

2019-11-26

# Determinants of Child Health in China: Examining Maternal Employment & Kindergarten Attendance

Chan, Titus

---

Chan, T., Chen, T., Parker, E., & Zhou, Y. (2019, November). Determinants of Child Health in China: Examining Maternal Employment & Kindergarten Attendance. Poster presented at the 14th Annual Students' Union Undergraduate Research Symposium, University of Calgary, Calgary, AB.

<http://hdl.handle.net/1880/111264>

*Downloaded from PRISM Repository, University of Calgary*

# Determinants of Child Health in China: Examining Maternal Employment and Kindergarten Attendance

Titus Chan<sup>1</sup>, Tian Chen<sup>2</sup>, Emily Parker<sup>3</sup>, Yue Zhou<sup>4</sup>  
 Supervisor: Dr. Minseop Kim<sup>5</sup>

<sup>1</sup>University of Calgary, Calgary, Canada

<sup>2</sup>Waseda University, Tokyo, Japan

<sup>3</sup>The University of North Carolina at Chapel Hill, Chapel Hill, USA

<sup>4</sup>University of York, York, United Kingdom

<sup>5</sup>Department of Social Work, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong



## Introduction

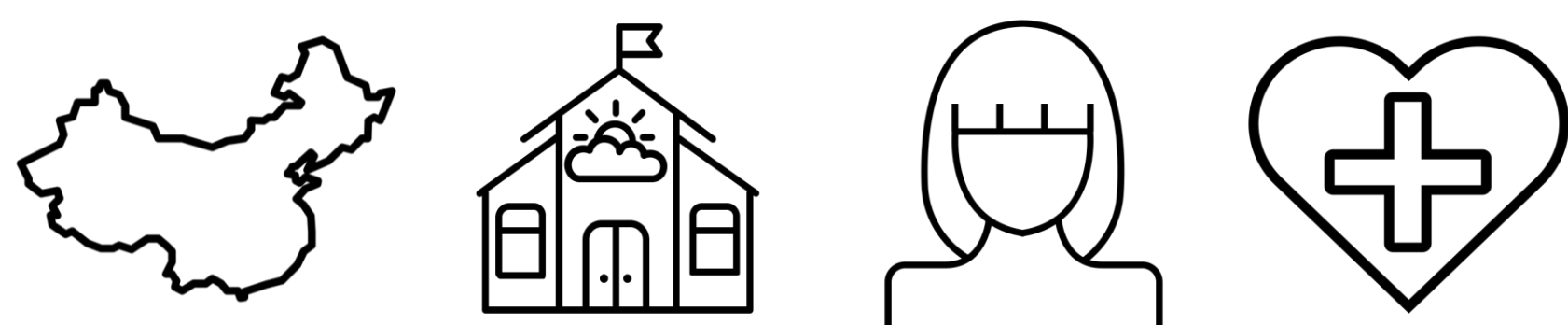
### Background

An investigation done by Human Rights Watch found that employers in China, both private and government, discriminated against mothers during hiring processes (Stauffer, 2018). The authors attributed this practice to the negative perception that mothers could not simultaneously commit to the needs of work and child-rearing. Previous Asia-based studies have suggested that maternal employment has impacts on a child's cognitive and emotional health (Nie & Sousa, 2014; Wu, 2017). There remains a gap in Chinese research that pertains to the physical effects of maternal employment on children.

The Chinese Ministry of Education (2010) has set a target to have 95% of 6-year-olds attending kindergarten by 2020. At an intersection between the increase in kindergarten attendance and a dearth of information on children's health, stakeholders in China want to know the impact of attending school at an early age—especially in dual-income households (Cai & Zhang, 2019). Our research question examines the effects of maternal employment and kindergarten attendance on child health, informing two highly relevant subject areas in China.

### Research Questions

What are the effects of maternal working hours on child Body Mass Index (BMI)? What are the effects of kindergarten attendance on child BMI?



## Methods

### China Family Panel Studies (CFPS)

CFPS is a longitudinal, national survey on economic and non-economic well-being. Its dataset samples 16,000 households from over 25 different regions in China bi-annually. This study uses data from 2010, the first year of the CFPS dataset. Outliers over the 99<sup>th</sup> percentile ( $\geq 20$  points) of the standard BMI range were excluded from analyses.



