operators and 22 more on nearby Isla Mujeres. Of the average 1,800 visitors per day, the prominent activity in the polygons of Isla Mujeres and Punta Nizuc is snorkelling (76 percent and 87 percent respectively) whereas in Punta Cancún it is scuba diving (82 percent). Within the CMP scuba diving represents 8 percent of visitors, snorkelling occupies 77 percent of visitors, and boat tours the remainder. Annually there are 35,000 trips to Isla Mujeres with 20 passengers per trip for snorkelling and tours; 8,000 trips to Punta Cancún with 7.5 passengers per trip mostly scuba diving; and more than 170,000 trips to Punta Nizuc mostly on jet skis to snorkel sites. The value of 60 catamarans, 15 dive boats and 190 jet skis is conservatively estimated at over US $20 million.

CMP Administration

The average annual budget is US $750,000 to regulate, train, study and report on the 8,673 hectares that make up the CMP. Of the twenty staff, nine are park guards, two are full-time environmental educators and the remaining employees are administrative

and management. Park guards and monitoring use one-half the budget and the rest is for managing, training and reporting on the parks. The CMP also uses the services of CONANPs laboratory for coral seedlings which are seeded to existing coral heads and other structures to accelerate reef repair and growth. Although the parks have eleven boats on their books, only three are operational at any one time. In addition to the boats, equipment consists of office equipment and vehicles.

The CMP is currently undertaking a bold project located in Isla Mujeres of an underwater museum of 400 statues cast from living models. The goal is to shift use from reefs suffering damage to this new underwater gallery. The cost of this first project was US $350,000 and required 400 volunteer hours to place the statues in addition to staff. This is an excellent example of asset investment to mitigate the liability of user and storm damage.

Figure 9: Images of CMP Underwater Museum: The Art of Conservation

CMP total property, plant and equipment including the museum but excluding the coral laboratory is US $462,000 to monitor park use and mitigate or repair damage, the topic of the next section on depletion.

Depletion

Some of the US $2.1 billion in natural and social-cultural assets are being borrowed on by current generations through negative environmental impacts and human insecurity. Environmental liabilities include invasive species due to accidental introduction and species opportunism (warming waters); reef damage from vessel groundings and divers who accidentally hit or intentionally extract the coral; the production of Greenhouse Gases (GhG); water pollution from fossil fuel and purposively dumped waste waters that operators leave behind as well as the polluted water from the 4300 hectare Nichupté Lagoon that flows into the CMP, especially the polygon Punta Nizuc.

In terms of living standards, wellbeing is affected by insecurity: financial, economic and physical. Tourism is a seasonal and sensitive industry. An increase in crime rates (physical insecurity) can shift tourist preferences to other destinations causing unemployment (economic insecurity). Unemployment and an increase in household occupants reduces per capita disposable income and increases default on household debt (financial insecurity). In terms of the CMP, property-damage and the loss of beaches following Hurricane Wilma required more construction workers than bell-boys. Shifts in livelihood reasonably attributable to changes in the CMP attraction are recorded as depletion: real, contingent or footnoted depending on the circumstances.

Liabilities can be real or contingent. Under financial accounting rules, realized liabilities are always recorded whereas contingent liabilities are recorded if a future event is likely and the cost can be assessed. An example of recording a contingent liability is climate change which is scientifically proven and linked to GhG. Scientists offer

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scenarios of damage to NA under different assumptions, for example reef system modelling based on a temperature increase of one degree Celsius, two degrees Celsius, and more (Hoegh-Guldberg et al., 2007).These effects should be quantified and recorded on the balance sheet based on conservative scenarios. The less conservative scenarios and their monetization form part of the footnotes. An example of non-reporting is vessel groundings on Mexican reefs. As the likelihood of a future occurrence or damage cannot be estimated in advance, the recording of such a liability is only reasonable ex-post.

A community is very complex so instead of attributing risk or damage directly through asset depreciation to arrive at net assets, depreciation is accounted for through increased depletion because of manifold and casacading impacts to NA, SCA and EA (Simberloff, 2010; Sodhi & Ehrlich, 2010). For example, an increase of one to two degrees Celsius due to GhG emissions causes coral bleaching and increases opportunistic species reducing beach protection and sand production. An increase in non-native jellyfish and lionfish leads to increased risk of stings to tourists that could reduce park visitors and lead to unemployment of tour operator staff with its resultant social impacts. Therefore, recording of depletion under its own rubric allows these manifold effects to become visible without specific attribution which could be insufficient and/or spurious. Moreover, a separate depletion account facilitates policy-making by highlighting the costs of poor decisions or inaction.

<u>Environmental Impact</u>

Overfishing and Invasive species

Three species that are threatening the reefs include the Asian lionfish, starfish and jellyfish. Jellyfish blooms are the result of warming waters which increase the abundance of their prey. Then there are jellyfish blooms caused by invasive non-native jellyfish that do not respond to the normal cycles and do not have predators. "Because jellyfish reproduce quickly, are hardy and face few competitors or predators in many degraded waters, they can quickly overrun and dominate ecosystems" (Cabrera Castellanos & Lozano Cortés, 2010c). The presence of large blooms signals environmental problems favourable to jellyfish such as changes in temperature, salinity and oxygen concentrations. These blooms reduce tourism due to stings and affect industrial activity by blocking water intake valves such as desalinisation plants on cruise ships (Cabrera Castellanos & Lozano Cortés, 2010c). The most venomous animal in the world is the box jellyfish now found in all tropical and subtropical waters. Sea turtles are immune to the sting of the box jellyfish and regularly eat them keeping tropical beaches safe for humans (Sea Turtle Conservancy, 2010). Therefore, the decline in density of sea turtles could lead to an inversely proportional increase in box jellyfish.

