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The Heckscher-Ohlin-Vanek Model and Individual Trade Policy Preferences

by

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The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies for acceptance, a project entitled, "The Heckscher-Ohlin-Vanek Model and Individual Trade Policy Preferences" submitted by Eddie Ng in partial fulfillment of the requirement for the degree of Master of Arts.

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ABSTRACT

Understanding the distributional consequences of trade policy is an important aspect of international public policy. The Heckscher-Ohlin-Vanek (HOV) model links trade policy changes to the returns of the factors of production – or occupations. This study examines the effect of individuals' occupations on their trade preference, and the performance of the HOV model in predicting the effects of labor force distribution on trade preferences. Based on Balistreri's 1997 study, the HOV model is utilized to derive the probable effect of a liberalization move on the returns to different occupation groups. The predicted effect is then estimated with individual opinions on trade policy from a number of countries in the International Social Survey Programme (ISSP) through a series of logistic regressions. It is found that different occupations influence individual opinions on trade policy differently, and the positions that the individuals took on trade policy are generally consistent with the prediction from the HOV model.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS, ABBREVIATIONS, NOMENCLATURE

International Labour Organization	ILO
International Social Survey Programme	ISSP
International Standard Classification of Occupations	ISCO

Chapter 1. INTRODUCTION

Trade policy has always been an important issue in the growth and development of nation states. Throughout history, governments have asked difficult questions about whether to adopt inward-looking import substitution policies or outward-looking trade liberalization, and have subsequently made dramatic changes in trade policy. Such decisions must be made in the face of challenging competing interests; for this reason, policy-makers are always looking for formulae, facts and numbers, or supporting data to help them in making their decisions. An important aspect of trade policy is the income distributional consequences of the policy: who gains and who loses. Standard models of international trade have provided some answers for the distributive consequences of trade and thus for individual preferences. Under the factor endowment model, the abundant factors in each country will gain from trade liberalization, whereas scarce factors will lose. This is known as the Stolper-Samuelson theorem. On the other hand, under the specific factors model, where factors are not mobile between industries, trade benefits the factor that is specific to the export sector of each country but hurts the factor specific to the import-competing sectors, with ambiguous effects on mobile factors (Mayda and Rodrik 2001).

Recent empirical work by Beaulieu, Benarroch and Gaisford (2003) suggests that the Hechscker-Ohlin model, known as the basic version of the factor endowment model, may not hold in reality. Using the data from the 1995 International Social Survey Programme (ISSP) of 24 countries around the world, Beaulieu et al. examine the relationship between skill level and trade preferences with the assumption of education level as the factor of production. They found that skilled labor is more likely to support trade liberalization in

both skill-abundant and skill-scarce countries. Their results also suggested that skilled labor in countries with high income and with high intra-industry trade of high-tech products is more likely to support trade liberalization than unskilled labor.

However, using the same ISSP data as Beaulieu et al. (2003) but a different interpretation, Mayda and Rodrik (2001) found strong support for the factor endowment model in determining individual preferences on trade. Their results suggested that individuals with high levels of education are more likely to support trade liberalization only in countries that are well endowed with human capital (proxied by educational attainment). Instead of focusing on the factor endowment model only, they also found supporting evidence for the specific factors model as well. In examining the sector of employment for individuals, their results suggested that individuals employed in export-oriented sectors are more likely to be pro-trade than individuals in import-competing sectors. These results are consistent with the general outcome under the specific factor model where trade benefits the export-oriented sectors but burdens the import-competing sectors

The Heckscher-Ohlin-Vanek (HOV) model, on the other hand, has the advantage that it is consistent with both the Heckscher-Ohlin model and the specific-factors model, in predicting the effects of labor force distribution on trade preferences (Balistreri 1997). Previous papers from Maskus (1985) and Davis et al. (1996) have indicated the failure of the HOV model in predicting international pattern of production and concluded that it remains open to empirical verification. However, with different occupations considered to be different factors of production, Balistreri (1997) made use of the employment data sets from the *Canada Year Book*, which included the distribution of labor across different occupations from Canada and U.S. in 1989 and 1990 respectively. Assuming that the

United States and Canada constitute the whole world, Balistreri used the employment data to derive the probable effect of a liberalization move on the returns to different Canadian occupations by the HOV model. He compared the predicted effect with the survey data which includes the opinions that Canadians held about the proposed Canadian-U.S. Free Trade Agreement (CAFTA) of 1988. Basing his findings on 2,470 observations, Balistreri found empirical support for the hypothesis of the HOV model that Canadians in occupations that are relatively abundant in Canada are more likely to favor CAFTA. This is also consistent with the HOV model's prediction that these individuals would likely receive a real income increase under a liberalization policy.

In addition, Balistreri considered an alternative approach in which a continuous measure of the degree of abundance affects an individual's opinion. The hypothesis of this alternative approach is that the more abundant (scarce) an occupation is relative to the United States, the more (less) likely an individual in that occupation to favor CAFTA. However this hypothesis is not supported by the survey data used by Balistreri.

This paper is mainly based on Balistreri's work on the performance of the HOV model in predicting the effects of labor force distribution on trade preferences. Assuming that different occupations are considered to be different factors of production, the total employment of the world from the data of International Labour Organization (ILO) will be used to derive the probable effect of a liberalization move on the return to different occupations by the HOV model. The predicted effect is then compared with individual opinions on trade policy preferences in the same ISSP survey data used by Beaulieu et al. (2003) and Mayda and Rodrik (2001). In this paper, the performance of the HOV model in predicting the effects of labor force distribution on trade preferences will be examined

for the 18 selected countries of the world.[1]

The plan of the paper is as follows. Chapter 2 describes the HOV model and presents predictions on the distribution effects of trade liberalization from it. In Chapter 3, these predictions are incorporated into the empirical model in examining individual trade policy preferences with several personal characteristic variables. In Chapter 4, the employment data from the ILO and the survey data from the ISSP are analyzed and the estimations of the empirical model are presented. Finally, some concluding remarks are provided in Chapter 5.

[1] The ISSP survey data originally contains responses on trade preferences of the individuals from 24 countries such as the United States, Canada, Japan, and many Western and Eastern European countries. However, since data on individuals' occupations in some countries is either missing or unclassified, only 18 countries are examined in this study. These countries are: Australia, Austria, Bulgaria, Canada, Czech Republic, West Germany, East Germany, Hungary, Ireland, Latvia, New Zealand, Norway, Poland, Russia, Slovakia, Slovenia, Spain and USA.

Chapter 2. THEORETICAL MODEL

The factor endowment model of international trade is the basic structure of the productive economy. Under the most basic version of the factor endowment model – the Heckscher-Ohlin model - there are two goods, two mobile factors of production, and two countries. Comparative advantage and trade are determined by national differences in factor endowments. If there are constant returns to scale and if both goods continue to be produced, a relative increase in the price of a good will increase the real return to the factor used intensively in the industry and reduce the real return to the other factor. This is the well-known Stolper-Samuelson theorem (Stolper and Samuelson 1941). Therefore trade benefits individuals who own the factors that are relatively well endowed in the economy of the home country, and hurts the others. Under the specific-factors model, however, since some factors are immobile, trade benefits individuals who are employed in such factors specific to the export sector of the home country, and hurts those who are employed in the factors specific to the import-competing sectors.

The Heckscher-Ohlin-Vanek model is a multi-good, multi-factor extension that is associated with the work of Vanek (1968). It computes the "factor content" of trade, i.e. the amount of labor, capital, land, etc. embodied in the exports and imports of a country. The HOV model has the advantage that it is consistent with both the Heckscher-Ohlin model and the specific-factors model (Balistreri 1997).

A standard HOV model assumes that technologies are identical across countries, that factor-price equalization prevails under free trade, and that tastes are identical and homothetic across countries. Now consider many countries, indexed by i=1,.....,C; many industries, indexed by j=1,...,N; and many factors, indexed by k=1,...,M. Let the matrix of

positive constants A(MxN) denote the amounts of factors needed for one unit of production in each industry. Let X^i denote the (Nx1) vector of outputs in each industry for country i, and let D^i denote the (Nx1) vector of demands of each good. The vector of net exports for country i, T^i, will be equal to the difference between the outputs and the demands of good in each industry for country i,

$$T^i = X^i - D^i. \tag{1}$$

The factor content of trade AT^i, which is also known as the vector of excess supplies (Vanek 1968), is an (Mx1) vector defined as the product of A and T^i. Next, the term AX^i is characterized as the demand for factors in country i, that equals to the vector of factor endowments V of country i under the full-employment conditions,

$$AX^i = V^i. \tag{2}$$

On the other hand, the term AD^i is simplified by the assumption of identical and homothetic tastes. The consumption vectors for all countries must be proportional to each other because product prices are equalized across countries by free trade. Therefore,

$$AD^i = s^i AD^w, \tag{3}$$

where D^w denotes the world consumption vector and s^i is the share of country i in world consumption. If trade is balanced, then s^i is the share of country i in world GDP.

Since world consumption must equal world production,

$$AD^i = s^i AD^w = s^i AX^w = s^i V^w, \tag{4}$$

where the last equality is the full-employment condition at the world level.

By making use of these expressions for AX^i and AD^i in order to connect the factor content of trade AT and the vector of factor endowments V together,

$$AT^i = V^i - s^i V^w, \tag{5}$$

which is a statement of the Heckscher-Ohlin-Vanek Theorem. Recalling that factors are indexed by k=1,...,M, the statement of the Heckscher-Ohlin-Vanek Theorem can be rewritten as:

$$AT_k^i = V_k^i - s^i V_k^w \qquad (6)$$

in terms of individual factors. Country i is abundant in factor k if its endowment of factor k relative the world endowment exceeds country i's share of world GDP ($V_k^i/V_k^w > s^i$), or in other words, if the value of AT_k^i is positive. On the contrary, country i is scarce in factor k if $V_k^i/V_k^w < s^i$. According to the Stolper-Samuelson theorem, the HOV model predicts that a country's abundant factors will benefit from freer trade, and its scarce factors will suffer. Therefore the factors of country i that are abundant relative to the rest of the world will be exported and the scarce factors will be imported, and a positive value of AT^i thus indicates the exported factors while a negative value of AT^i indicates the imported factors.

In terms of trade preferences, recalling that different occupations are considered to be different factors of production in this study, the HOV model thus predicts that individuals with occupations that are abundant relative to the rest of the world will favor trade liberalization. Balistreri used two different approaches to examine the prediction of the HOV model for Canada in 1997. With the assumption that Canada and the United States constitute the whole world, his first approach was to make use of the employment data on the distribution of labor in different occupations from Canada and U.S. in 1989 and 1990 respectively to derive the excess supplies of occupations by the HOV model. He then created a dichotomous variable, which he labeled D, to represent these excess supplies of occupations. D is equal to one if the excess supply of an occupation is positive, in other

words, if the excess supply is greater the zero; and D is equal to zero otherwise. Therefore, the measure of D serves as the measure of occupation abundance. If D is equal to one, it means that the occupation is abundant relative to the rest of the world; if D is equal to zero, then the occupation is scarce relative to the rest of the world.

Balistreri estimated the dichotomous variable D with the survey data that includes the opinions that Canadians held about the proposed Canadian-U.S. Free Trade Agreement (CAFTA) of 1988 by logistic regression. The results from the logit estimation of his empirical model supported the prediction of the HOV model that individuals with occupations that are relatively abundant in Canada were more likely to favor CAFTA.

As an extension to the HOV model, Balistreri considered an alternative approach in which a continuous measure of the degree of factor abundance affects an individual's position on trade policy. The logic is that the more abundant a factor is relative to the rest of the world, the more likely an individual with that factor will favor trade liberalization. The measure of the degree of abundance is the vector of excess supplies scaled by the country i's endowment vector:

$$AT^i/V^i = 1 - s^i(V^w/V^i) \qquad (7)$$

where AT^i/V^i demonstrates the share of a factor exported. He labeled the continuous measure of the degree of abundance as Z. Unlike the measure of occupation abundance D, Z is not a dichotomous variable. It reports the actual value of AT^i/V^i for each occupation in country i. In Balistreri's case, Z reports the share of each occupation exported from Canada. Again, he estimated Z with the survey data on Canadian opinions toward CAFTA by logistic regression. However, the importance of the degree of abundance on the opinions toward CAFTA was not supported by Balistreri's survey data. Note that the

survey data used in this study is different from that used by Balistreri; in addition, there are more countries examined in this study. Both the dichotomous measure of the occupation abundance derived by the HOV model and the continuous measure of the degree of abundance as the extension of the HOV model will be examined in this paper.

Chapter 3. EMPIRICAL MODEL

In this chapter, the empirical model of individual preferences on trade policy is examined. As mentioned above, occupations are considered to be factors of production in this study and policy preferences are measured at the individual level. Individual preferences on trade policy are taken from a generic question on trade liberalization versus protectionism. The original survey question regarding the individual's trade policy preference is as follows:

"How much do you agree or disagree with the following statement: (The respondent's country) should limit the import of foreign products in order to protect its national economy." The possible responses were ordered as: 1. Strongly agree; 2. Agree; 3. Neither agree nor disagree; 4. Disagree; 5. Strongly disagree.