### Baseline Characteristics

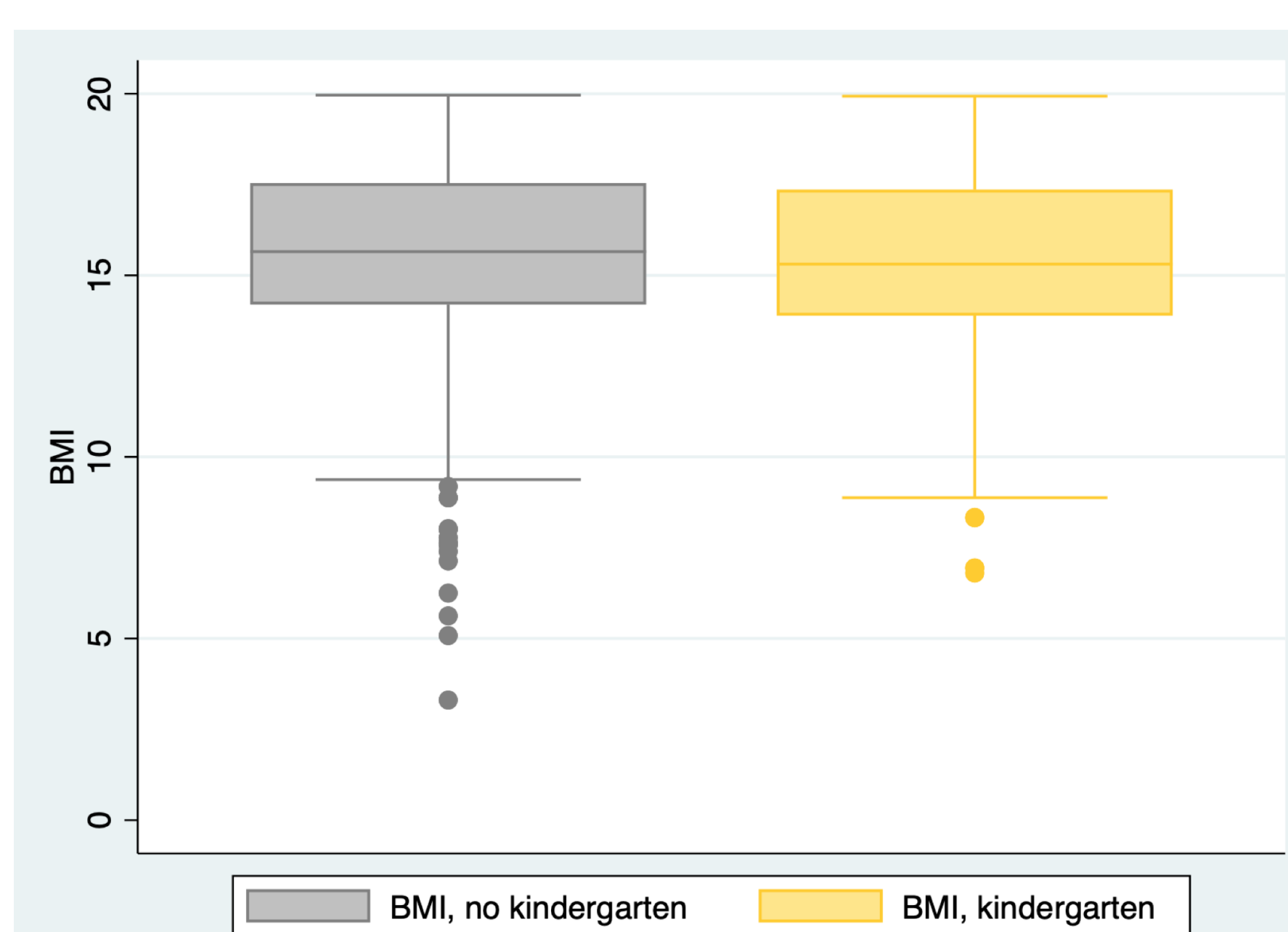


Figure 1. BMI distribution of children, by kindergarten attendance

### Null Hypotheses

- $H_1$ : Maternal employment has no observed effect on child BMI
- $H_2$ : Kindergarten attendance has no observed effect on child BMI

### Data Analysis

Our methodology included complex multiple regression models to determine the effect of maternal employment and kindergarten attendance on a child's BMI score.

STATA (ver. 15.1) was used to clean and merge the datasets as well as generate linear regression models.