One of the most voracious species of starfish is parasitoid. It feeds on coral and will only die out once the reefs are devoured (IUCN, 2008). Their uncontrolled increase is due to overfishing and general ecosystem degradation. Yet the cost is low to prevent overfishing. Using ex-vessel prices for Caribbean medium and large fish, the average price is $0.90/kg paid to artisanal fishers (Sumaila, Marsden, Watson, & Pauly, 2007). Less

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than US $1000 per tonne could compensate fishers to maintain extraction at under five tonnes per hectare annually (see above Natural Assets, Bellwether species).

The greatest risk currently to CMP is the non-native lionfish. In addition to uncontrolled consumption of native species, their spines are venomous and a danger to divers and snorkelers (Schofield, 2009). Lionfish were first reported in the nearby Cozumel Marine Park in 2009 and have now spread to all the Mexican Caribbean marine parks. Although in many areas they are being actively hunted and removed, the scientific community has labelled them as 'established' in Mexico and predicted invasion of reefs to the south in Belize, Honduras and South America (Schofield, 2009: 478).

Figure 10: Image of the Invasive Lionfish in Caribbean Waters

In a recent study of the nearby Bahamas, the lionfish density per hectare was expected to be 80 but found to be over 400 per hectare(Green & Coté, 2009) At 400 per hectare and 2 kg per fish there would be a total of 70,000 kg of lionfish in 86.73 hectares of park. CONANP offered fishers MXP 150 (US $12.25) per kilo to recover the fish or more than US $850,000 (see Balance Sheet: Environmental Impact -subaccounts Species

Depletion, Invasive Species). Although this is <u>not</u> the density of the lionfish, this amount proxies for invasive species in general until more accurate results are obtained.

<u>Reef Damage</u>

Users

In addition to CMP evidence of sites with the most reef damage, a recent doctoral dissertation (Santander Botello, 2009: 221-222) evidenced that divers had incidents of touching reefs or stirring sediment twice every five minutes on average. In Cozumel with deeper dives lasting approximately thirty minutes, this translated into total contact of twelve times per dive per diver (Santander Botello, 2009: 221-222). In CMP where dives average 60 -70 feet and last forty-five minutes, the same behaviour would result in eighteen contacts per dive per diver. In the first nine months of 2010, there were 67,000 divers in CMP. Assuming only one dive each, this number of divers translates into a total of 1.2 million incidents of contact or sediment-stirring in just nine months (CONANP, 2010b).

The new underwater museum mentioned above called 'The Art of Conservation', was inspired to shift users from damaged sites in order to allow for coral regeneration and coral seeding. Damaged sites require a minimum of three to five years to recover. The valuation per square metre of the damage by divers is equivalent to that produced by vessels' grounding on reefs, the topic of a recent manual produced by CONANP (CONANP, 2010a) and addressed following.

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Vessel groundings

Of the 41 registered groundings in Mexico between 1997 and 2008, 24 occurred in Quintana Roo state damaging more than 13,000 m^2 or 46 percent of all damaged reefs in Mexico. If events such as groundings, overuse and storms, happen in rapid succession ecosystem recovery is severely handicapped (CONANP, 2010a). Once the damage has occurred, there are two options: natural recovery or active restoration. If left to natural recovery, algae recruitment is rapid while other marine species such as sponges appear after one to two years requiring up to a decade to return to normal levels. Stony corals take several decades and up to a century to fully re-establish (Jaap, 2000). Restoration by sinking cement blocks and coral re-seeding has a high success rate and significantly reduces recovery time (CONANP, 2010a; Jaap, 2000). To measure the viability of reef restoration and legal liability of vessels, the Habitat Equivalency Analysis was developed from wetland loss mitigation methods to quantify economic damages and restoration measures for injuries to coral reefs. Real costs of marine engineering for restoration plus subsequent monitoring constitute the costs to recover the damaged area.

For now a generic valuation based on economic activity is as follows. Reef value varies from US \$829 per Km^2 in areas where agriculture is the principal activity to US \$50,000 per Km^2 in densely populated areas that have lost their reef protection to US \$1 million per Km^2 to areas where tourism is the principal activity and beach maintenance is essential such as the case of Cancún (CONANP, 2010a). Burke and Maidens (2004) arrived at similar amounts for the Mesoamerican Reef System varying from US \$2000 to US \$1 million per Km^2 for highly developed tourism sites. The preliminary calculation of park damage from hurricanes, swimmers, divers and groundings is estimated at 132

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hectares (CONANP, 2010b) or 1.32 Km^2 x US $1 million as Cancún is high density or US $1.32 million (see Balance Sheet: Environmental Impact -sub accounts Reef Degradation, Reef Damage). As this amount appears low, habitat equivalency analysis is necessary.

Ecological Footprint (EF) and Greenhouse Gas Emissions (GhG)

Ecological footprint (EF), simply put, is the "amount of biologically productive land and water area required to produce the resources an individual, population or activity consumes and to absorb the waste they generate, given prevailing technology and resource management" (Ewing B. et al., 2010: 100). Although EF is a more complete measure of biocapacity use and availability, EF is not monetized. GhG is a component of EF, the major contributing factor to climate change and GhG mitigation has been valuated (Wilson, Colman, & Monette, 2001). GhG damage reefs because the additional CO_2 mixes with the ocean's H_2O to form carbonic acid altering the pH level and dissolving the calcium carbonates needed for corals to produce their hard exteriors. Due to climate change reefs are disintegrating faster than expected (Hoegh-Guldberg et al., 2007). As CO_2 emissions make up one-half of Mexico's EF, the cost of GhG mitigation proxies for a portion of the EF.