Obviously, the order of the responses to this question suggested that these responses should be estimated with the factors of production in this study, the occupations, under a series of ordered logit models. However, a problem with the ordered logit approach is that the coefficient estimates are difficult to interpret (Beaulieu et al., 2003). Therefore, a binary logistic approach is considered in this study for simplicity, and the responses to the question about import protection are ordered in the binary way: oppose import protection (i.e. for those replying "disagree" and "strongly disagree") and support import protection (for those replying "strongly agree", "agree" and "neither agree nor disagree").[2] A series of simple linear logit models used to examine individual trade policy preferences across all countries are described in Model 1 through 8. Note that all models are estimated with country fixed effect, which include the country dummy variables that serve as the controls

[2] The results of other approaches in ordering the responses on import protection are reported in Appendix C.

for unobserved differences between individuals from different countries in the preferences on trade policy that are not picked up by the explanatory variables

Model 1 examines the effect of individual occupations on their trade preferences as different occupations are considered to be different factors of production:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Occup_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (8)$$

The dependent variable FT_{gi} is a categorical variable equal to one if the individual g from country i opposes import protection and zero otherwise; $Occup_{gi}$ is the categorical variable for a particular occupation of individual g from country i;[3] X_{gi} is the vector of explanatory variables controlling for potential determinants of trade policy preferences that are not of primary interest; and C_i is the country dummy variable represents the country fixed effects for all countries. Some previous papers, Mayda and Rodrik (2001), O'Rourke and Sinnott (2001) and Beaulieu, Benarroch, and Gaisford (2001) have shown that personal characteristic variables are significant as the determinants of an individual's preference for trade policy, underscoring the importance of including them as independent variables in the empirical model to control the preference for trade policy in a study like this. The personal characteristic variables used in this model thus include gender, age, employment status, martial status, political party affiliation and whether the respondent lives in rural area as a measure of ideology.

Model 2 reconstructs the Beaulieu et al. (2003) model in examining the effect of the skill level of individuals as a factor of production on trade preferences:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Ed_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (9)$$

Ed_{gi} is a categorical variable for the skill level of individual g from country i. Notice that

[3] The occupations are coded into 5 categories: the managerial group, professional group, clerical group, sales and service group and agriculture group. These occupation groups are discussed in more detail in Chapter 4.

the skill level of an individual is measured by the education attainment. The purpose of including this model is to compare it with the effect of occupations on individual trade preferences, since the occupation of an individual can also be considered as another measurement of skill. For instance, managers, technicians and professional workers can be considered high-skill workers; while agricultural workers, shop and sales workers can be considered low-skill workers.

Model 3 includes both the occupation variables and the education variables:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Occup_{gi} + \alpha_2 Ed_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \qquad (10)$$

One might think that it is inappropriate to put two measures of skill together in a model, as one of the two variables will be dropped from the regression due to collinarity if both variables are measuring the same thing. However, occupation is not only a measure of skill, but it is also a measure of an intangible factor - work experience. Furthermore, occupations are used as the factors of production in this study rather than the skill level of individuals, which was being used as the factor of production in Beaulieu et al. (2003)'s and Mayda and Rodrik (2001)'s work. Therefore, in this study, the education attainment of an individual will be considered as a personal characteristic, which means occupations and the education attainments can be treated as two different measures.

Model 4 examines the occupation abundance on the individual trade preferences:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 D_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \qquad (11)$$

Recall that a positive value in the excess supply (AT_k^i) of factor k indicates that factor k is abundant in country i relative to the rest of the world, D_{gi} serves as the measure of occupation abundance where it is a dichotomous variable that is one if the excess supply of an occupation is positive, and zero otherwise. If an occupation is abundant relative to the

rest of the world, the prediction from the HOV model is that the return to that occupation will go up, and the individuals with that occupation will favor trade liberalization. Therefore, one would expect that the coefficient of D_{gi}, α_1, is positive. The results of this model can be compared with the empirical work done by Balistreri (1997), as he constructed the same model in his paper.

Model 5 examines the degree of abundance on individual trade preferences:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Z_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (12)$$

Recall that Z_{gi} is the measure of the degree of abundance, which is the vector of excess supplies AT_k^i scaled by the country i's endowment vector V_k^i, for k factors. Since occupations are entered as the factors of production in this study, the more abundant an occupation is relative to the rest of the world, the more likely it is that $FT_{gi}=1$, therefore the coefficient of Z_{gi} will have the same expectation as D_{gi}: α_1 is positive.

Model 6 includes both the measure of occupation abundance (D) and the degree of abundance (Z):

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 D_{gi} + \alpha_2 Z_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (13)$$

This model is done to compare with the empirical work done by Balistreri (1997), as he also constructed the same model in his paper. Whereas Balistreri only focused on Canadian occupations and the opinions that Canadians with known occupations held about the proposed Canadian-U.S. Free Trade Agreement of 1988, this paper will examine occupations from 18 selected countries and the opinions of their citizens on import protection. Furthermore, the results from this model will also be compared with the results from Model 4 and 5 as the measure of occupation abundance D_{gi} and the degree of abundance Z_{gi} are examined individually in these models. The correlation between these

two variables will be examined in this model as well, and one would expect that the coefficients of these variables are positive.

Model 7 examines the interaction effect of the occupations and the degree of abundance on individual trade preferences:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Occup_{gi} * Z_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (14)$$

The variable $Occup_{gi} * Z_{gi}$ represents the interaction between an occupation and degree of abundance of that occupation, for every occupation. The measure of the interaction of these two variables thus indicates the level of abundance of a specific occupation among other occupations of a country. With the same prediction from the HOV model for the degree of abundance that the more abundant an occupation is relative to the rest of the world, the more likely it is that $FT_{gi} = 1$, one would expect that the coefficient of the interaction variable is positive.

Model 8 consists of all determinants examined in Model 1 to 7:

$$\ln [Pr(FT_{gi}=1) / 1 - Pr(FT_{gi}=1)] = \alpha_0 + \alpha_1 Occup_{gi} + \alpha_2 D_{gi} + \alpha_3 Z_{gi} + \alpha_4 Occup_{gi} * Z_{gi} + \beta X_{gi} + C_i + \varepsilon_{gi} \quad (15)$$

This model includes occupations, the measure of occupation abundance, the measure of the degree of abundance and the interaction between occupations and the degree of abundance. The purpose of this model is to compare the results with those in Model 1 to 7 where some of these determinants are examined individually in these models.

Chapter 4. DATA SETS AND ESTIMATION RESULTS

4.1. Data Sources

Data on individual trade policy preferences are obtained from the International Social Survey Programme (ISSP) in 1995. This data set contains responses on a variety of topics, including trade preferences of individuals from 24 countries including the United States, Canada, Japan, and many Western and Eastern European countries. In addition, this survey also contains detailed personal characteristics, including occupations. However, data on occupations in some countries is either missing or unclassified in the ISSP data set. As a result, only 18 countries are examined in this study. These countries are: Australia, Austria, Bulgaria, Canada, Czech Republic, West Germany, East Germany, Hungary, Ireland, Latvia, New Zealand, Norway, Poland, Russia, Slovakia, Slovenia, Spain and USA. The countries that have been eliminated from this study are Great Britain, Italy, Netherlands, Sweden, Philippines and Japan.

The country-level data on total employment by occupation is sourced from the *Yearbook of Labour Statistics*, which is published by the International Labour Organization (ILO); it reports a variety of employment statistics, including employment by occupation. The purpose of including both country characteristic data and the individual survey data is described as follows: the ILO data will be used to derive the excess supplies of occupations for each country according to the HOV model; then the occupation abundance (D) and the degree of abundance (Z) derived from these excess supplies of occupation will be incorporated with the ISSP data, which includes the trade preferences of the individuals from the 18 selected countries. Further analysis of data and comparison of these two data sets is presented in section 4.2 and 4.3.

4.2. ILO Data Set

The occupations in the ILO data set are either recorded in ISCO88 or ISCO68. In the data, the population of each country is divided at the 1 digit ISCO level: ISCO68 is composed of 8 groups as follows 0/1, 2, 3, 4, 5, 6, 7/8/9 and A; ISCO88 is composed of 10 groups 1 through 9 and 0.[4]

To merge these two different sets of codes together, ISCO68 is converted to ISCO88 by the conversion table provided from Ganzeboom and Treiman (1992). For consistency and simplicity, six occupation groups are considered in this study:

Group 1 - Managerial (including legislators, senior officials, and managers)

Group 2 - Professional (including professionals, associate professionals and technicians)

Group 3 - Clerical (including clerks and related workers)

Group 4 - Sales & Service (including service workers, shop and sales workers)

Group 5 - Agricultural (including animal husbandry, forestry workers, fishermen, hunters and elementary occupations)

Group 6 - Production (including production, craft and related workers, plant and machine operators and assemblers)

Note that the armed forces group is omitted in this study because it is either missing or seldom reported in the data set.

Table 1 presents the distribution of the six occupation groups in the selected countries from the ILO data set. Note that the frequency is reported in thousands. With the assumption that these countries constitute the whole world, the USA has the largest employment of the world due to its size. As shown in Table 1, the total employment for

[4] See Appendix A

all occupation groups in USA (124899.0) is about 43% of the world total employment for all occupation groups (291284.9), which means the total employment in the remaining 17 countries together shares about 57% of the world total employment. The total employment in Slovenia (875.0) is the smallest employment among other countries; it is only 0.3% of the total employment of the world (291284.9).

In terms of the occupation groups, Table 1 shows that the production group is the largest occupation group across all occupation groups overall; the total employment of the production group is about 27% of the world total employment for all occupation groups. The production group in Austria, Bulgaria, Czech Republic, Hungary, Latvia, Russia, Slovakia, Slovenia and Spain is also the largest group of all occupation groups. The professional group is the second-largest group among all occupation groups overall; its employment is the largest in Australia, Canada, Germany, Ireland, New Zealand and Norway. The sales and services group, which is the third-largest group overall, is the largest occupation group in the USA. The clerical group is the fourth-largest group overall; however it is the smallest of the occupation groups in Latvia and Russia. Agriculture, the fifth-largest group overall, is the largest occupation group in Poland, but the smallest in the USA and Norway. Finally, the managerial group is the smallest group across all occupation groups overall; and it is also the smallest group in Australia, Austria, Bulgaria, Canada, Czech Republic, Germany, Hungary, Ireland, New Zealand, Poland, Slovakia, Slovenia and Spain.

4.3. ISSP Data Set

The occupations in the ISSP survey data set are also recorded in ISCO88 or ISCO68. Of the 29,771 respondents in the 24 countries, 16,302 respondents of the 18 countries were used in this study. Observations were dropped if the data on occupations could not be reclassified into ISCO68/88 (7731 respondents in the 6 omitted countries) or if the respondent's occupation was missing, or unclassified (5738 respondents in the remaining 18 countries).

Table 2 presents the distribution of the occupations in the 18 selected countries. Again, in assuming the these 18 countries constitute the whole world, Table 2 shows that the professional group is the largest of all occupation groups overall by comparing the employment of the professional group with the employment of the other occupation groups. The total employment of the professional group is about 29% of the world total employment in this survey data. The professional group is also the largest occupation group in Australia, Canada, West Germany, East Germany, Ireland, Latvia, New Zealand, Norway, Russia and Slovenia. The production group is the second-largest group overall; it is the largest group in Bulgaria, Czech Republic, Hungary, Poland, Slovakia and Spain. The sales and services group is the third-largest group overall, and the largest group in the USA. The clerical group is the fourth-largest group overall, except in Latvia, where it occupies last position. The agriculture group is the fifth-largest group overall, but it is the smallest group in Australia, Canada, East Germany, New Zealand and the USA. Finally, the managerial group is the smallest occupation group overall; and it is also the smallest group in Austria, Bulgaria, Czech Republic, West Germany, Hungary, Ireland, Norway, Poland, Russia, Slovakia and Slovenia.

Table 3 presents the comparison on the distribution of the occupations in the ISSP and the ILO data in percentages. Overall, the distribution of the occupations in the ISSP data set is fairly consistent with the ILO data set when comparing the overall employment percentages of the same occupation group. However, the employment percentages of some occupations are quite different when the two data sets are compared for the same country. For instance, the employment percentage of the professional group in Canada from the ISSP data (64.36%) is dramatically different from that in the ILO data (27.68%). The reason for such difference is the gap between the two data sizes of these two data sets is huge. The ILO data records the total employment by occupation for each country in thousands; the employment data in the ISSP data set, on the other hand, is drawn from a limited survey, with some observations dropped due to missing data. In Canada, the ILO data indicates that the total employment of all occupations is 13,501,400, but the ISSP data shows that only 912 Canadians participated in the survey. Therefore, the difference between the data sizes of these two data sets can cause the inconsistency in the employment percentages of the same occupations in the same country. In conclusion, the ISSP data is representative regarding to the overall employment percentages because the percentages are very similar among the same occupation of the two data sets. However, the ISSP data may not be representative regarding to the employment percentages for separate countries with the dissimilarities among the same occupation of the two data sets. Unexpected results from the logistic regressions may occur due to the limited data size of the ISSP data for certain countries.