## Outcomes & Findings

### Results

	(1) BMI	(2) BMI	(3) BMI
Working hours	-0.007** (0.004)	-0.006 (0.004)	-0.005 (0.004)
Kindergarten attendance		-0.361 (0.223)	-0.417* (0.230)
Gender		0.252 (0.221)	0.261 (0.221)
Mother's ethnicity		0.401 (0.426)	0.351 (0.425)
Mother's education level		-0.598 (0.417)	-0.510 (0.419)
Mother's marital status		0.718 (1.566)	0.753 (1.549)
Log family net income		0.206* (0.110)	0.202* (0.109)
Age			-0.202** (0.096)
Urban			-0.152 (0.222)
Constant	15.687*** (0.150)	12.585*** (1.786)	13.606*** (1.790)
Obs.	532	501	501
R-squared	0.006	0.027	0.036

Standard errors (robust) are in parentheses  
 \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Results from our initial bivariate regression point to a negative impact of maternal working hours on child BMI, at the 5% significance level. Our second and third models subsequently correct for omitted variable bias, producing results with higher internal validity. Both models predict at the 10% significance level that a 1% increase in family net income increases a child's BMI by about 0.2 points.

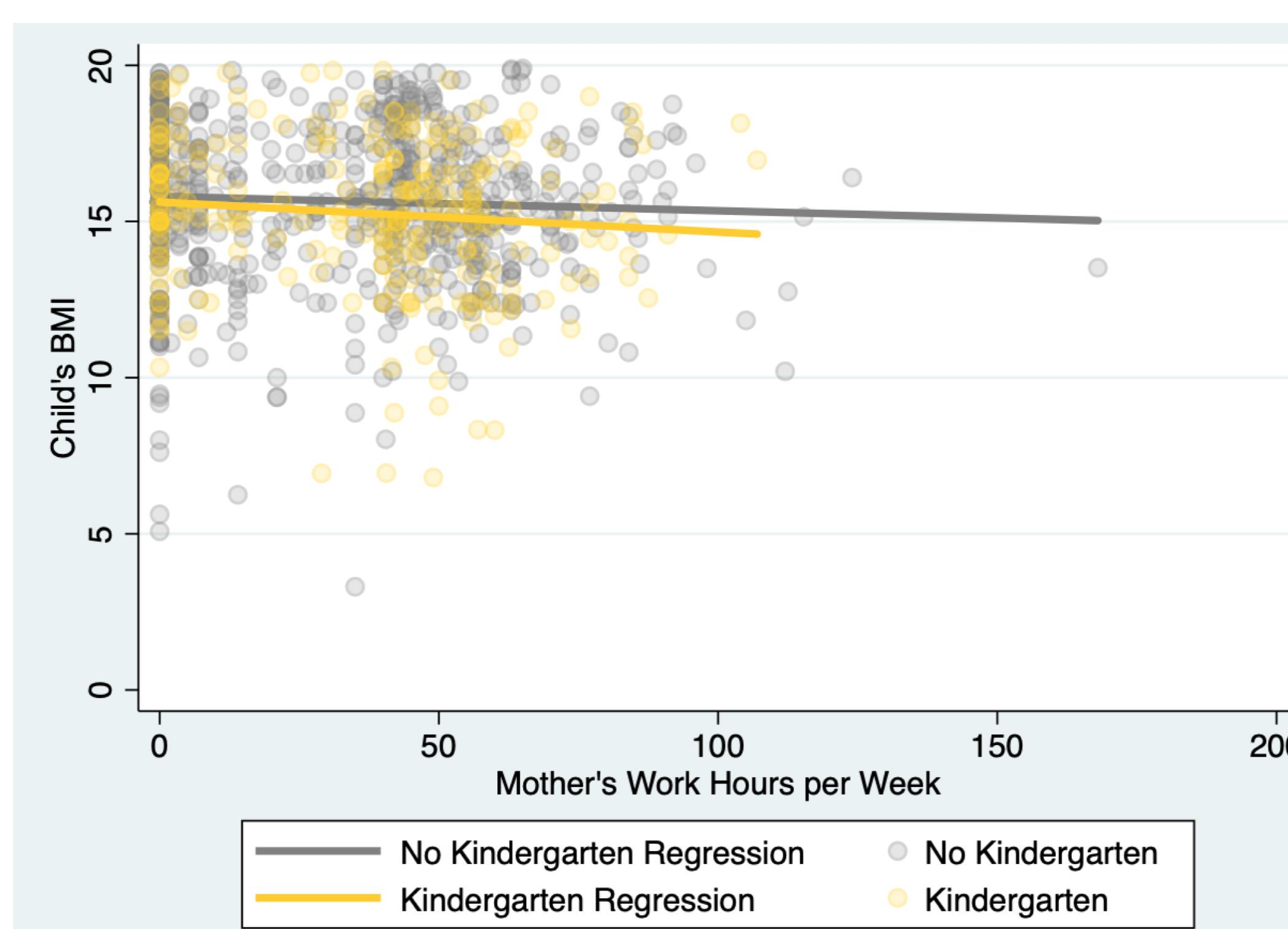


Figure 2. Simple OLS regression of maternal work hours on child's BMI, by kindergarten attendance

### Findings

Based on results from the final and most rigorous model, we: (1) fail to reject our first null hypothesis that maternal employment has no observed effect on child BMI and (2) reject our second null hypothesis that kindergarten has no observed effect on child BMI at the 10% significance level. Kindergarten attendance is predicted to lower a child's BMI by 0.417 points.



## Discussion

### Policy Implications

There is insufficient evidence to suggest that maternal working hours negatively impact child BMI, after controlling for factors such as age and family income. Our findings support employer or government-sponsored initiatives to increase the labour-force participation of mothers, a subgroup that has been declining in the Chinese workforce since the 1990s (Dasgupta, Matsumoto, & Xia, 2015).

### Vulnerable Populations Identified

Our study suggests that children not attending kindergarten are at risk of having a higher BMI than their peers. Higher BMI in children has been linked to familial and parental stress (Parks et al., 2012). Families in China looking to address such challenges may experience difficulties, as their children are not connected to school systems which generally provide a level of support services (Schalkwyk & D'amato, 2013).

## Assumptions & Limitations

Our study assumes that a high BMI score is associated with health issues, among other challenges. Interpretations of BMI can vary greatly across different parts of the world.