A recent study calculated that on average a tourist couple emits 106 -143 kg of GhG for a five day/five night vacation in Cancún. Of this amount, a snorkel tour on a boat with 10 people emits 3 kg per couple. Lodging plus breakfast emits 31 to 53 kg (Lopez Monzalvo, 2010). Attributing one day and night to the CMP plus the one day snorkel tour, emissions per tourist are approximately 13 to 16 kg of GhG. Net benefits

per tonne of reduced emissions vary from $50 per tonne to $1100 per tonne depending on the method (Walker, Monette, & Colman, 2001). One study calculated with fair accuracy the amount of US$750 of net benefits per tonne of GhG reduction (Walker, Monette, & Colman, 2001). As a first approximation, the annual liability to the CMP of GhG is 418,000 visitors in 2005 x 14.5 kg of GhG / tourist x savings US $0.75/kg or US $4.5 million annually. Admittedly this calculation requires refinement and confirmation using alternate methods[17].
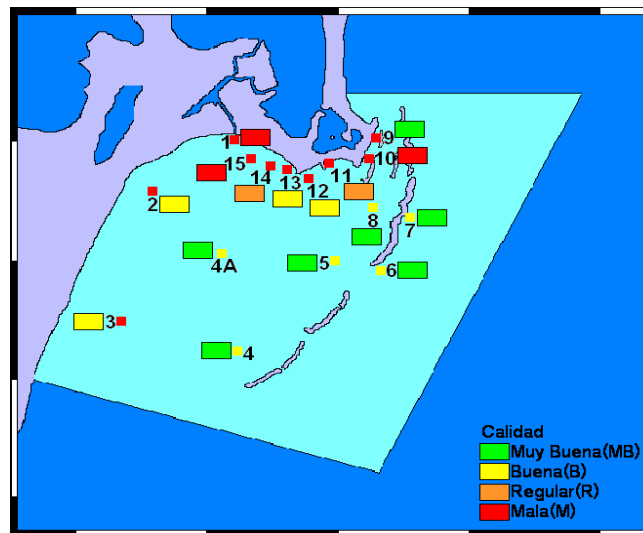
Water Quality

For reefs to be healthy they need crystalline waters. Pollution increases sediment and climate change alters the marine pH level both of which affect water transparency leading to coral mortality (Burke & Sugg, 2006; Hoegh-Guldberg et al., 2007). Petroleum and non-petroleum oils pose risks to marine life through asphyxiation and tainting of all animals, from surface to benthic. Fossil fuels remain in the muscle mass of some fishes as carcinogens (EPA, 1976). For humans, fecal poliform bacteria in recreational waters is linked to increased risk of otorhinolaryngeal and intestinal infections, and in extreme cases typhoid (EPA, 1976).

In general, the water quality of the parks is considered good (Burke & Sugg, 2006; CONANP, 2010b). The polygon at greatest risk is Punta Nizuc due to its proximity to the heavily contaminated 4,300 hectare Nichupté Lagoon. The pollution in the Lagoon

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[17] Other sources have estimated prices for GhG avoidance cost range for deforestation of the Amazon Forest at $2-4 per tonne. Indonesia's National Council on Climate Change puts the opportunity cost of forgoing an oil-palm plantation at $30 a tonne. Capturing and storing emissions from power stations is estimated to cost $75-115 per tonne (Economist, 2010).

includes fossil fuel from the numerous boats and marinas; oils, detergents and pesticides from adjoining hotels; and chemicals such as fertilizers from the two golf courses. Also parts of the Lagoon receive fecal matter from untreated waste water flowing from nearby hotels and buildings unconnected to the municipal sewer system.

Figure 11: Water Quality in the Touristically Important Punta Nizuc

Red is poor quality; Orange is average; Yellow is good and Green is very good.
(Reproduced from:CONANP, 2010b)

The costs of water quality improvement are similar to GhG emissions: clean-up, catchment, treatment and reduction. The CMP procedure manual under review recommends three actions to improve water quality: the capture of rain-water run-off, the installation of oil traps and the connection of all buildings to the sewage system. Encircling the lagoon is the 50 km four-lane road where rain water collects pollutants from the road and chemicals from lawns and golf courses. As for oil traps, the report recommends the installation in all commercial centers, bars, restaurants and hotels on the perimeter. Lastly, is to ensure that all buildings on the perimeter are connected to the sewage system for treatment (CONANP, 2010b: 73). Cancún has sufficient water

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treatment plants but some adjoining older buildings are not connected to the network due to institutional weaknesses in enforcing compliance.

An important element in the calculation of depletion is insufficiency of institutional resources to enforce regulation. "Ideally, the indicator would measure total personnel and budget levels, relative to 'required' levels necessary to accomplish the goals of the fisheries management institution. However, it is unclear how to assess 'necessary' levels, except perhaps through valuation surveys" (Charles, Boyd, Lavers, & Benjamin, 2002: 58). In other words, the incapacity equals the budget shortfall between optimal budgets to monitor and sanction, and actual budgets, for example, the cost to employ legal services to detect, negotiate, assist and/or sue building owners to redress regulation violations. To this is added the cost of financial or fiscal incentives to encourage building owners to install traps and connect to the waste-water network. The budget shortfall and incentives are under review.

In a study of costs to improve catchment, the cost of water interceptors such as drains, barriers and berms was approximately $5/meter (Cox, 2004). If the lagoon perimeter with nearby buildings is 50 km or 50,000 meters, then an approximation of interceptors of one layer and only the perimeter is US $250,000. As for monitoring, the initial investment was estimated to be US $75,000 plus US $10,000 of annual operating expenses. The amount calculated above of US$325,000 in long-term assets is extremely low and severely underestimates the critical condition of the Nichupté Lagoon (see Balance Sheet: Environmental Impact -sub accounts Reef Degradation, Water Quality). In 2011, the municipal government is undertaking an inventory of marine life in the

lagoon and the impacts due to the calamitous water quality which impacts the marine community and the wellbeing of the human community, the topic following.