4.4. Trade Preferences

Recall that in the ISSP survey, respondents were asked to what extent they agreed or disagreed with the statement that: "(The respondent's country) should limit the import of foreign products in order to protect its national economy." Table 4 shows the summary data on individual preferences on trade policy by countries. Taking all 18 countries as a whole, about 60% of the 16302 respondents either strongly agree (27.36%) or agree (33.03%) with the statement. About 19% neither agree nor disagree, and about 21% either disagree (15.71%) or strongly disagree (4.77%) with the statement. In other words, more than half of the respondents agree with the proposition that trade should be restricted. However, the question might be considered to have a built-in bias, as the wording may lead respondents toward supporting import protection for nationalist rather than economic reasons. Evidence of this can be seen by the lower percentages of Americans and Canadians who support protection in a more neutrally-worded question from other survey data studied in other papers (Beaulieu et al., 2003).

Table 4 also shows the variation in trade preferences across countries. The percentages in the "Support trade liberalization" on the seventh column of the table represent the sum of the percentages that respondents answer "strongly disagree" and "disagree" to the statement, and the ranks of these 18 countries with respect to supporting trade liberalization are shown on the eighth column of the table. As shown, West Germany tends to be the most pro-trade country, with about 40% of the respondents supporting trade liberalization. East Germany ranks second, with about 31% of the respondents supporting trade liberalization. Therefore, one could conclude that Germany is the most pro-trade country among these 18 countries in the ISSP data set. Canada is

fourth, with about 29% of the respondents supporting trade liberalization. Surprisingly, the USA ranks 15th, with only 14% of the respondents supporting trade liberalization. Bulgaria is the most protectionist country, with only eight percent of the respondents supporting trade liberalization. These results suggest that the continental European countries seem to be most pro-trade oriented, but the former socialist economies of Europe are the most protectionist (Mayda and Rodrik 2001).

In terms of trade preferences by occupations, the percentages of individuals among occupation groups in each country who support trade liberalization are shown in Figure 1 to Figure 5 by bar graphs. The "percentage supporting free trade" on the y-axis is a measure of individual trade preferences by occupations which is calculated by the sum of individuals of each particular occupation group who answered "disagree" or "strongly disagree" to the question on whether imports should be limited in order to protect the national economy divided by the total number of individuals in that occupation group. For example, the percentage of individuals of the managerial occupation group in Australia who support trade liberalization is higher than the percentage of the professional group, followed by clerical, agriculture, production and finally the sales and service group. Note that there is no percentage shown for the managerial group in Bulgaria. There are only 8 individuals belonging to the managerial group as shown in Table 2, however, none of these individuals support trade liberalization. The last figure in Figure 5 shows the percentages of individuals among occupation groups whose support trade liberalization for all 18 countries as a total. Although the managerial group is the smallest group across all occupation groups overall in Table 2, the last figure in Figure 5 indicates that it is the most pro-trade occupation group for all 18 countries as a total, followed by the professional

group, clerical group, the sales and services group, production group and the agriculture group. Further analysis on comparing trade preferences across occupation groups in Figure 1 through 5 to the degree of abundance of the occupation groups will be discussed in section 4.5.

4.5. Occupation Abundance

Table 5 presents the signs of occupation excess supplies, the measure of the degree of abundance, and the occupation abundance ranking for the 18 selected countries. Considering different occupations to be different factors of production, the statement of the Heckscher-Ohlin-Vanek Theorem is written as $AT^i = V^i - s^iV^w$, where AT^i is the vector of excess supplies for each occupation group in country i; V^i is the vector of endowments for each occupation group in country i, and it is taken from the employments of occupation by countries in Table 1. V^w is the vector of the world total endowments for each occupation group from the 18 selected countries overall, and the share of world consumption, s^i, is measured by the country's GDP, with the assumption that these 18 countries constitute the whole world.[5] A positive sign of AT^i indicates that the occupation in country i is abundant relative to the rest of the world, while a negative sign of AT^i indicates that the occupation in country i is scarce relative to the rest of the world. As shown in Table 5, the occupation excess supplies for some countries such as Bulgaria, Czech Republic, Germany, Hungary, Latvia, Norway, Poland, Russia and Slovakia, are all in positive signs or all in negative signs, implying that all occupations of these countries are either abundant relative to the rest of the world, or scarce relative to the rest of the world. Nevertheless, a country with abundance in all occupations will still have a different level of abundance among occupations. And the degree of abundance is measured by the vector of excess supplies scaled by the home country's endowment vector $AT^i/V^i = 1 - s^i(V^w/V^i)$, where AT^i/V^i is the degree of abundance which demonstrates the share of an occupation exported.

Leamer (1980) developed three criteria for ranking factors according to their relative

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[5] See Appendix B

abundance. The three criteria are described as follows: First, the exported factor is more abundant than the imported factor. Recalling that a positive value of AT^i also represents the exported factors while a negative value of AT^i indicates the imported factors, the professional worker in Australia is more abundant relative to the manager since the professional group has a positive sign in its excess supply while the excess supply of the managerial group is negative, as shown in Table 5. Second, if two factors are both exported, then the share of one factor exported must exceed the share of other factor exported. For instance, the professional group in Bulgaria is relatively more abundant than the managerial group because the degree of abundance of the professional group is larger than the managerial group. Finally, if both factors are imported, then a factor will be more abundant relative to another factor if its imported share is less than the other. Therefore it may be concluded that the professional group in Germany is relatively more abundant than the managerial group since the degree of scarcity of the professional group is smaller in absolute terms than the managerial group, as shown in Table 5. These conditions suggest that abundance rankings among factors can be established by ranking the factors according to their total contents in net exports.

Overall, it is surprising to see that the agriculture group is revealed to be the most abundant group among occupations in most countries. As shown in Table 5, the agriculture group scores the first rank in Australia, Austria, Bulgaria, Canada, Latvia, New Zealand, Poland, Russia, Slovakia, Slovenia and Spain. As the HOV model predicts that the more abundant a factor is relative to the rest of the world, the more likely an individual with that factor is to favor trade liberalization, one would expect that individuals of the agriculture group should be more likely to favor trade liberalization than the other groups in

these countries. However, the percentages of individuals among occupation groups in each country whose support trade liberalization shown in Figure 1 to Figure 5 indicate that the HOV prediction may not hold in these data. The percentages supporting free trade are recorded in bar graphs, and a higher percentage supporting free trade in an occupation group indicates that such occupation group is more pro-trade than the other groups with lower percentages. As shown in Table 1, the most pro-trade groups in Australia and Austria are the managerial and the professional groups rather than the agriculture group, which is revealed to be the most abundant group among occupations in these two countries as shown in Table 5. The agriculture group in Austria is the least pro-trade group among other occupation groups, which is totally opposite to the prediction of the HOV model. In Bulgaria, the most pro-trade group is the sales & service group, yet this group is revealed to be the least abundant group among all occupation groups in Bulgaria from Table 5. Figure 1 shows that, in Canada, the most pro-trade groups among all occupation groups are the managerial and professional groups. The professional group, which is revealed to be the least abundant group in Canada (Table 5), is still more pro-trade than the agriculture group. The same contradiction to the HOV model applies to Latvia, Poland, Russia, Slovakia, Slovenia, where the agriculture group is the most abundant group among all occupation groups in these countries according to Table 5, but it turns out to be the least pro-trade group in these countries according to Figure 3 through 5.

There are some exceptions. For example, Table 5 indicates that the agriculture group is the most abundant occupation group in New Zealand and Spain; it is also the second most pro-trade group in these countries as shown in Figure 3 and Figure 5. Thus the HOV model holds in these countries. In Norway, too, the HOV model holds for the agriculture

group, as Table 5 and Figure 3 show that it is the least abundant occupation group, as well as the least pro-trade group. However, the HOV model does not hold for the managerial group in Norway as it is revealed to be the fifth most abundant occupation group but the most pro-trade group in Norway. The USA is another example in which the pattern of trade preferences largely contradicts the predictions of the HOV model. As shown in Table 5, the agriculture group is the least abundant group in USA, but it turns out to be the third-largest pro-trade group in Figure 5. The comparison of trade preferences across occupation groups in Figure 1 through 5 to the degree of abundance of the occupation groups in Table 5 implies that the prediction of the HOV model on the degree of abundance may not hold.

4.6. Combined Regression Results for All Countries

To examine individual trade preferences over 18 selected countries, a series of regressions are used to examine whether an individual's occupation affects his or her preference on trade policy. Moreover, it must be asked if the pattern of cross-occupation differences in preferences on trade policy is related to the factor abundance of the occupations. If so, are the patterns consistent with the HOV predictions? Answers to these questions will be provided through a series of the binary logistic models examined in this study.

Eight specifications of the model have been estimated and shown in Table 6 and Table 7. Model 1 in Table 6 shows the results from estimating the logistic regression with the occupation groups. Recall that the dependent variable of the logistic regression is the original response to the question whether imports should be limited in order to protect the national economy; it is transformed into a dichotomous variable where it is equal to 1 if the respondent opposes import protection (i.e. for those replying "disagree" and "strongly disagree"), and zero otherwise. For the explanatory variables, five different occupation groups have been entered as the categorical dummy variables, where the production occupation group is the omitted variable in this category. A positive coefficient on a categorical dummy variable implies that individuals from that category have a higher probability of disagreeing with the statement than those from the omitted category. Gender, marital status, union membership, political party affiliation and whether the respondent lives in rural area are entered as the dummy variables and they serve as the control of the model. A positive coefficient for these dummy variables would be considered as implying higher probability to disagree with the statement. The standard

errors are White robust standard errors, correcting for heteroskedasticity, and all models in Table 6 and Table 7 are estimated with country fixed effect, which include the country dummy variables that serve as the controls for unobserved differences between individuals from different countries in the preferences on trade policy that are not picked up by the explanatory variables.[6]

The estimated coefficients of the occupation groups in Model 1 indicate the difference between the probabilities for the individuals in these occupation groups opposing import protection and the probabilities for those in the production group opposing protection. For example, the estimated coefficient for the individuals in the professional group is 0.7227, which means those individuals are more likely to oppose protection than those in the production group (the omitted group). However, the estimated coefficient for the individuals in the managerial group is 0.9051, which is even higher than that for those in the professional group. This means that the individuals in managerial group are most likely to oppose protection, followed by those in professional, and then those in the clerical group (0.4770), and those in sales and service group (0.2956), and finally, the production group. Notice that the estimated coefficient for the individuals in the agriculture group is -0.0250, which means that these individuals are more likely to support import protection than the production group. In other words, they are least likely to support trade liberalization. These estimated coefficients are statistically significant at the one percent level, except for the agriculture group.

As the significance of the occupation groups by themselves cannot represent the total effect of occupations on trade policy preferences, the joint statistical significance of the

[6] The country dummy variables are removed from the regression but that does not alter the results significantly.

effects of occupations on the trade preferences is examined. As expected, the occupation groups are jointly significant at the one percent level.

Model 2 presents the results from estimating the logistic regression with individual educational attainment. Educational attainment is entered using dummy variables, with those having primary education or less as the omitted category.[7] Again, the estimated coefficients of the secondary and tertiary education groups indicate the difference between the probabilities for these groups opposing protection and the probability that those with primary education oppose protection. As shown, individuals with secondary education are more likely to oppose protection than those with primary education (0.4069), and those with tertiary education are even more likely than those with secondary education to oppose protection (1.0441). Note that the estimated coefficients are statistically significant by themselves and they are also jointly significant at the one percent level. These results suggest that skilled workers, in general, are more likely to oppose protection than the unskilled workers.

Model 3 presents the results from estimating the logistic regression with the occupation groups and the education attainment variables together. The sign patterns of the estimated coefficient on the occupation groups and the education variables are similar to those in Model 1 and 2. The individuals in the managerial group are most likely to oppose protection, followed by those in professional, and then for those in the clerical group, and those in sales and service group and then for those in the production group. The estimated coefficient for the individuals in the agriculture group is negative, so these

[7] Instead of using the education levels, the variable on years of education has been used to test for the significance. However, the result doesn't seem to have much difference from those using the education levels, so the variable on years of education is dropped from the model and the variable on the education levels remains.

individuals are more likely to support protection than the production group. The estimated coefficients for these occupation groups are all statistically significant at the one percent level except for the agriculture group, and these estimated coefficients are jointly significant at the one percent level. Individuals with tertiary education are more likely to oppose protection, followed by those with secondary education, than those with primary education. The estimated coefficients for the education variables are all statistically significant and jointly significant at the one percent level. The presence and the significance of the occupation and the education variables together suggest that they have the similar effects in determining individual opinions on trade preference. As individuals in the managerial and the professional group require more skill, they can be considered the high-skill workers; while those in the agriculture group can be considered as the low-skill or unskilled workers. The results of the occupation groups in Model 3 therefore support the idea that skilled workers are more likely to oppose protection than the unskilled workers in general. However, unlike education, occupation is not only a measure of skill, but it is also a measure of an intangible factor - work experience. For instance, some individuals get promoted because of their level of education, such as a university degree, but others are promoted because of their work experience and seniority. Furthermore, keep in mind that instead of using individual skills as the factor of production, different occupations are considered as the factors of production in this study. Therefore, the occupation groups and the levels of education can be treated as two different of measures. Finally, the joint significance of the occupation groups is obviously smaller in value. It is 249.83 in Model 1 but it is only 82.90 in this Model 3. The joint significance of the levels of education becomes smaller in value as well. It is 265.74 in Model 2 but it is 102.21 in this Model 3.

These results can be explained by the fact that these variables are sharing some of the explanatory power. From this point on, education attainment of the individuals are presented in the rest of the models as another personal characteristic variable.