Our linear regressions were performed with relatively small samples (using only the 2010 wave of CFPS data). Future directions may include more advanced models such as fixed effects or propensity score matching.

Our kindergarten variable does not differentiate between private, public, part-time, or full-time schools. It also does not consider other key aspects of kindergarten, such as tuition fees and any applicable childcare or nursery services.

### Acknowledgements

Special thanks to the Chinese University of Hong Kong for providing this opportunity through their Summer Undergraduate Research Program, as well as the University of Calgary's Undergraduate International Research Grant for funding this experience.

### References

Cai, F., & Zhang, J. (2019). *Chinese research perspectives on population and labor* (Vol. 5). Leiden: Brill.  
 Dasgupta, S., Matsumoto, M., & Xia, C. (2015). *Women in the labour market in China*. International Labour Organization, Bangkok: ILO.  
 Ministry of Education China. (2010). *Outline of China's National Plan for Medium and Long-Term Education Reform and Development (2010-2020)* (English version translated by Australian Education International). Retrieved from [https://internationaleducation.gov.au/News/newsarchive/2010/Documents/China\\_Education\\_Reform\\_pdf.pdf](https://internationaleducation.gov.au/News/newsarchive/2010/Documents/China_Education_Reform_pdf.pdf)  
 Nie, P., & Sousa-Poza, A. (2014). Maternal employment and childhood obesity in China: Evidence from the China Health and Nutrition Survey. *Applied Economics*, 46(20), 2418-2428. doi:10.1080/00036816.2014.902025  
 Parks, E. P., Kumanyika, S., Moore, R. H., Stettler, N., Wrotniak, B. H., & Kazak, A. (2012). Influence of stress in parents on child obesity and related behaviors. *Pediatrics*, 130(5), E1096-E1104. doi:10.1542/peds.2012-0895  
 Schalkwyk, G., & D'amato, R. (2013). Providing psychological services and counselling in Pacific Rim countries: Where is school psychology in Asia? *School Psychology International*, 34(2), 123-130. doi:10.1177/0143034312453889  
 Stauffer, B. (2018, April 23). "Only Men Need Apply" Gender Discrimination in Job Advertisements in China [Webpage]. Retrieved from <https://www.hrw.org/report/2018/04/23/only-men-need-apply/gender-discrimination-job-advertisements-china>  
 Wu, J. C. (2017). Parental work characteristics and diet quality among pre-school children in dual-parent households: Results from a population-based cohort in Taiwan. *Public Health Nutrition*, 21(6), 1147-1155. doi:10.1017/s1368880017003548