<u>Living Standards and Insecurity</u>

The Millennium Ecosystem Assessment (www.maweb.org) used as a key component of the social all dimensions of security: financial, economic and physical. Financial security is threatened by debt levels and excessive interest payments (Hodge, 1997). Economic security is the condition of having stable income or other resources to support a standard of living now and in the foreseeable future. Indicators of insecurity include childhood poverty when caregivers' income is insufficient, an increase in persons over fifty with inadequate pensions and old-age security, and increased health problems. Physical security is the incidence of self-inflicted and interpersonal violence and is monetized by direct and indirect costs to prevent or repair injuries. As many entities measure changes in crime, poverty and elder insecurity, it is possible to valuate and account for the decline in living standards.

Financial Insecurity

Due to the high cost of borrowing in Mexico, excessive debt is a major burden on households and handicaps a company's ability to maintain and renew physical plant and equipment, pay salaries and even employ workers. Of the 930 estimated wage-earners who depend on the CMP for employment, 21 are estimated to be in the middle-upper income (C+), 74 in middle income (C), and 835 in lower income (D+). Surveys show that C+ spends 7 percent of monthly income on debt interest, C spends 5 percent and D+ spends 3 percent. Based on the medium income per group, the total interest paid by the

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930 workers over five years is estimated to be over US $2 million(Lopez Romo, 2009b)

Notable is the fact that the proportion of interest has increased substantially in the past

two years, e.g. C+ from 5.9 percent to now 7.3 percent of monthly income. Also notable

is that the increase in interest paid is at the expense of savings which dropped sharply

over the same period (Lopez Romo, 2009a).

Economic Insecurity

Households and household head

Tourism is a volatile industry where hurricanes, pandemics and economic

downturns in source countries have an immediate and devastating effect on visitors to

Cancún and therefore employment. In addition to unforeseen events, there are the

seasonal effects of low months of May and September when expensive equipment like

catamarans are unused and seasonal employees laid off. In short, an increase in business

uncertainty, seasonal and permanent unemployment, household dependents, and debt and

health issues reduces community wellbeing, often reflected in increased self-inflicted and

interpersonal violence, as well as theft. These events are burdens on the household

economy to secure property and persons.

Between high tourism season and low tourism season, unemployment increases

by 1-1.5 percent. This results in 10 of the 930 workers being inactive for approximately

six months of the year at an opportunity cost at QR state minimum wage (see above

Volunteerism) or more than US $200,000 in lost productivity annually.

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<u>Minors and Elders</u>

The stress of declining savings and increased borrowing is exacerbated by high numbers of non-working dependents (minors, unemployed and elderly). For example, between 2000 and 2002 the average number of inhabitants per household in Cancún jumped from 3.7-3.8 to 4.06-4.10. It had declined to approximately 3.9 by 2005 (Observatorio Unicaribe, 2010). However, the number of elderly (60+) increased by 10 percent-12 percent in just five years. The use of doctors and hospitals jumped sharply from 5 percent to 10 percent of the population fifty years and older (CNEGSR, 2007). Also, QR has the highest level of teenage pregnancy in Mexico. The number of girls abandoning school more than tripled from 24,000 in 2000 to over 87,000 in 2005. Of all teenage girls, pregnancy occurs in 1 percent of 12 to 15 year-olds; 10 percent of 16 to 17 year olds and 23 percent of 18 to 19 year-olds (CNEGSR, 2007). These rates are all that more alarming in view of the fact that only 60 percent of Cancún's population has health insurance.

Therefore, one estimation of increased burden is the marginal household resources consumed by the increase in dependents. Of the monthly expenses, recurrent food, clothing and household services represent 59 percent for C+, 67 percent for C and 76 percent for D+. An increase of non-working dependents of 10 percent represented an additional household burden of over US $750,000 in 2005 alone (see Balance Sheet Depletion -, sub-accounts Economic Insecurity, Minors & Elders).

Health

Although Mexico's medical infrastructure is improving with more medical professionals and better hospitals, changes in climate, age and diet will stress the health institutions. Climate change in warm, moist regions is expected to increase diseases spread by mosquitoes and other insects. These 'vector-borne' diseases include malaria, yellow fever, encephalitis and dengue fever. In QR state of increasing threat is dengue which per 100,000 was 300 regular and 70 haemorrhagic, the highest levels of dengue in the country in 2007. In a recent study of various countries, the average illness lasted 11.9 days for ambulatory patients and 11.0 days for hospitalized patients. Among hospitalized patients, students lost 5.6 days of school, whereas those working lost 9.9 work days per average dengue episode. Overall mean costs were US $514 and US $1,394 for an ambulatory and hospitalized case, respectively. If regular dengue can be correlated to ambulatory and haemorrhagic to hospitalized, then the annual costs for the 930 workers and their family members is US $50,000 over 5 years (Suaya et al., 2009).

Mexico is first worldwide for childhood obesity and second for adult obesity. Although QR state is low in childhood malnutrition, it has the highest levels in Mexico of childhood obesity. This information on the incidence and costs of obesity is being collected.

Physical Insecurity

Fatal and non-fatal injuries due to interpersonal (inflicted by another individual) and self-directed (inflicted upon oneself) violence result in large direct expenditures for

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the health care, law enforcement, criminal justice and welfare systems (Butchart et al., 2008).