Model 4 presents the results from estimating the logistic regression with the occupation abundance on the HOV prediction. As mentioned, the occupation abundance variable D is a dichotomous variable that is one if the vector of excess supply of an occupation is positive, and zero otherwise. The sign pattern of D serves as the predicted probable distribution effect of trade liberalization by the HOV model. The estimated coefficient on D is positive and statistically significant at the one percent level. This implies that individuals with occupations that are relatively abundant in the home country to the rest of the world are more likely to support trade liberalization. Therefore the prediction of the HOV model is supported. Note that the results of this model are consistent with the empirical work done by Balistreri (1997) for Canada. Balistreri (1997) generated a model with the dichotomous variable D on the HOV prediction. The results from the logit estimation supported the hypothesis that Canadian agents based their opinions about CAFTA on the distribution effects as predicted by the HOV model, as the estimated coefficient on D is positive and significant at the one percent level in his model.

Model 5 shows the logistic regression with the degree of abundance. The degree of abundance Z is the vector of excess supply of an occupation scaled by the home country's endowment of that occupation. Remember that the measure of the degree of abundance Z is different from the measure of occupation abundance D. The degree of abundance Z is not a dichotomous variable. It reports the actual value of the scaled excess supply for each occupation in every country. One would expect it to be positive, a priori, implying

that the more abundant an occupation is relative to the rest of the world, the more likely an individual with such an occupation would oppose protection. However, its estimated coefficient is negative in this model and it is not statistically significant.

Model 6 shows the logistic regression with both occupation abundance (D) and the degree of abundance (Z) together. Again, the estimated coefficient of D is positive and statistically significant at the one percent level, but the estimated coefficient of Z is negative and insignificant. The estimated coefficients on these two variables are jointly significant at the five percent level, which means these variables are correlated. However, that is due to the explanatory power of the D since the coefficient on Z is not statistically significant by itself (Balistreri 1997). Therefore the data support the hypothesis that whether an occupation is abundant or scarce is an important determinant in examining an individual's preference towards trade policy, but the degree of abundance is not. This model generates the same results as Balistreri (1997) model on the HOV prediction with these two variables included. His explanation of the insignificance of the degree of abundance is that the factor that is marginally abundant works in the same way as a factor that is very abundant to favor liberalization, with most of the power of the HOV prediction exhausted within a small range of relative abundance measures around zero. In other words, these results suggest that as long as an occupation is abundant relative to the rest of the world, individuals with such an occupation will be more likely to oppose import protection, no matter how abundant that occupation is relative to the rest of the world. One would expect that the same explanation is applicable to this model as well.

Model 7 presents the results of the logistic regression with the interaction of the occupation groups and the degree of abundance. The estimated coefficients of the

interaction variables seem contradictory to the results of occupation groups shown in Model 1. Individuals in sales and services group are most likely to oppose protection when the sales and services group is more abundant relative to the rest of the world (0.3011), followed by those in the agriculture group (0.0933), the clerical group (0.0504) than the professional group. Note that the estimated coefficients of the professional and the managerial groups are negative (-0.0959 and -0.3231, respectively), implying that the most pro-trade groups in Model 1 become the most protectionist groups in Model 7, when they are more abundant relative to the rest of the world. These estimated coefficients are insignificant by themselves, except for the managerial group and the sales and services group (they are statistically significant at the one percent level). However, these variables are jointly significant at the one percent level.

Model 8 presents the results of the logistic regression with all variables listed in equation (15). The sign patterns of these variables are similar to the previous models. The estimated coefficients of the occupation groups are positive and statistically significant at the one percent level except for the agriculture group, implying that it is the least pro-trade group of all. The occupation abundance variable D is positive and statistically significant at the five percent level as in this model. The degree of abundance Z is positive at this model, but it is still statistically insignificant. Moreover, the estimated coefficients of D and Z are not jointly significant at this time. These results suggest that the estimated coefficients of the occupation groups are statistically significant and jointly significant even when the occupation abundance variable D is statistically significant in this model. As the occupation abundance is explained by the HOV model, one could conclude that the significance of the occupation groups is explained by other models or factors

instead of the HOV model. A possible factor that might explain the significance of the occupation groups is the skill level of individuals, so that even the agriculture group was revealed to be the most abundant group among occupations in Table 5, it is the least pro-group of all, since the agriculture group can be considered as the low-skill or unskilled workers, as mentioned in Model 3.

The estimated coefficients of the interaction variables in Model 8 look contradictory to the results of the occupation groups again. The sign patterns of these variables suggest that individuals in the sales and services and the agriculture groups (0.1638 and 0.1374, respectively) are more likely to oppose protection than the production group, the clerical group, while those in the professional group and the managerial group are least likely to oppose protection. Despite the fact that the sign patterns of the interaction variables are not at all consistent with the occupation groups on trade preferences, the sign patterns of these interaction variables are consistent with the prediction of the HOV model on the degree of abundance. In Table 5, the agriculture group was revealed to be the most abundant group among occupations, as this group scores the first rank in most countries, while the managerial group is the scarcest occupation group. According to the prediction of the HOV model on the degree of abundance, the more abundant an occupation is relative to the rest of the world, the more likely the individuals would be to oppose protection. The sign patterns of the interaction do suggest that individuals in the agriculture group are more likely to oppose protection than the other groups except for the sales and services group and those in the managerial group are least likely to oppose protection. However, the regression results from Model 4, 5 and 6 have indicated that the estimated coefficient of the degree of abundance is not statistically significant at all, which means the degree of

abundance does not play an important role in influencing individual opinions on a trade policy. Those results suggest that as long as an occupation is abundant relative to the rest of the world, individuals in that occupation will be more likely to oppose protection, no matter how abundant that occupation is relative to the rest of the world. Finally, although the estimated coefficients of the interaction variables are not statistically significant by themselves except for the managerial and the professional groups, these variables are jointly significant at the one percent level; however, this may only due to that fact that these interaction variables are sharing the explanatory power of the occupation groups.

Overall, the control variables (the personal characteristics) are quite similar in every model and they are interpreted as follows: the estimated coefficients for the gender variable are statistically significant at the one percent level in all models; they are always positive, which suggests that male respondents are more likely than female to oppose protection. For the age variable, the estimated coefficients are statistically significant at the one percent level in all models again, and they are always negative, implying that older respondents are less likely to oppose protection than the youth. Furthermore, the estimated coefficients for union membership and marital status are not statistically significant in most countries. The sign for those who are union members is negative in most models except for model 1, which means union members are more likely to support protection, and those who are married are more likely to oppose protection since they are in positive sign for all models. Finally, individuals who live in rural areas are more likely to oppose protection and the estimated coefficients are statistically significant at the one percent level; individuals who are in right-wing parties are more likely to oppose protection, followed by those in left-wing parties and those in the center; however, the party affiliation variables are not

statistically significant at all.

As shown in Model 2 through Model 8, the education variables are always statistically significant and jointly significant; the sign patterns of the results suggest that individuals with tertiary education are always more likely to oppose import protection than those with secondary education, followed by those with primary education. However, it is surprising to discover that the education variables are statistically significant and are jointly significant even when the occupation and the HOV model are controlled in these models. For instance, both the occupation variables and the education variables are jointly significant in Model 3; both the measure of occupation abundance (D) and the education variables are statistically significant in Model 4; and the education variables are statistically significant in Model 5 even when the measure of the degree of abundance (Z) is not statistically significant. As a result, one might expect that the significance of the education variables, or in other words, the measure of individual skills, is explained by other models instead of the HO or the HOV model.

4.7. Separate Regression Results for Individual Countries

Logistic estimation on occupation groups, occupation abundance and the interaction effects for individual countries are shown in Table 8 to Table 10, respectively. The purpose of reconstructing the regression results for the countries separately is to examine whether occupation groups, occupation abundance and the interaction variables affect trade preferences among countries. Table 8 presents logistic estimation on the occupation groups with robust correction in standard errors. The sign patterns of the occupation groups are fairly consistent with the combined regression results for all countries. The estimated coefficients for the managerial group are always positive, except for Hungary and Spain. They are the largest in value for more than a half of the 18 countries, implying that the managerial group is the most pro-trade group. In other words, individuals in the managerial group are more likely to oppose protection than the other groups. However, the managerial group is only statistically significant in Australia, Austria, West Germany, Ireland and Norway at the one percent level, and it is statistically significant in Russia, Slovenia and USA at the five percent level. The next most pro-trade occupation group is the professional group; it is statistically significant in Australia, Austria, Russia and USA at the one percent level, and it is statistically significant in West Germany, Ireland, New Zealand, Norway and Slovenia at the five percent level. The clerical group is only statistically significant in Australia, Austria and Norway at the one percent level. Finally, the sales and services group and the agriculture group are seldom significant in separate countries; the sales and services group is only statistically significant in Russia and USA at the one percent level and the agriculture group is only statistically significant in New Zealand and USA at the five percent level. Furthermore, the agriculture group is the least

pro-trade group, as its estimated coefficients are negative in about a half of the 18 countries. Individuals in this group are more likely to support import protection than the other groups.

The joint significance for the occupation groups are apparently low in value for separate countries as well. The occupation effect is only jointly statistically significant in Australia, Austria, New Zealand, Norway, Russia and USA at the one percent level and it is also jointly statistically significant in New Zealand at the five percent level. The values of the joint significance for the occupation groups in Canada, West Germany, Poland and Slovenia are close, but not close enough to be statistically significant at the five percent level; the values of the joint significance for the occupation groups in Bulgaria, Czech Republic, East Germany, Hungary, Latvia, Slovakia and Spain are extremely low, implying the effect of occupations does not affect the trade preference in these countries at all.

Table 9 shows the result from the logistic estimation with the occupation abundance (D) and the degree of abundance (Z) for separate countries. Since the occupation abundance is positive or negative for every occupation group in some countries, as shown in Table 5, D is dropped due to collinearity for these countries. However, the estimated coefficients on the occupation abundance D are positive and statistically significant in the remaining countries such as Australia, Canada and USA at the one or five percent levels. It is also statistically significant in Austria at the five percent level, but it is in negative sign. It is also negative in Slovenia and Spain, and the estimated coefficients on D for these countries are statistically insignificant as well. The estimated coefficients on Z are negative for most countries, including Australia, Bulgaria, Canada, West Germany, Ireland, Latvia, Poland, Russia, Slovakia, Slovenia and the USA. Although they are positive in

Austria, Czech Republic, East Germany, Hungary, New Zealand, Norway and Spain, the estimated coefficients on Z are insignificant, except for Austria and USA. Therefore, these results are consistent with the combined results for all countries, implying that the data do not support the hypothesis that the degree of abundance is an important determinant in the formation of individual opinions on trade policy. Furthermore, the results for Canada in this model are consistent with the one generated by Balistreri (1997) on the HOV prediction with the inclusion of both D and Z for Canada. The estimated coefficients of occupation abundance D are statistically significant in this model and Balistreri's model and the estimated coefficients of the degree of abundance Z are statistically insignificant in both models.

The occupation abundance D and the degree of abundance Z are jointly significant in Australia, Canada, New Zealand and USA. Note that D and Z are jointly significant while D is statistically significant at the same time, except for the New Zealand. Therefore, these results support the argument in Model 5 from the last section that these variables are jointly significant because of the explanatory power of the occupation abundance D.

Table 10 shows the results from the logistic estimation on the interaction of the occupation groups and the degree of abundance for separate countries. Except for the interaction variables, the estimated coefficients and the robust standard errors of all other variables have the same values as those in Table 8 for every individual country, as well as the chi square and the pseudo R square. The reason for this phenomenon is that when the degree of abundance and the occupation groups are multiplied, the interaction variables are simply rescaling the value of the occupation dummy variables from 1 and 0 to the value of the relative abundance belongs to each particular occupation group and 0, for every country.

Therefore, only the estimated coefficients for the interaction variables have different values and all other control variables stay the same. However, this situation does not apply to the combined regression results for all countries, since the values of the estimated coefficients for each occupation groups are rescaled differently in different countries.

The sign patterns of the estimated coefficients on the interaction variables, again, remain as a puzzle due to the contradiction to the sign patterns of those on the occupation groups in Table 8. Furthermore, because of the rescaling of values, the joint significance of the interaction variables has the same values as the joint significance of the occupation groups in Table 8, implying that these variables are sharing with the same explanatory power of the occupation groups.

The regression results for the control variables in Table 8 to Table 10 are very similar to those in Table 6 and Table 7, where the estimated coefficients of the gender variables and the rural variables are always positive and statistically significant; the age variables are always negative and statistically significant; the estimated coefficients for union membership and political party affiliation are always negative and the marital status is always positive, but these variables are always insignificant. Note that the estimated coefficients of the rural variables and the party affiliation are dropped in some countries due to collinearity.

Chapter 5. CONCLUSION

In this paper, the effect of an individual's occupation on trade preference is examined, followed by the assessment of the performance of the HOV model in predicting the effects of labor force distribution on trade preferences. A general HOV model incorporates any number of goods and factors in order to predict the trade pattern between any countries based on the differences in factor endowments. As occupations are considered as the factors of production in this study, according to the Stolper-Samuelson theorem, if the occupation in the home country is abundant relative to the rest of the world, then the prediction from the HOV model is that the return to that occupation will go up.