Interpersonal Violence

In Cancún one in five persons has been a victim of some form of crime in their lifetime and in one in five households has been a victim of delinquency (ICESI, 2006). In the year 2005, 13 percent of Cancún's population over 17 years old was a victim of a crime. This translates into more than 350 crime victims between the employees and families of CMP. The most common crime is theft to the person while outside the home (44 percent) of which more than one-half is committed on public transportation. The other three most common crimes are home invasion (24 percent), sexual assault (11 percent) and aggression causing lesions (7 percent) (ICESI, 2006). Crime has increased in Cancún with homicides tripling to 4.3 per 100 000 in 2005. The majority of intrafamily violence is due to stress from unemployment and therefore peaks in tourism low seasons. The cost of these crimes is under investigation (Butchart et al., 2008).

Self-inflicted Violence

The second cause of death in Cancun after accidents is now suicide. From 10.8 per 100,000 in 1997 and seventh in the country, suicides increased to 24 in 2004 the number tripled to 120 by 2009. And for every one that succeeds more than four did not. More than 85 percent of victims are between 15 and 34 years of age, and more than 70 percent are male. Using the latest WHO manual, we are currently calculating the economic cost of self-inflicted violence (Butchart et al., 2008).

<u>Household Protection</u>

To protect persons and property, a recent study found that each household spends US $500 per year on security measures (Observatorio Unicaribe, 2010) which translates into US $465,000 annually or more than US $2.25 million in five years for the 930 workers who depend on CMP. Although some of the amount is recurrent, much is non-current defensive expenditure for more bars, locks and private transportation.

Intergenerational Equity

The current estimated depletion of environmental impact of US $7 million and of declining living standards of US $5 million is a deduction from US$2.1 billion of NA, SCA, and EA. Although equity is still over US$2 billion and the amount appears small, it represents in this small-scale study 0.6 percent of assets. It is probable that far greater asset depletion will result from a balance sheet every five years based on census collection.

One limitation of the new measures is that the data required to proxy for sustainability is limited to the information provided by the data collection for economic growth, not only a priority for all countries but now an element in the tax sharing agreements between the Mexican federal government and the sub-national governments (see Part II). In other words, technologies have yet to be fully developed and standardized for new data to make visible and manageable conditions for sustainability. However, current data limitations do not make the exercise redundant. A variety of valuation techniques enjoy increasing diffusion such that sustainability can be legitimately proxied through measures of NA, SCA and EA. For example, the balance

sheet highlighted that the Mexican federal government spends $19 million on beach nourishment or 1 percent of NA while CONANP receives less than 0.04 percent of the reefs' value (US $0.75 million) for its annual operating budget to monitor reefs that provide more than US $2 billion in services to hotels and tour operators. While tourist revenues climb to US $3 billion annually homicides tripled in five years, suicides are a daily occurrence and CMP employees invest US $500,000 to protect their properties and persons. These numbers reflect some of the policy imbalances in the absence of a balance sheet. A balance sheet is fundamental to unravel some of the unintended consequences of budget allocations narrowly focused on 'growth'.

Conclusion

Practices such as accounting, rather than simple techniques, are technologies because the series of procedures and rules that are adopted have the capacity to transform (Miller, 1986). Data is collected based on what is to be made visible and managed as a function of the concepts embraced and values in vogue. Knowledge is thus constructed and codified which informs and constrains behaviour. "The construction of social reality is seen as ongoing continuously but also as providing models, schemas, and scripts to orient and guide current decision making" (Scott, 2008: 68). This definition explains the stability of institutions. However, change is possible and provoked by sense-making, when lived experience and events discord with information. Sense-making is the interplay of action and interpretation (Weick, Sutcliffe, & Obstfeld, 2005) resulting in perceived available choices. Sense-making led to a new but ambiguous concept, sustainability, which has been the subject of numerous proposals.

The debate over indicators and the abandonment of current methods of national accounting is because accounting's conservatism has given primacy to measurable and reliable information over relevance although relevance is said to be the most important principle (Kimmel, Weygandt, Kieso, & Trenholm, 2009). However, not only accounting but also economics and statistics are subject to the same criticism and struggle with what should be included and measured, and what is excluded and obscured.

> To leave social and environmental costs out of the economic reckoning does not avoid value judgments. On the contrary, it makes the enormous value judgment that such things as family breakdown and crime, the destruction of farmland and entire species, underemployment and the loss of free time, count for nothing in the economic balance. The

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fact is, the GDP already does put an arbitrary value on such factors---a big zero. (Cobb et al, 1995: 70)

The importance of assets to ensure sustainability has been recognized but is not operationalized. The lack of operationalization is demonstrated by the absence of efforts to develop a balance sheet with negotiated standarized valuation technique which can be used by policymakers to prognosticate disasters and degradation rather than ex-post repairs. Although all formulations of the GPI and this balance sheet are subject to criticism of items included or excluded and valuation techniques, the debate over inclusion or exclusion of variables and valuation methods is common to all selected measures from public sector accrual accounting (OECD, 2000) to the System of National Accounts (SNA 2008, 2009) to the genuine progress indices (Neumayer, 2000). Micro-economics, especially environmental economics, have made important advances in valuation methods over the past decade. These methods combined with balance sheet accounts shift focus to activities and outputs that privilege human development and environmental protection over a narrower focus on economic production and myopic growth. No enterprise operates effectively and survives over time without a balance sheet. Since we cannot manage what we do not measure, a balance sheet serves to increase visibilities of environmental and social assets; heighten awareness of the indelible interconnections between humans and the ecosystem, and clearly demonstrate how events in distant sites like Cancún's Marine Parks positively or negatively impact a broader community.

The intergenerational-equity balance sheet is a step towards providing a more inclusive measure of the overall economy, one that renders visible resource stewardship

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and the activities which enhance or detract from wellbeing. Although far from a perfect measure and with much refinement needed, the balance sheet is meant to spur debate about policy directions and resource allocation. The measurement of environmental depletion is particularly urgent for Less Developed Countries because of the strong links between the environment and poverty (Castañeda, 1998) and because of a dependence on natural assets for wealth and exports such as tourism services in Cancún. Under current measures, depletion is unrecognized (and therefore, not adequately addressed) because erosion and biodiversity loss is unaccounted for. Similarly, community benefits from protecting and investing in NA are obscured. The top twenty-five nations ranked according to the contribution of tourism to GDP are island destinations. Development strategies based solely on increasing GDP undermines the environment and the household economy diminishing the wellbeing of the nation's people and devastating the habitat (Cobb et al, 1995).

Limitations of this current study are numerous. This pilot study only been calculated for 2005. Calculations need to be completed for 1995, 2000 and 2010 allowing for trends. Moreover, the reference balance sheet should be in 1995 constant US dollars with adjustments to 2000, 2005 and 2010. This would more accurately indicate the full borrowing on assets over the past two decades and the priority areas such as marine pollution, public security and credit card debt. Other future research suggested is similar studies in coastal tourism sites within Mexico and in other Caribbean countries to corroborate the selection of accounts and proxies. An important possibility for future reseach is to determine thresholds whereby a destination is no longer competitive. A destination may need to lose only five percent or less of its assets to drive

tourists to other, easily substituable sites. To avoid such asset loss and improve policy and resource allocation, state and local financing through taxation could be compared to the balance sheet results to illustrate adjustments to current budget allocations.

Hardin (1968) in his oft-cited essay, The Tragedy of the Commons, summed up best the purpose of this accounting exercise and pilot study:

> We want the maximum good per person; but what is good? To one person it is wilderness, to another it is ski lodges for thousands. To one it is estuaries to nourish ducks for hunters to shoot; to another it is factory land. Comparing one good with another is, we usually say, impossible because goods are incommensurable. Incommensurables cannot be compared… Theoretically this may be true; but in real life incommensurables are commensurable. Only a criterion of judgment and a system of weighting are needed. In nature the criterion is survival. Is it better for a species to be small and hideable, or large and powerful? Natural selection commensurates the incommensurables. The compromise achieved depends on a natural weighting of the values of the variables…Man must imitate this process. There is no doubt that in fact he already does, but unconsciously. **It is when the hidden decisions are made explicit that the arguments begin**. (Emphasis mine.Hardin, 1998: 5)

Let the arguments continue over valuing the invaluable to transform the invisible into the incontrovertible and elevate the handmaiden, natural assets, to its rightful position as queen.

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CONCLUSION – UNRAVELING THE MYTHS

While a dream of a lifetime for the tourist, tourism is first and foremost a political process. It requires infrastructure, bilateral and international agreements and tax collection to provide the goods and services for the tourist to realize her or his dream. Like any dream, tourism is often based on myths. For the tourist, they pursue myths of the unchanged (legendary pasts), the uncivilized (absent civilisation and savage nature) and the unrestrained (luxuriant nature, well-equipped amenities, and submissive hosts catering to every sensual desire) (Echtner and Prasad, 2003). Politically, Cancún is also based on myths: the myth of an omniscient unified Mexican government and international capitalism; and the myth of well-being and development. But the most dangerous, persistent myth is that unbridled growth from tourism has unquestionable positive outcomes for unprotected local populations and environments.

To date the myth persists that Cancún was originated by seasoned experts and politicians when the truth is that the catalyst behind tourism in Mexico was a group of economics-trained, semi-private central bankers with no previous experience in the field. In the 1960s this semi-private 'bank of banks' chose regional tourism development as a solution to a balance-of-payments crisis and overcrowding in industrial cities. The portrayal of triumph by powerful agents within *Banxico* initiated the legitimation of tourism which was subsequently carried by government through discourse, legislation, training and employment opportunities. *Banxico* could have submitted their results and recommendations to the appropriate executive government branches such as Public Works for action. They could have co-opted their major competitor, Miguel Alemán and the model of Acapulco, to sites along the Caribbean. Instead the central bankers justified the

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maintenance of full control over the project through arguments of efficiency and established an autonomous trust fund, INFRATUR, to execute the plan. This legal tactic allowed projects such as Cancún to be virtually unhindered by the usual constitutional restrictions on bidding and construction, and kept the project far from the usual inefficiencies of government authorities.

An analysis of actors and structures explicates the origins, practices and consequences of a development strategy. The routine event of the introduction of the trust fund instrument into their civil code offered the powerful Mexican banking establishment new strategies to control resources. Accounting was used in the justification of tourism through economic studies on the potential of tourism to increase foreign revenue; the choice of tourism implementation sites through reports of geology, geography, climatology and American consumer behaviour; the construction of the site and sale of properties through credit mechanisms; and the auditing of performance to report the success of Cancún and the potential for other sites in Mexico. Moreover, during the construction of Cancún communal Mayans were transformed into sedentary, individual mortgage holders and the populace was trained to work in the tourism industry either as construction workers or as employees of tourism service companies such as hotels.

This study of the Cancún project is more than a historical correction. It offers a rare glimpse into field construction and the process of institutional change. Change requires a crucial catalyst that impels a change of orbit. Cancún was a decisive force that still conditions structures and tourism development within Mexico. *Banxico's* modus operandi of public investment to jumpstart private investment still operates today. The most recent example is FONATUR's investment of more than US $50 million in infrastructure of

roads, water, golf course and a private lagoon to prepare land for high-rise towers of secondary-residence vacation properties called Puerto Cancún.

Institutional theory also helps to explain existing structures and answer the question whether tourism has provided continued prosperity since the original construction. The facts are the following. Mexico employs twice the number of federal employees compared to most OECD countries (23 per 1000 compared to 11 per 1000 in Canada (2006) and 8 to 9 per 1000 in the USA (2006 to 2010). At the QR state and municipal levels, current expenditure of personnel absorbs 40 to 60 percent of annual budgets. But the above numbers would be irrelevant if Mexico and tourism increased tax capture. However, the opposite is true. Mexico has one of the lowest tax efforts of all OECD countries and one of the lowest in Latin America.