The results from the empirical models used in this paper suggest that different occupations influence individual opinions on trade policy differently. With the ISSP data on individual trade preferences from the 18 selected countries, six groups of occupations are considered in this study. The managerial group is the most pro-trade group in general. Individuals in the managerial group are more likely to oppose import protection than other occupation groups, followed by the professional group, clerical group, sales and services group and the production group. Individuals in the agriculture group, however, are more likely to support protection. These results are consistent with the empirical findings of Beaulieu (2001) and Mayda and Rodrik (2001) who have interpreted educational attainment and the years of education as the measurement of the skill level of labor. These papers suggested that individuals with higher educational attainment or more years of education are considered as high-skilled labors and they are more likely to oppose trade protection than those with lower educational attainment or fewer years of education. If occupations can be considered as another measurement of skill levels, this paper suggests

that, for most countries, individuals with occupations that require higher skills (such as managers and the professionals) are more likely to be opposed to protectionism than those with lower skills.

In examining the performance of the HOV model in predicting trade preferences on the labor force distribution effects, the ILO data on individual employment by occupation is used to derive the relative abundance of different occupations for the 18 selected countries by the HOV model. The occupation abundance is then incorporated with the ISSP survey data on individual trade preferences. The ISSP data support the hypothesis of the HOV model that whether an occupation is abundant or scarce is an important determinant in individual opinions on trade policy. Using the assumption that 18 selected countries constitute the whole world, the empirical results of this paper imply that individuals with occupations that are abundant in the home country relative to the rest of the world are more likely to oppose protection. However, as an extension to the HOV model, the degree of abundance of an occupation derived from the same data set on individual employment by occupations is not supported by the data at all. Furthermore, despite the fact that it is inconsistent with the results from the effect on occupations to the trade preference, the empirical results of the interaction between occupations and the degree of abundance suggest that individuals with an occupation that is more abundant relative to other occupations in the home country relative to the world are more likely to oppose import protection. However, due to the insignificance of the degree of abundance and the share of explanatory power of the occupations, the validity of the interaction terms remains questionable. As a consequence, one might conclude that the HOV model is an appropriate description of trade preference for most of the countries in the world, but

further empirical analysis can be done with the involvement of some countries that are missing in this study due to the misspecification or the lack of information on respondents' occupations from the survey used in this study.

Table 1 Distribution of occupations across the selected countries in ILO data set*

	Australia		Austria		Bulgaria		Canada		Czech Republic	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	549.6	6.58	255.2	6.84	109.4	5.59	1483.3	10.99	326.0	6.61
2 Professional	2372.3	28.42	831.3	22.29	549.8	28.07	3737.2	27.68	1367.0	27.72
3 Clerical	1156.6	13.86	528	14.16	144.2	7.36	1850.3	13.70	380.0	7.70
4 Sales & Service	1018.6	12.20	492	13.19	178.2	9.10	1905.9	14.12	557.0	11.29
5 Agriculture	1268.3	15.19	606.6	16.27	266.2	13.59	1782.4	13.20	600.0	12.17
6 Production	1981.7	23.74	1016.1	27.25	711.0	36.30	2742.3	20.31	1702.0	34.51
Total	8347.1	100.00	3729.2	100.00	1958.8	100.00	13501.4	100.00	4932.0	100.00

	Germany		Hungary		Ireland		Latvia		New Zealand	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	2114.0	6.10	212.8	5.95	60.7	4.78	90.6	9.32	205.4	12.34
2 Professional	10803.0	31.17	857.4	23.98	319.9	25.20	240.7	24.75	409.2	24.59
3 Clerical	4651.0	13.42	291.0	8.14	171.6	13.52	40.3	4.14	227.8	13.69
4 Sales & Service	3910.0	11.28	524.8	14.68	220.6	17.38	104.5	10.74	226.3	13.60
5 Agriculture	3665.0	10.57	468.5	13.10	237.4	18.70	229.1	23.56	259.3	15.58
6 Production	9516.0	27.46	1221.1	34.15	259.0	20.41	267.4	27.49	335.9	20.19
Total	34659.0	100.00	3575.6	100.00	1269.2	100.00	972.6	100.00	1663.9	100.00

	Norway		Poland		Russia		Slovakia		Slovenia	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	143.0	7.13	906.0	6.15	3763.0	6.27	112.6	5.25	39.0	4.46
2 Professional	530.0	26.42	3019.0	20.49	18373.0	30.61	594.3	27.70	223.0	25.49
3 Clerical	197.0	9.82	1024.0	6.95	1897.0	3.16	174.8	8.15	92.0	10.51
4 Sales & Service	507.0	25.27	1358.0	9.22	6438.0	10.73	247.0	11.51	100.0	11.43
5 Agriculture	105.0	5.23	4342.0	29.47	10686.0	17.80	293.9	13.70	131.0	14.97
6 Production	524.0	26.12	4085.0	27.72	18865.0	31.43	723.0	33.70	290.0	33.14
Total	2006.0	100.00	14734.0	100.00	60022.0	100.00	2145.6	100.00	875.0	100.00

	Spain		USA	
Occupation	Frequency	Percent	Frequency	Percent
1 Managerial	1009.1	8.41	17186.0	13.76
2 Professional	2113.9	17.62	22041.0	17.65
3 Clerical	1214.8	10.13	18389.0	14.72
4 Sales & Service	1672.9	13.95	32049.0	25.66
5 Agriculture	2578.4	21.50	3642.0	2.92
6 Production	3405.4	28.39	31592.0	25.29
Total	11994.5	100.00	124899.0	100.00

	Overall	
Occupation	Frequency	Percent
1 Managerial	28565.7	9.81
2 Professional	68382.0	23.48
3 Clerical	32429.4	11.13
4 Sales & Service	51509.8	17.68
5 Agriculture	31161.1	10.70
6 Production	79236.9	27.20
Total	291284.9	100.00

*Frequency is reported in thousands.

Table 2 Distribution of occupations across the selected countries in ISSP data set

	Australia		Austria		Bulgaria		Canada		Czech Republic	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	292	14.48	22	4.39	8	0.88	50	5.48	57	5.95
2 Professional	693	34.36	91	18.16	223	24.59	587	64.36	286	29.85
3 Clerical	379	18.79	87	17.37	61	6.73	95	10.42	126	13.15
4 Sales & Service	191	9.47	143	28.54	138	15.21	77	8.44	101	10.54
5 Agriculture	179	8.87	43	8.58	130	14.33	25	2.74	71	7.41
6 Production	283	14.03	115	22.95	347	38.26	78	8.55	317	33.09
Total	2017	100.00	501	100.00	907	100.00	912	100.00	958	100.00

	Germany W		Germany E		Hungary		Ireland		Latvia	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	43	6.74	21	7.37	70	7.73	77	8.62	44	10.19
2 Professional	229	35.89	94	32.98	160	17.66	192	21.50	157	36.24
3 Clerical	117	18.34	40	14.04	78	8.61	115	12.88	27	6.25
4 Sales & Service	47	7.37	27	9.47	123	13.58	138	15.45	40	9.26
5 Agriculture	48	7.52	20	7.02	191	21.08	190	21.28	43	9.95
6 Production	154	24.14	83	29.12	284	31.35	181	20.27	121	28.01
Total	638	100.00	285	100.00	906	100.00	893	100.00	432	100.00

	New Zealand		Norway		Poland		Russia		Slovakia	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	65	10.55	56	4.47	65	4.56	28	3.48	67	5.34
2 Professional	154	25.00	385	30.75	249	17.47	277	34.41	287	22.89
3 Clerical	85	13.80	177	14.14	127	8.91	54	6.71	68	5.42
4 Sales & Service	135	21.92	324	25.88	166	11.65	77	9.57	153	12.20
5 Agriculture	57	9.25	66	5.27	375	26.32	134	16.65	200	15.95
6 Production	120	19.48	244	19.49	443	31.09	235	29.19	479	38.20
Total	616	100.00	1252	100.00	1425	100.00	805	100.00	1254	100.00

	Slovenia		Spain		USA	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent
1 Managerial	29	3.55	7	1.75	129	10.04
2 Professional	237	29.01	78	19.55	275	21.40
3 Clerical	81	9.91	51	12.78	199	15.49
4 Sales & Service	107	13.10	117	29.32	339	26.38
5 Agriculture	139	17.01	21	5.26	27	2.10
6 Production	224	27.42	125	31.33	316	24.59
Total	817	100.00	399	100.00	1285	100.00

	Overall	
Occup.	Frequency	Percent
1	1130	6.93
2	4654	28.55
3	1967	12.07
4	2443	14.99
5	1959	12.02
6	4149	25.45
Total	16302	100.00

Table 3 Comparison on the distribution of occupations in ISSP and ILO data sets

Occupation	Australia		Austria		Bulgaria		Canada		Czech Republic	
	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1 Managerial	14.48	6.58	4.39	6.84	0.88	5.59	5.48	10.99	5.95	6.61
2 Professional	34.36	28.42	18.16	22.29	24.59	28.07	64.36	27.68	29.85	27.72
3 Clerical	18.79	13.86	17.37	14.16	6.73	7.36	10.42	13.70	13.15	7.70
4 Sales & Service	9.47	12.20	28.54	13.19	15.21	9.10	8.44	14.12	10.54	11.29
5 Agriculture	8.87	15.19	8.58	16.27	14.33	13.59	2.74	13.20	7.41	12.17
6 Production	14.03	23.74	22.95	27.25	38.26	36.30	8.55	20.31	33.09	34.51
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Occupation	Germany		Hungary		Ireland		Latvia		New Zealand	
	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1 Managerial	6.93	6.10	7.73	5.95	8.62	4.78	10.19	9.32	10.55	12.34
2 Professional	34.99	31.17	17.66	23.98	21.50	25.20	36.24	24.75	25.00	24.59
3 Clerical	17.01	13.42	8.61	8.14	12.88	13.52	6.25	4.14	13.80	13.69
4 Sales & Service	8.02	11.28	13.58	14.68	15.45	17.38	9.26	10.74	21.92	13.60
5 Agriculture	7.37	10.57	21.08	13.10	21.28	18.70	9.95	23.56	9.25	15.58
6 Production	25.68	27.46	31.35	34.15	20.27	20.41	28.01	27.49	19.48	20.19
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Occupation	Norway		Poland		Russia		Slovakia		Slovenia	
	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO	ISSP	ILO
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1 Managerial	4.47	7.13	4.56	6.15	3.48	6.27	5.34	5.25	3.55	4.46
2 Professional	30.75	26.42	17.47	20.49	34.41	30.61	22.89	27.70	29.01	25.49
3 Clerical	14.14	9.82	8.91	6.95	6.71	3.16	5.42	8.15	9.91	10.51
4 Sales & Service	25.88	25.27	11.65	9.22	9.57	10.73	12.20	11.51	13.10	11.43
5 Agriculture	5.27	5.23	26.32	29.47	16.65	17.80	15.95	13.70	17.01	14.97
6 Production	19.49	26.12	31.09	27.72	29.19	31.43	38.20	33.70	27.42	33.14
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Occupation	Spain		USA	
	ISSP	ILO	ISSP	ILO
	Percent	Percent	Percent	Percent
1 Managerial	1.75	8.41	10.04	13.76
2 Professional	19.55	17.62	21.40	17.65
3 Clerical	12.78	10.13	15.49	14.72
4 Sales & Service	29.32	13.95	26.38	25.66
5 Agriculture	5.26	21.50	2.10	2.92
6 Production	31.33	28.39	24.59	25.29
Total	100.00	100.00	100.00	100.00

Occupation	Overall	
	ISSP	ILO
	Percent	Percent
1 Managerial	6.93	9.81
2 Professional	28.55	23.48
3 Clerical	12.07	11.13
4 Sales & Service	14.99	17.68
5 Agriculture	12.02	10.70
6 Production	25.45	27.20
Total	100.00	100.00

Table 4 Summary data of individual preferences on trade policy by countries

	Trade opinion in limiting the import of foreign products (%)						
Country	agree strongly	agree	neither agree nor disagree	disagree	disagree strongly	Support trade liberalization	Rank*
Germany W	10.66	23.67	25.39	29.00	11.29	40.29	1
Germany E	21.75	27.72	20.00	23.51	7.02	30.53	2
New Zealand	15.26	33.28	22.08	23.70	5.68	29.38	3
Canada	13.05	32.13	25.88	22.59	6.36	28.95	4
Norway	8.79	28.75	33.55	23.88	5.03	28.91	5
Slovenia	24.24	27.17	21.79	22.40	4.41	26.81	6
Czech Republic	25.78	27.66	20.46	17.01	9.08	26.09	7
Slovakia	26.95	29.19	19.46	15.71	8.69	24.40	8
Russia	31.68	25.50	18.81	17.08	6.93	24.01	9
Ireland	24.92	40.39	11.06	20.22	2.91	23.13	10
Austria	36.13	32.34	12.38	15.17	3.99	19.16	11
Latvia	49.31	19.91	12.96	11.81	6.02	17.83	12
Poland	30.88	35.16	19.44	12.00	2.53	14.53	13
Spain	20.55	51.63	14.04	12.78	1.00	13.78	14
USA	21.79	48.97	20.62	10.58	3.04	13.62	15
Australia	31.88	44.37	11.90	10.66	1.19	11.85	16
Hungary	44.81	26.37	19.32	7.06	2.54	9.60	17
Bulgaria	55.35	24.48	11.91	3.53	4.74	8.27	18
Overall	27.36	33.03	19.13	15.71	4.77	20.48	

* Ranked in descending order of "Support trade liberalization"

Table 5 The signs of excess supplies, the degree of abundance, and the abundance rankings for the selected countries

Occupation	Australia			Austria			Bulgaria		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	-	-0.5645	6	-	-1.1156	6	+	0.7389	5
2 Professional	+	0.1324	3	-	-0.5547	4	+	0.8756	3
3 Clerical	+	0.1560	2	-	-0.1608	2	+	0.7751	4
4 Sales & Service	-	-0.5221	5	-	-0.9787	5	+	0.7109	6
5 Agriculture	+	0.2605	1	+	0.0291	1	+	0.8829	1
6 Production	-	-0.0235	4	-	-0.4738	3	+	0.8826	2

Occupation	Canada			Czech Republic			Germany		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	+	0.1045	4	+	0.6320	5	-	-1.6647	6
2 Professional	+	0.1492	3	+	0.7899	2	-	-0.2483	1
3 Clerical	+	0.1850	2	+	0.6416	4	-	-0.3750	2
4 Sales & Service	-	-0.2567	5	+	0.6116	6	-	-1.5979	5
5 Agriculture	+	0.1871	1	+	0.7819	3	-	-0.6767	4
6 Production	-	-0.3436	6	+	0.8045	1	-	-0.6420	3

Occupation	Hungary			Ireland			Latvia		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	+	0.5167	6	-	-1.4942	6	+	0.9054	4
2 Professional	+	0.7129	3	-	-0.1329	2	+	0.9148	2
3 Clerical	+	0.5988	5	-	-0.0016	1	+	0.7586	6
4 Sales & Service	+	0.6467	4	-	-0.2375	3	+	0.8521	5
5 Agriculture	+	0.7606	2	+	0.3043	4	+	0.9592	1
6 Production	+	0.7664	1	-	-0.6215	5	+	0.9111	3

Occupation	New Zealand			Norway			Poland		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	+	0.3324	2	-	-1.3572	5	+	0.6784	4
2 Professional	+	0.1979	4	-	-0.5225	2	+	0.7690	3
3 Clerical	+	0.3167	3	-	-0.9425	4	+	0.6770	5
4 Sales & Service	-	-0.0926	5	-	-0.1988	1	+	0.6131	6
5 Agriculture	+	0.4232	1	-	-2.5019	6	+	0.9268	1
6 Production	-	-0.1323	6	-	-0.7843	3	+	0.8022	2

Occupation	Russia			Slovakia			Slovenia		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	+	0.7882	4	+	0.6448	6	-	-0.0987	6
2 Professional	+	0.8962	2	+	0.8389	3	+	0.5400	3
3 Clerical	+	0.5230	6	+	0.7403	4	+	0.4713	4
4 Sales & Service	+	0.7768	5	+	0.7080	5	+	0.2274	5
5 Agriculture	+	0.9186	1	+	0.8516	1	+	0.6432	1
6 Production	+	0.8828	3	+	0.8466	2	+	0.5902	2

Occupation	Spain			USA		
	excess supply	degree of abundance	Rank	excess supply	degree of abundance	Rank
1 Managerial	-	-0.3276	4	-	0.0218	2
2 Professional	-	-0.5172	6	-	-0.8258	5
3 Clerical	-	-0.2520	3	-	-0.0378	3
4 Sales & Service	-	-0.4441	5	-	0.0542	1
5 Agriculture	+	0.4332	1	+	-4.0352	6
6 Production	-	-0.0913	2	-	-0.4760	4

Table 6 Regression results for all countries in Model 1 to 4 with country fixed effect

	Model 1: Logit with occupation variables	Model 2: Logit with education variables	Model 3: Logit with occupation and edcuation variables	Model 4: Logit with occupation abundance (D)
Managerial	0.9051 **		0.6696 **	
	(0.0813)		(0.0847)	
Professional	0.7227 **		0.4322 **	
	(0.0579)		(0.0646)	
Clerical	0.4770 **		0.3679 **	
	(0.0776)		(0.0786)	
Sales & Service	0.2956 **		0.2435 **	
	(0.0737)		(0.0742)	
Agriculture	-0.0250		-0.0119	
	(0.0824)		(0.0838)	
D				0.2096 **
				(0.0828)
secondary		0.4069 **	0.2676 **	0.4107 **
		(0.0681)	(0.0709)	(0.0682)
tertiary		1.0441 **	0.7366 **	1.0376 **
		(0.0743)	(0.0839)	(0.0744)
male	0.6238 **	0.5204 **	0.5959 **	0.5266 **
	(0.0442)	(0.0409)	(0.0444)	(0.0410)
age	-0.0090 **	-0.0057 **	-0.0068 **	-0.0053 **
	(0.0014)	(0.0015)	(0.0015)	(0.0015)
union	0.0002	-0.0298	-0.0170	-0.0287
	(0.0460)	(0.0458)	(0.0463)	(0.0458)
married	0.0493	0.0590	0.0413	0.0588
	(0.0442)	(0.0443)	(0.0444)	(0.0443)
rural	0.2154 **	0.2186 **	0.1887 **	0.2191 **
	(0.0495)	(0.0491)	(0.0497)	(0.0491)
left party	-0.0723	-0.0845	-0.0801	-0.0842
	(0.0519)	(0.0520)	(0.0520)	(0.0520)
center party	-0.0962	-0.0939	-0.0987	-0.0938
	(0.0574)	(0.0572)	(0.0574)	(0.0572)
constant	-2.5612 **	-2.8046 **	-2.9257 **	-2.9438 **
	(0.1148)	(0.1292)	(0.1371)	(0.1424)
joint signifance of occupation	249.83 **		82.90 **	
joint signifance of education		265.74 **	102.21 **	257.67 **
number of observations	16302	16302	16302	16302
chi2	1051.08	1071.25	1129.05	1075.10
pseudo R2	0.0719	0.0732	0.0781	0.0736

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table 7 Regression results for all countries in Model 5 to 8 with country fixed effect

	Model 5: Logit with degree of abundance (Z)	Model 6: Logit with D and Z	Model 7: Logit with interaction variables (occup*Z)	Model 8: Logit with occup + D + Z + intercation variables
Managerial				0.6215 **
				(0.0934)
Professional				0.4797 **
				(0.0706)
Clerical				0.3735 **
				(0.0820)
Sales & Service				0.2574 **
				(0.0758)
Agriculture				-0.0810
				(0.1002)
D		0.2648 **		0.1995 *
		(0.0899)		(0.0997)
Z	-0.0154	-0.0997		0.0217
	(0.0639)	(0.0670)		(0.1197)
Managerial * Z			-0.3231 **	-0.2971 **
			(0.0884)	(0.1116)
Professional * Z			-0.0959	-0.3159 **
			(0.0818)	(0.0925)
Clerical * Z			0.0504	-0.0958
			(0.1391)	(0.1398)
Sales & Service * Z			0.3011 **	0.1638
			(0.1077)	(0.1158)
Agriculture * Z			0.0933	0.1374
			(0.0758)	(0.1252)
secondary	0.4067 **	0.4103 **	0.4110 **	0.2679 **
	(0.0681)	(0.0683)	(0.0686)	(0.0711)
tertiary	1.0442 **	1.0370 **	1.0580 **	0.7375 **
	(0.0743)	(0.0745)	(0.0755)	(0.0844)
male	0.5198 **	0.5244 **	0.5145 **	0.5951 **
	(0.0410)	(0.0410)	(0.0413)	(0.0444)
age	-0.0057 **	-0.0057 **	-0.0058 **	-0.0068 **
	(0.0015)	(0.0015)	(0.0015)	(0.0015)
union	-0.0296	-0.0270	-0.0209	-0.0144
	(0.0458)	(0.0459)	(0.0459)	(0.0465)
married	0.0587	0.0574	0.0596	0.0437
	(0.0443)	(0.0443)	(0.0443)	(0.0445)
rural	0.2186 **	0.2192 **	0.2244 **	0.1955 **
	(0.0491)	(0.0492)	(0.0492)	(0.0497)
left party	-0.0841	-0.0819	-0.0755	-0.0761
	(0.0520)	(0.0522)	(0.0522)	(0.0524)
center party	-0.0943	-0.0967	-0.0815	-0.0831
	(0.0573)	(0.0573)	(0.0576)	(0.0578)
constant	-2.8048 **	-2.9810 **	-2.8338 **	-3.0677 **
	(0.1292)	(0.1440)	(0.1303)	(0.1507)
joint signifance of occupation				78.74 **
joint signifance of D and Z		8.83 *		5.05
joint signifance of the interaction variables			27.96 **	31.92 **
joint signifance of education	265.69 **	257.52 **	263.34 **	101.43 **
number of observations	16302	16302	16302	16302
chi2	1071.28	1077.61	1110.45	1167.06
pseudo R2	0.0732	0.0737	0.0749	0.0803

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table 8 Regression results on occupation groups for separate countries