As for the tourist zone of the state QR, of Mexico's 32 sub-national entities QR state occupies a curious position within the country of high activity yet low federal tax effort. The state covers 2.16 percent of the surface area and houses 1.1 percent of Mexico's population, one-half of which live in Cancún. QR has the highest level of working-age adults (over 14 years of age) in the country at 67 percent of the state's population. Of those of working age, 95.5 percent are employed. This high level of economic activity translates into an average of 1.5 percent of Mexico's Gross Domestic Product (GDP) over the past decade and an average ranking of 5th in terms of per capita productivity (INEGI, 2011, Sept). Yet all this activity has only produced less than one-half of one percent of federal revenues, an average of 0.45 percent over the past decade (INEGI, 2009).

Again, this could be attributed to a decline in tourism. Yet the opposite is true. Since 2000 Mexico has ranked consistently in the top ten countries in the world in terms of international tourist arrivals that lodge at least one night, yet ranks only twenty-third in

terms of tourism receipts (all expenses from international tourists excluding airfare). While comparison to the highly developed countries such as the USA and Canada could be spurious, even compared to other emerging economies such as Turkey and Thailand, Mexico´s low receipts to arrivals are incongruous (UNWTO, 2012, July).

Targeted tourism taxes such as hotel and departure in 2010 amounted to US $35 million from lodging tax for the QR state and US $75 million from the federal departure tax collected for the Cancún airport. However, both tourism taxes are earmarked for tourism promotion: 80 percent of departure tax and 100 percent of lodging tax. Therefore, rather than reimbursing public goods, the current targeted taxes are a push for more growth at the expense of public goods demonstrated by the results on social outcomes.

Poor health is directly attributable to housing conditions. Mexico's social programme independent monitor, CONEVAL, defines housing deficiencies as those houses built with precarious materials: roofs made of cardboard or waste material; walls of wattle and daub, bamboo, cardboard or waste; and/or earth floors. In 2010 QR state ranked one of the worst at 30th for precarious roofing materials, 24th for wall materials and 15th for the number of houses that have earth floors. Notable is that QR receives one of the lowest amounts per capita for social infrastructure that includes water, drains and electricity yet was considered one of the five best states in terms of these services (CONEVAL, 2011a: 43). Although this result appears contradictory to QR's overall social lag, most of QR's population is now urban and easier to service. As such, BJ ranks within the top ten percent of municipalities for the number of houses with non-earth floors from 89 percent of houses in 1990 to more than 96 percent in 2010. Moreover, BJ ranks relatively well in the number of households with piped-in water (from 48 percent in 1990 to 88 percent in 2010), connection to a municipal sewer system or a septic tank (from 70 percent in 1990 to 95

percent in 2010) and electricity (from 81 percent of BJ households to 96 percent). However, many still lack the resources to be home-owners. BJ ranks well in terms of eradicating absolute poverty and better than national average in capacity poverty (capacity to provide food plus the basics of education and health), but is near the national average in terms of patrimony poverty. This indicates that families require all their monthly income for the basic expenses (capacity plus clothing and transportation) but are unable to secure patrimony such as property. In other words, many households cannot afford property and there is no margin for emergencies or unexpected expenses such as Hurricane Wilma that destroyed Cancún in 2005 and now the economic downturn in the USA which has negatively impacted tourism.

In the area of access to healthcare and social services, QR ranked low at number twenty of the thirty-two entities when measured by the percentage of the population that is registered with some form of public health insurance. Since 1980, QR and BJ have averaged around 50 to 60 percent of the population without access, close to the national average. The improvement since 2005 is due to the introduction nationwide of inexpensive healthcare for uninsured workers called 'seguro popular'. Now more people, approximately 70 percent, have access to some healthcare services at little or no cost. Here again the population residing in BJ that does not have access to healthcare is higher than both QR and the national average at over 30 percent. One possible explanation is the number of temporary employees and those now outsourced rather than hired in-house by hotels and tour companies, a major change in the past decade. Moreover, the QR gap between per capita healthcare spending and those without access to healthcare is one of the five highest in the country (CONEVAL, 2011a: 39). Otherwise said, monies are distributed based on population without consideration that many, even the majority, do not have access as is the

case in BJ since 1995. With these imbalances in mind, the question is how to set a tourism destination on track such that it benefits the local population while protecting the environment.

The third and final myth in this tripartite analysis is that of GDP as a valid touchstone for growth and prosperity. This calculative practice is now dissonant with current natural resource depletion and social strife. The institutionalized social practice of national economic accounting on which GDP is based, privileges flows over stocks under the untenable assumption that the stocks to fuel the flows are infinite. Various models of Genuine Progress Indices were developed to better proxy community wealth to improve policy-making and budget allocation. Although some models monetize many of the natural, social and economic indicators, the values are not recorded on a balance sheet. If the core of intergenerational equity is community-asset maintenance and the mainspring in accounting is assets, a balance sheet to monitor community wealth is imperative. I developed a pilot methodology and balance sheet using existing valuation techniques and illustrated the balance sheet elaboration using the case of Cancún's marine parks, vital to the economic and social fabric of the surrounding community. The core of intergenerational equity is community-asset maintenance and the mainspring in accounting is assets. Therefore, a balance sheet to monitor community wealth is imperative.