	Australia	Austria	Bulgaria	Canada	Czech	Germany W	Germany E	Hungary	Ireland	Latvia	New Zealand	Norway	Poland	Russia	Slovakia	Slovenia	Spain	USA
Managerial	1.1615 **	1.4167 **	dropped	0.4963	0.2411	1.0121 **	0.2987	-0.4116	0.9035 **	0.1598	1.2514 **	0.9659 **	0.6644	0.9468 *	0.1881	0.9295 *	-0.6509	0.7282 *
	(0.2931)	(0.5523)		(0.4170)	(0.3453)	(0.3761)	(0.5691)	(0.4829)	(0.3203)	(0.4662)	(0.3596)	(0.3224)	(0.3529)	(0.4831)	(0.3039)	(0.4359)	(1.0495)	(0.3369)
Professional	0.7495 **	1.1492 **	-0.4560	0.3975	0.2903	0.5417 *	0.6795	0.0272	0.6481 *	-0.1816	0.6001 *	0.4942 *	-0.0459	0.9131 **	-0.0342	0.5529 *	-0.2869	0.8750 **
	(0.2803)	(0.4370)	(0.4699)	(0.3016)	(0.2216)	(0.2761)	(0.4242)	(0.3624)	(0.3015)	(0.3954)	(0.3077)	(0.2285)	(0.2810)	(0.2662)	(0.2110)	(0.2570)	(0.5908)	(0.2983)
Clerical	0.7364 **	1.5307 **	0.1698	-0.1226	0.0394	0.3832	0.1083	0.2876	0.2362	0.2186	0.6769	0.6279 **	0.4697	0.7093	0.4102	0.3951	-0.1183	0.1240
	(0.3169)	(0.4133)	(0.5344)	(0.4052)	(0.2826)	(0.2907)	(0.5566)	(0.4269)	(0.3499)	(0.5520)	(0.3588)	(0.2441)	(0.2989)	(0.3821)	(0.3134)	(0.3428)	(0.5193)	(0.3663)
Sales & Service	0.3595	0.4831	0.4112	-0.3748	-0.4299	0.2932	0.1375	-0.0429	0.5591	-0.3243	0.1141	0.2134	0.4646	0.7772 **	0.2120	0.0824	-0.0642	0.7736 **
	(0.4056)	(0.4265)	(0.3377)	(0.4318)	(0.3186)	(0.3825)	(0.5512)	(0.3726)	(0.3217)	(0.5419)	(0.3347)	(0.2148)	(0.2784)	(0.3212)	(0.2349)	(0.3428)	(0.4086)	(0.2800)
Agriculture	0.5012	-1.0577	0.1029	-0.2040	0.4469	-0.1119	0.0034	-0.0038	-0.0090	-0.7547	0.8220 *	-1.2163	0.1235	-0.2006	0.0311	-0.2324	0.0694	1.2798 *
	(0.3810)	(1.0832)	(0.5512)	(0.5608)	(0.3398)	(0.3860)	(0.6649)	(0.3901)	(0.2753)	(0.5472)	(0.3827)	(0.6288)	(0.2455)	(0.3115)	(0.2296)	(0.3153)	(0.6830)	(0.6032)
secondary	-0.1517	0.7153	-0.0966	0.0780	0.8859 **	0.4271	0.3442	0.7528	0.1180	0.3414	0.8029	0.0457	0.1949	16.9399 **	-0.1051	0.4219	-0.6811	1.9443 *
	(0.3982)	(0.4689)	(0.4051)	(0.3695)	(0.3154)	(0.2238)	(0.4630)	(0.3510) *	(0.2699)	(0.6992)	(0.7592)	(0.2025)	(0.2314)	(0.4506)	(0.2359)	(0.2706)	(0.3919)	(1.0533)
tertiary	0.6362	2.0507 **	0.5615	0.5157	0.7612 *	1.1122 **	0.8655	1.1199 *	0.5262	0.1353	1.3343	0.6769 **	0.6428 *	16.5472 **	0.5566	1.0733 **	0.9238	2.6992 **
	(0.4159)	(0.6204)	(0.5420)	(0.3755)	(0.3899)	(0.3073)	(0.5232)	(0.4642)	(0.3330)	(0.6988)	(0.7670)	(0.2417)	(0.3263)	(0.4675)	(0.3331)	(0.3407)	(0.5027)	(1.0653)
male	1.0314 **	0.9044 **	0.4452	0.4023 *	0.3976 *	0.8409 **	1.1085 **	0.2809	1.0960 **	-0.2749	0.3996 *	0.5158 **	0.1618	0.3375	0.5053 **	0.6744 **	1.0188 *	0.5856 **
	(0.1643)	(0.2944)	(0.2665)	(0.1607)	(0.1719)	(0.2004)	(0.3265)	(0.2430)	(0.1943)	(0.3287)	(0.2015)	(0.1438)	(0.1744)	(0.1904)	(0.1510)	(0.1917)	(0.4278)	(0.1832)
age	-0.0029	-0.0061	-0.0381 **	0.0109 *	-0.0152 **	-0.0169 *	-0.0049	-0.0108	0.0082	-0.0267 *	0.0086	-0.0059	0.0009	-0.0184 *	-0.0168 **	-0.0231 **	-0.0004	-0.0037
	(0.0049)	(0.0129)	(0.0091)	(0.0047)	(0.0054)	(0.0085)	(0.0149)	(0.0077)	(0.0064)	(0.0114)	(0.0082)	(0.0047)	(0.0061)	(0.0081)	(0.0050)	(0.0065)	(0.0150)	(0.0055)
union	0.2087	-0.0420	0.1743	-0.0317	0.2608	0.1427	0.3881	-0.3772	0.1841	-0.7272 *	-0.2597	-0.0488	-0.1778	-0.0732	-0.1701	0.0177	0.2885	-0.6927 *
	(0.1668)	(0.2781)	(0.3058)	(0.1656)	(0.1757)	(0.2160)	(0.3187)	(0.3259)	(0.1827)	(0.3104)	(0.2350)	(0.1402)	(0.2208)	(0.1834)	(0.1459)	(0.1792)	(0.3761)	(0.3537)
married	-0.0960	-0.2716	0.1538	-0.0284	-0.0399	0.2510	-0.3126	-0.0714	0.1256	0.2647	0.7757 **	0.0775	0.1162	-0.0059	-0.0009	0.4756 *	0.2483	-0.3455 *
	(0.1652)	(0.2647)	(0.3193)	(0.1629)	(0.1733)	(0.2007)	(0.3237)	(0.2304)	(0.1788)	(0.2972)	(0.2180)	(0.1525)	(0.1783)	(0.1899)	(0.1472)	(0.2097)	(0.3608)	(0.1743)
rural	0.3128 **	dropped	0.1788	-0.0701	0.3832 *	dropped	dropped	-0.1619	0.0688	0.2864	0.2911	0.1203	0.2606	0.4096	dropped	0.4062 *	0.0649	-0.1286
	(0.1436)		(0.2824)	(0.2275)	(0.1703)			(0.2347)	(0.1706)	(0.2748)	(0.2332)	(0.1336)	(0.1867)	(0.2213)		(0.1792)	(0.3792)	(0.1719)
left party	-0.0941	0.4790	-1.1876 **	0.1613	-0.8551 **	0.4892 **	0.2080	dropped	0.4464	dropped	0.0680	-0.0875 **	0.0459	-1.0121 **	-0.3823 **	0.1492	-0.4706	-0.2258
	(0.1543)	(0.2647)	(0.4832)	(0.1902)	(0.2432)	(0.1865)	(0.2950)		(0.4776)		(0.6220)	(0.1403)	(0.1924)	(0.2936)	(0.1983)	(0.3160)	(0.3033)	(0.2216)
center party	-0.6332	0.3914	0.6099	-0.2093	-0.7211 **	0.5428	-2.0592	dropped	-0.0777	dropped	0.3631	-1.0206	0.9072 **	0.0957	-0.1761	0.2643	dropped	0.0927
	(0.4268)	(0.5017)	(0.3891)	(0.1821)	(0.1691)	(0.3671)	(1.2365)		(0.1773)		(0.1985)	(0.2326) **	(0.2281)	(0.2881)	(0.1482)	(0.2829)		(0.2046)
constant	-3.4915 **	-3.3070 **	-1.1806 **	-1.9850 **	-1.3571 **	-1.5164 **	-1.9813 **	-2.3049 **	-2.9284 **	-0.5492	-3.8470 **	-1.3763	-2.6321 **	-17.9457	-0.5502	-1.6672 **	-2.7744	-4.4193 **
	(0.5680)	(0.7248)	(0.6852)	(0.5666)	(0.4579)	(0.4402)	(0.8464)	(0.6173)	(0.5160)	(0.8183)	(0.9533)	(0.3104)	(0.4462)	N/A	(0.3652)	(0.4568)	(0.7826)	(1.114)
joint signifance of occupation	17.89 **	21.89 **	3.74	10.21	6.88	9.67	3.09	1.61	12.31 *	3.53	17.51 **	18.45 **	9.38	18.49 **	2.94	9.27	0.56	15.35 **
number of observations	2017	501	899	912	958	638	285	906	893	432	616	1252	1425	805	1254	817	398	1285
chi2	120.87	55.22	43.22	40.45	65.79	68.21	30.76	23.59	62.13	16.89	63.15	97.22	57.10	N/A	45.59	82.62	15.13	61.96
pseudo R2	0.0870	0.1597	0.0967	0.0400	0.0659	0.0903	0.1024	0.0334	0.0735	0.0456	0.0882	0.0796	0.0424	0.0657	0.0339	0.1035	0.0501	0.0784

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table 9 Regression results on occupation abundance and the degree of abundance for separate countries

	Australia	Austria	Bulgaria	Canada	Czech	Germany W	Germany E	Hungary	Ireland	Latvia	New Zealand	Norway	Poland	Russia	Slovakia	Slovenia	Spain	USA
D	1.7529 **	-2.1381 *	dropped	3.4793 *	dropped	dropped	dropped	dropped	dropped	dropped	0.0462	dropped	dropped	dropped	dropped	-0.4575	-0.1006	0.5537 **
	(0.5199)	(1.0702)		(1.7527)							(0.6241)					(0.6137)	(0.9717)	(0.1998)
Z	-2.8507 **	0.6532	-2.4615	-6.5559	1.3696	-0.1450	0.2138	0.6896	-0.2987	-2.8769	1.6826	0.1031	-1.7586	-0.9673	-1.4796	-0.1737	0.3302	-0.3657 **
	(0.7938)	(0.4250)	(1.7362)	(3.3806)	(0.1052)	(0.1920)	(0.2929)	(1.4736)	(0.1577)	(2.5966)	(1.4454)	(0.1353)	(0.9298)	(0.8102)	(1.0577)	(0.7361)	(1.0522)	(0.1380)
secondary	-0.1460	0.9976 *	-0.1820	0.1290	0.8837 **	0.6854 **	0.4794	0.7856 *	0.2774 **	0.3207	0.8492	0.1883	0.1461	17.1476 **	-0.1153	0.6643 **	-0.1027	2.0605 *
	(0.3989)	(0.4634)	(0.3749)	(0.3638)	(0.3059)	(0.2090)	(0.4453)	(0.3268)	(0.2537)	(0.6883)	(0.7572)	(0.1985)	(0.2218)	(0.7744)	(0.2194)	(0.2539)	(0.3763)	(1.0614)
tertiary	0.6561	2.6009 **	0.1567	0.6103	0.9353 **	1.5249 **	1.2640 **	1.0904 **	0.9439 **	0.2176	1.4113	1.0310 **	0.5492 *	17.2217 **	0.4903	1.5717 **	0.7924	3.0311 **
	(0.4080)	(0.5793)	(0.4174)	(0.3653)	(0.3425)	(0.2555)	(0.4608)	(0.4058)	(0.2760)	(0.6620)	(0.7683)	(0.2122)	(0.2655)	(0.7544)	(0.2783)	(0.2912)	(0.4220)	(1.0671)
male	1.0802 **	0.6465 *	0.4564	0.4627 **	0.3413 *	0.7642 **	0.9794 **	0.1970	0.9584	-0.1269	0.4411 *	0.4250 **	0.1350	0.1506	0.4861 **	0.5656 **	1.0122 *	0.4750 **
	(0.1580)	(0.2678)	(0.2615)	(0.1533)	(0.1594)	(0.1884)	(0.2827)	(0.2324)	(0.1784)	(0.2861)	(0.1927)	(0.1351)	(0.1612)	(0.1751)	(0.1385)	(0.1784)	(0.4254)	(0.1713)
age	-0.0018	-0.0028	-0.0388 **	0.0111 *	-0.0140 **	-0.0139	-0.0006	-0.0110	0.0106	-0.0255 *	0.0093	-0.0043	0.0025	-0.0199 **	-0.0167 **	-0.0208 **	-0.0013	-0.0027
	(0.1580)	(0.0121)	(0.0094)	(0.0046)	(0.0053)	(0.0083)	(0.0147)	(0.0076)	(0.0062)	(0.0112)	(0.0082)	(0.0047)	(0.0059)	(0.0078)	(0.0050)	(0.0063)	(0.0148)	(0.0054)
union	0.2087	0.0227	0.1566	-0.0375	0.2456	0.1163	0.3162	-0.3756	0.1838	-0.6697 *	-2.9786	-0.0452	-0.1783	-0.1156	-0.1738	0.0310	0.2916	-0.6644
	(0.1652)	(0.2624)	(0.3041)	(0.1632)	(0.1745)	(0.2142)	(0.3030)	(0.3268)	(0.1794)	(0.3083)	(0.2343)	(0.1360)	(0.2191)	(0.1774)	(0.1461)	(0.1786)	(0.3683)	(0.3542)
married	-0.0882	-0.3602	0.1273	-0.0219	-0.0326	0.2947	-0.3355	-0.0821	0.1279	0.2687	0.7483 **	0.1367	0.1268	0.0469	-0.0081	0.4499 *	0.2667	-0.3478 *
	(0.1649)	(0.2609)	(0.3145)	(0.1623)	(0.1718)	(0.1989)	(0.3176)	(0.2306)	(0.1784)	(0.2902)	(0.2143)	(0.1514)	(0.1774)	(0.1877)	(0.1454)	(0.2071)	(0.3521)	(0.1738)
rural	0.3163	dropped	0.1538	-0.0695	0.3886 *	dropped	dropped	-0.1506	0.0534	0.3055	0.3556	0.1661	0.2048	0.4539 *	dropped	0.4477 *	0.0731	-0.1152
	(0.1437)		(0.2685)	(0.2269)	(0.1690)			(0.2316)	(0.1660)	(0.2739)	(0.2241)	(0.1329)	(0.1811)	(0.2180)		(0.1768)	(0.3734)	(0.1713)
left party	-0.1042	0.5267	-1.2114 *	0.1704	-0.8334 **	0.4520 *	0.2557	dropped	0.4165	dropped	0.0963	-0.1025	0.0634	-1.0380 **	-0.3782	0.1416	-0.4656	-0.2247
	(0.1530)	(0.2616)	(0.4803)	(0.1900)	(0.2439)	(0.1852)	(0.2898)		(0.4726)		(0.5951)	(0.1396)	(0.1884)	(0.2902)	(0.1977)	(0.3207)	(0.3039)	(0.2198)
center party	-0.6278	0.5304	0.5445	-0.2081	-0.7216 **	0.5023	-1.9976	dropped	-0.1052	dropped	0.4058 *	-1.1688 **	0.9064 **	0.0528	-0.1730	0.2853	dropped	0.0712
	(0.4260)	(0.4817)	(0.3842)	(0.1821)	(0.1687)	(0.3604)	(1.2323)		(0.1775)		(0.1961)	(0.2289)	(0.2236)	(0.2869)	(0.1484)	(0.2794)		(0.2037)
constant	-4.1950 **	-2.7515 **	1.0873	-4.2281 **	-2.3331 **	-1.5299 **	-1.8366 *	-2.7558 *	-2.8745 **	1.7200	-3.7563 **	-1.2148 **	-1.0868	-16.9725 **	0.7319	-1.1990 *	-2.7199 **	-4.3982 **
	(0.6168)	(0.6393)	(1.499)	(1.1426)	(0.8959)	(0.4431)	(0.8170)	(1.2600)	(0.4624)	(2.5082)	(0.9275)	(0.2829)	(0.8805)	(0.7744)	(0.9149)	(0.5991)	(0.8273)	(1.1251)
joint signifance of D and Z	12.94 **	5.16	N/A	7.83 *	N/A	N/A	N/A	N/A	N/A	N/A	14.44 **	N/A	N/A	N/A	N/A	2.00	0.13	9.82 **
number of observations	2017	501	907	912	958	638	285	906	893	432	616	1252	1425	805	1254	817	398	1285
chi2	116.93	46.45	39.53	37.55	58.41	59.17	27.00	22.07	51.79	14.11	58.66	86.72	46.99	N/A	44.37	81.96	12.71	58.36
pseudo R2	0.0841	0.1253	0.0912	0.0383	0.0608	0.0804	0.0951	0.0311	0.0642	0.0397	0.0842	0.0659	0.0381	0.0458	0.0332	0.0959	0.0489	0.0711

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table 10 Regression results on interaction variables for separate countries