The intergenerational-equity balance sheet is a step towards providing a more inclusive measure of the overall economy, one that renders visible resource stewardship and the activities which enhance or detract from wellbeing. Although far from a perfect measure and with much refinement needed, the balance sheet is meant to spur debate about policy directions and resource allocation. The measurement of environmental depletion is particularly urgent for Less Developed Countries because of the strong links between the

environment and poverty (Castañeda, 1998) and because of a dependence on natural assets for wealth and exports such as tourism services in Cancún. Under current measures, depletion is unrecognized (thus inadequately addressed) because erosion and biodiversity loss is unaccounted. Similarly, community benefits from protecting and investing in natural assets are obscured. The top twenty-five nations ranked according to the contribution of tourism to GDP are island destinations meaning that their success depends substantially on natural assets (Sharpley, 2007). One example is the Maldives, slowly submerging under seas that are rising due to climate change, with more than 75 percent of its economic productivity from tourism. Development strategies based solely on GDP growth (ex. Reports produced by the World Tourism and Trade Council) undermine the environment and the household economy diminishing the wellbeing of the nation's people and degrading the habitat (Cobb et al, 1995).

Rather than an ex-post study as the two previous sections, this is an ex-ante project to highlight potential problems, their costs and the interconnections before these problems become irreversible such as extensive reef damage that leaves hotels unprotected and the destination unattractive or social decline from insufficient municipal services that leads to insecurity and health risks such as the increasingly common outbreaks of deadly haemorrhagic dengue. Accounts need to shift to a proprietorship view of a community (assets minus liabilities equals intergenerational equity) away from the current control view of resources based on how the assets are financed (liabilities plus ownership). Balance sheets should be calculated every five years to determine the outcome of policy decisions and resource allocation. Thresholds could be calculated to determine when a destination is becoming unliveable, unattractive and uncompetitive due to combined social and environmental strife.

THE FUTURE

There is much scope to advance metrics and improve public sector resource allocation. First is a frank revision of Mexico's institutionalization of one its most important development strategies: tourism. The primary documents consulted are now publicly available at the *Universidad del Caribe* in Cancún and provide a wealth of information for further investigation. As for other sites, in Mexico alone a similar analysis of Los Cabos which benefited from the same planning and conditions would be informative if compared to the development of Cancún especially in view of Los Cabos' superior governance and social outcomes. Broader still is an analysis of world system impacts in the aftermath International Development Bank loan financing tourism in Mexico. The success of Banamex and Bancomer's tourism investment transformed them into hospitality owners and financiers. As for FONATUR much has been written about the post-1974 period and the ensuing international loans also near the periods in which events unfolded (e.g. see Hiernaux, 1989; Jiménez Martínez, 1992). In light of the revelations of the formative period from 1968 to 1974 Mexico's path to tourism development and FONATUR need to be revisited and revised.

Another revision is the development of mass tourism. Although not the focus of this investigation, Cancún disproves Butler's Tourism Area Life Cycle (Butler, 1980) which hypothesizes that a destination is discovered and explored, then develops slowly until maturity when it stagnates if not rejuvenated. Contrary to this model, Cancún saw a meteoric increase in rooms and occupancy from the mid-70s to the mid-90s. Rather than stagnation, Cancún shows tremendous resilience in terms of construction, occupancy and room rates, rather than decline as the theory would suggest. It could be argued that the destination is rejuvenated thanks to all-inclusives if only room rates and occupancy are

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considered. However, I show the complexity and interrelations of the destination: economic activity, public sector revenue and expenditures, and social and environmental outcomes. Although Cancún is maintaining, it is now demonstrating negative fiscal, social and environmental impacts which are unsustainable. Sustainability requires policies and funding, otherwise said tax income followed by long-term investment in social infrastructure and programmes, e.g. schools and education.

The ease with which tourism companies elude and evade taxes requires further in-depth analysis within Mexico and comparisons to other destinations outside of Mexico to determine if Mexico's challenges are mirrored in other locations. A detailed investigation of marginal effective tax rates to model tax avoidance mechanisms would highlight the gaps in tax legislation that need to be closed not only in Mexico but any country heavily dependent on tourism. Also, the impact of all-inclusive properties, both floating and fixed requires greater study to determine if these properties should be permitted and what additional taxes should apply since they are currently taxed little or not at all. Also lacking is discussion on how to transform priorities from economic growth (e.g. achieving WTO's top position in tourism visits or improving in WTTC's ranking of GDP-related tourism) with concurrent enviornmental destruction, to integrating sustainability into transfer formulas between federal, state and municipal governments thereby making environmental protection (asset maintenance) a cornerstone of local policy and politics.

To ensure sustainability and competitiveness, state and local financing through taxation (income or flows) need to be reviewed in conjunction with the balance sheet (asset totals and ensured maintenance) to better allocate budgets. Although only a pilot balance sheet was calculated for 2005, calculations need to be completed for 1995, 2000 and 2010 allowing for trends. This would more accurately indicate the full borrowing on assets over

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the past two decades and the priority areas such as marine pollution, public security and credit card debt. Similar studies in coastal tourism sites within Mexico and in other Caribbean countries should be conducted to corroborate the selection of accounts and proxies. Most important is the determination of a threshold asset level to alert policy-makers of serious imbalances and areas for redress. It is possible that a destination need only lose five percent or less of its assets to drive tourists to other, easily substitutable sites.

In 1970, the directors and planners of Cancún boldly announced that tourism would bring prosperity to all. Three decades later, the Ministry of tourism found that income inequality for tourism workers was the same as inequality for all industries at 0.46 in 2000 (SecTur, 2003). In other words, public sector investment in economic projects is given priority at the expense of social projects.

> Should government subsidize private investment in the tourist industry, as so many countries have done? The correct general answer is almost certainly "no" …If private investors are not willing to risk their own funds in the tourist business, it is not clear why public money should remove the risk and leave them the profit, as has been the case in too many "sun and fun" countries. (Bird, 1992: 1155)

As *Banxico* was visionary four decades ago in its construction of centrally-integrated resorts, the Mexican government could become a leader in integrating mass tourism and sustainability.

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