	Australia	Austria	Bulgaria	Canada	Czech	Germany W	Germany E	Hungary	Ireland	Latvia	New Zealand	Norway	Poland	Russia	Slovakia	Slovenia	Spain	USA
Managerial * Z	-2.0576 **	-1.2699 **	dropped	4.7494	0.3815	-0.6080 **	-0.1794	-0.7966	-0.6047 **	0.1765	3.7646 **	-0.7117 **	0.9794	1.1847 *	0.2917	-9.4173 *	1.9868	33.4020 *
	(0.5194)	(0.4951)		(3.9907)	(0.5464)	(0.2259)	(0.3419)	(0.9346)	(0.2144)	(0.5149)	(1.081849)	(0.2375)	(0.5202)	(0.6130)	(0.4714)	(4.4164)	(3.2026)	(15.4526)
Professional * Z	5.6611 **	-2.0718 **	-0.5208	2.6639	0.3675	-2.1412 *	-2.7366	0.0381	-4.8768 *	-0.1986	3.0323 *	-0.9459 *	-0.0596	1.0189 **	-0.0407	1.0238 *	0.5546	-1.0596 **
	(2.1174)	(0.7879)	(0.5366)	(2.0214)	(0.2806)	(1.1121)	(1.7083)	(0.5084)	(2.2684)	(0.4322)	(1.5550)	(0.4373)	(0.3653)	(0.2971)	(0.2515)	(0.4759)	(1.1423)	(0.3612)
Clerical * Z	4.7206 **	-9.5190 **	0.2191	-0.6625	0.0613	-1.0220	-0.2887	0.4803	-147.6170	0.2882	2.1372	-0.6513 **	0.6938	1.3563	0.5540	0.8383	0.4693	-3.2817
	(2.0316)	(2.5702)	(0.6895)	(2.1900)	(0.4405)	(0.7752)	(1.4842)	(0.7130)	(218.6635)	(0.7276)	(1.1329)	(0.2590)	(0.4415)	(0.7306) *	(0.4234)	(0.7273)	(2.0607)	(9.6903)
Sales & Service * Z	-0.6886	-0.4936	0.5784	1.4600	-0.7029	-0.1835	-0.0860	-0.0663	-2.3541	-0.3806	-1.2317	-1.0737	0.7578	1.0006	0.2995	0.3623	0.1445	14.2728 **
	(0.7769)	(0.4357)	(0.4750)	(1.6821)	(0.5210)	(0.2394)	(0.3450)	(0.5762)	(1.3545)	(0.6360)	(3.6139)	(1.0804)	(0.4542)	(0.4135)	(0.3317)	(1.4048)	(0.9200)	(5.1666)
Agriculture * Z	1.9240	-36.3481	0.1165	-1.0902	0.5716	0.1653	-0.0051	-0.0050	-0.0296	-0.7868	1.9424	0.4861 *	0.1333	-0.2184	0.0365	-0.3614	0.1603	-0.3171 *
	(1.4625)	(37.2218)	(0.6243)	(2.9971)	(0.5210)	(0.5704)	(0.9826)	(0.5129)	(0.9047)	(0.5705)	(0.9044)	(0.2513)	(0.2649)	(0.3391)	(0.2696)	(0.4902)	(1.5765)	(0.1495)
secondary	-0.1517	0.7153	-0.0966	0.0780	0.8859 **	0.4271	0.3442	0.7528	0.1180	0.3414	0.8029	0.0457	0.1949	16.9399 **	-0.1051	0.4219	-0.6811	1.9443 *
	(0.3982)	(0.4689)	(0.4051)	(0.3695)	(0.3154)	(0.2238)	(0.4630)	(0.3510) *	(0.2699)	(0.6992)	(0.7592)	(0.2025)	(0.2314)	(0.4506)	(0.2359)	(0.2706)	(0.3919)	(1.0533)
tertiary	0.6362	2.0507 **	0.5615	0.5157	0.7612 *	1.1122 **	0.8655	1.1199 *	0.5262	0.1353	1.3343	0.6769 **	0.6428 *	16.5472 **	0.5566	1.0733 **	0.9238	2.6992 **
	(0.4159)	(0.6204)	(0.5420)	(0.3755)	(0.3899)	(0.3073)	(0.5232)	(0.4642)	(0.3330)	(0.6988)	(0.7670)	(0.2417)	(0.3263)	(0.4675)	(0.3331)	(0.3407)	(0.5027)	(1.0653)
male	1.0314 **	0.9044 **	0.4452	0.4023 *	0.3976 *	0.8409 **	1.1085 **	0.2809	1.0960 **	-0.2749	0.3996 *	0.5158 **	0.1618	0.3375	0.5053 **	0.6744 **	1.0188 *	0.5856 **
	(0.1643)	(0.2944)	(0.2665)	(0.1607)	(0.1719)	(0.2004)	(0.3265)	(0.2430)	(0.1943)	(0.3287)	(0.2015)	(0.1438)	(0.1744)	(0.1904)	(0.1510)	(0.1917)	(0.4278)	(0.1832)
age	-0.0029	-0.0061	-0.0381 **	0.0109 *	-0.0152 **	-0.0169 *	-0.0049	-0.0108	0.0082	-0.0267 *	0.0086	-0.0059	0.0009	-0.0184 *	-0.0168 **	-0.0231 **	-0.0004	-0.0037
	(0.0049)	(0.0129)	(0.0091)	(0.0047)	(0.0054)	(0.0085)	(0.0149)	(0.0077)	(0.0064)	(0.0114)	(0.0082)	(0.0047)	(0.0061)	(0.0081)	(0.0050)	(0.0065)	(0.0150)	(0.0055)
union	0.2087	-0.0420	0.1743	-0.0317	0.2608	0.1427	0.3881	-0.3772	0.1841	-0.7272 *	-0.2597	-0.0488	-0.1778	-0.0732	-0.1701	0.0177	0.2885	-0.6927 *
	(0.1668)	(0.2781)	(0.3058)	(0.1656)	(0.1757)	(0.2160)	(0.3187)	(0.3259)	(0.1827)	(0.3104)	(0.2350)	(0.1402)	(0.2208)	(0.1834)	(0.1459)	(0.1792)	(0.3761)	(0.3537)
married	-0.0960	-0.2716	0.1538	-0.0284	-0.0399	0.2510	-0.3126	-0.0714	0.1256	0.2647	0.7757 **	0.0775	0.1162	-0.0059	-0.0009	0.4756 *	0.2483	-0.3455 *
	(0.1652)	(0.2647)	(0.3193)	(0.1629)	(0.1733)	(0.2007)	(0.3237)	(0.2304)	(0.1788)	(0.2972)	(0.2180)	(0.1525)	(0.1783)	(0.1899)	(0.1472)	(0.2097)	(0.3608)	(0.1743)
rural	0.3128 **	dropped	0.1788	-0.0701	0.3832 *	dropped	dropped	-0.1619	0.0688	0.2864	0.2911	0.1203	0.2606	0.4096	dropped	0.4062 *	0.0649	-0.1286
	(0.1436)		(0.2824)	(0.2275)	(0.1703)			(0.2347)	(0.1706)	(0.2748)	(0.2332)	(0.1336)	(0.1867)	(0.2213)		(0.1792)	(0.3792)	(0.1719)
left party	-0.0941	0.4790	-1.1876 **	0.1613	-0.8551 **	0.4892 **	0.2080	dropped	0.4464	dropped	0.0680	-0.0875 **	0.0459	-1.0121 **	-0.3823 **	0.1492	-0.4706	-0.2258
	(0.1543)	(0.2647)	(0.4832)	(0.1902)	(0.2432)	(0.1865)	(0.2950)		(0.4776)		(0.6220)	(0.1403)	(0.1924)	(0.2936)	(0.1983)	(0.3160)	(0.3033)	(0.2216)
center party	-0.6332	0.3914	0.6099	-0.2093	-0.7211 **	0.5428	-2.0592	dropped	-0.0777	dropped	0.3631	-1.0206	0.9072 **	0.0957	-0.1761	0.2643	dropped	0.0927
	(0.4268)	(0.5017)	(0.3891)	(0.1821)	(0.1691)	(0.3671)	(1.2365)		(0.1773)		(0.1985)	(0.2326) **	(0.2281)	(0.2881)	(0.1482)	(0.2829)		(0.2046)
constant	-3.4915 **	-3.3070 **	-1.1806 **	-1.9850 **	-1.3571 **	-1.5164 **	-1.9813 **	-2.3049 **	-2.9284 **	-0.5492	-3.8470 **	-1.3763	-2.6321 **	-17.9457	-0.5502	-1.6672 **	-2.7744	-4.4193 **
	(0.5680)	(0.7248)	(0.6852)	(0.5666)	(0.4579)	(0.4402)	(0.8464)	(0.6173)	(0.5160)	(0.8183)	(0.9533)	(0.3104)	(0.4462)	N/A	(0.3652)	(0.4568)	(0.7826)	(1.114)
joint signifance of occupation	17.89 **	21.89 **	3.74	10.21	6.88	9.67	3.09	1.61	12.31 *	3.53	17.51 **	18.45 **	9.38	18.49 **	2.94	9.27	0.56	15.35 **
number of observations	2017	501	899	912	958	638	285	906	893	432	616	1252	1425	805	1254	817	398	1285
chi2	120.87	55.22	43.22	40.45	65.79	68.21	30.76	23.59	62.13	16.89	63.15	97.22	57.10	N/A	45.59	82.62	15.13	61.96
pseudo R2	0.0870	0.1597	0.0967	0.0400	0.0659	0.0903	0.1024	0.0334	0.0735	0.0456	0.0882	0.0796	0.0424	0.0657	0.0339	0.1035	0.0501	0.0784

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Figure 1 to 5 Percentages of individuals among occupation groups who support trade liberalization in the selected countries

Figure 1

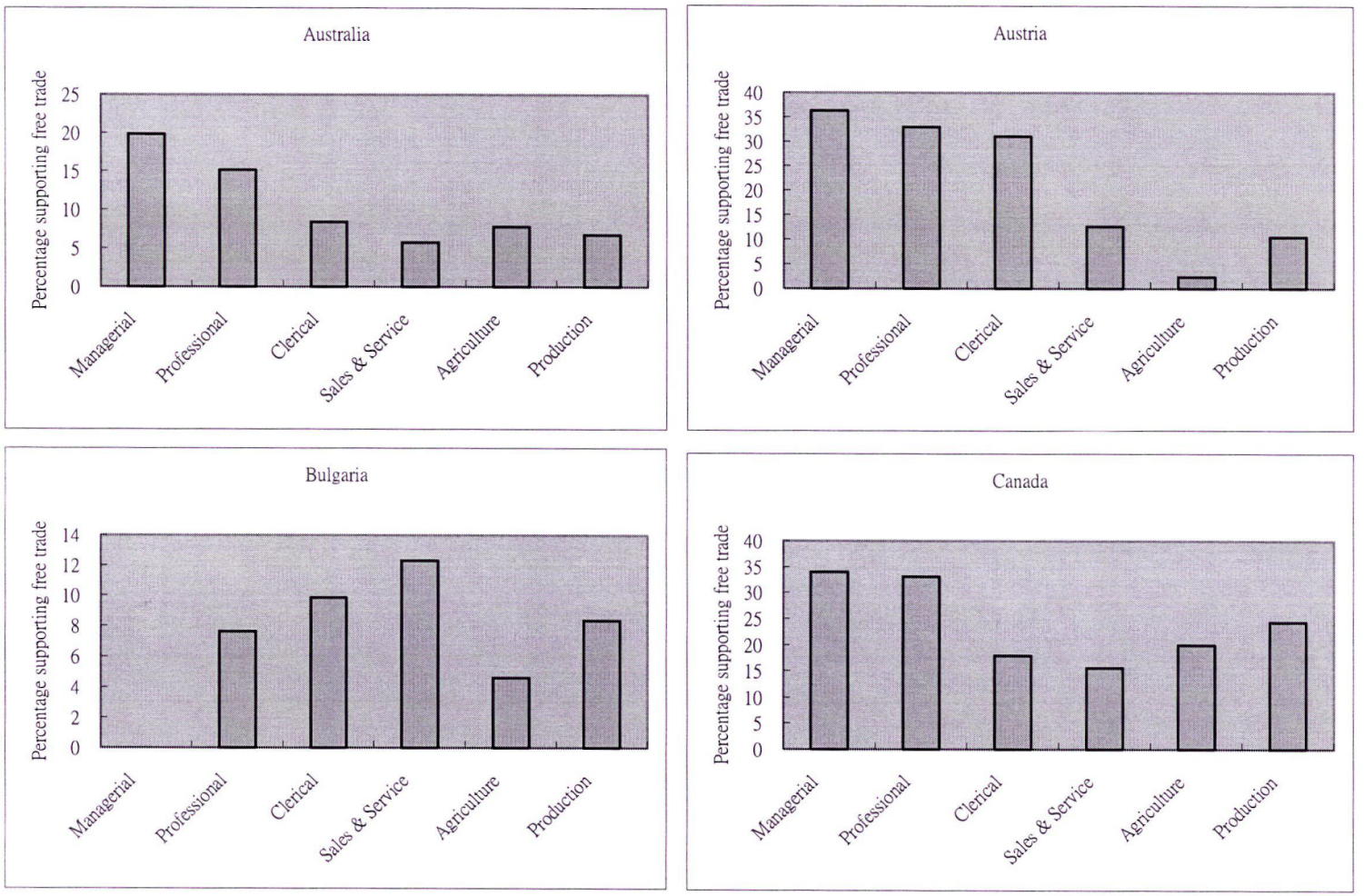


Figure 2

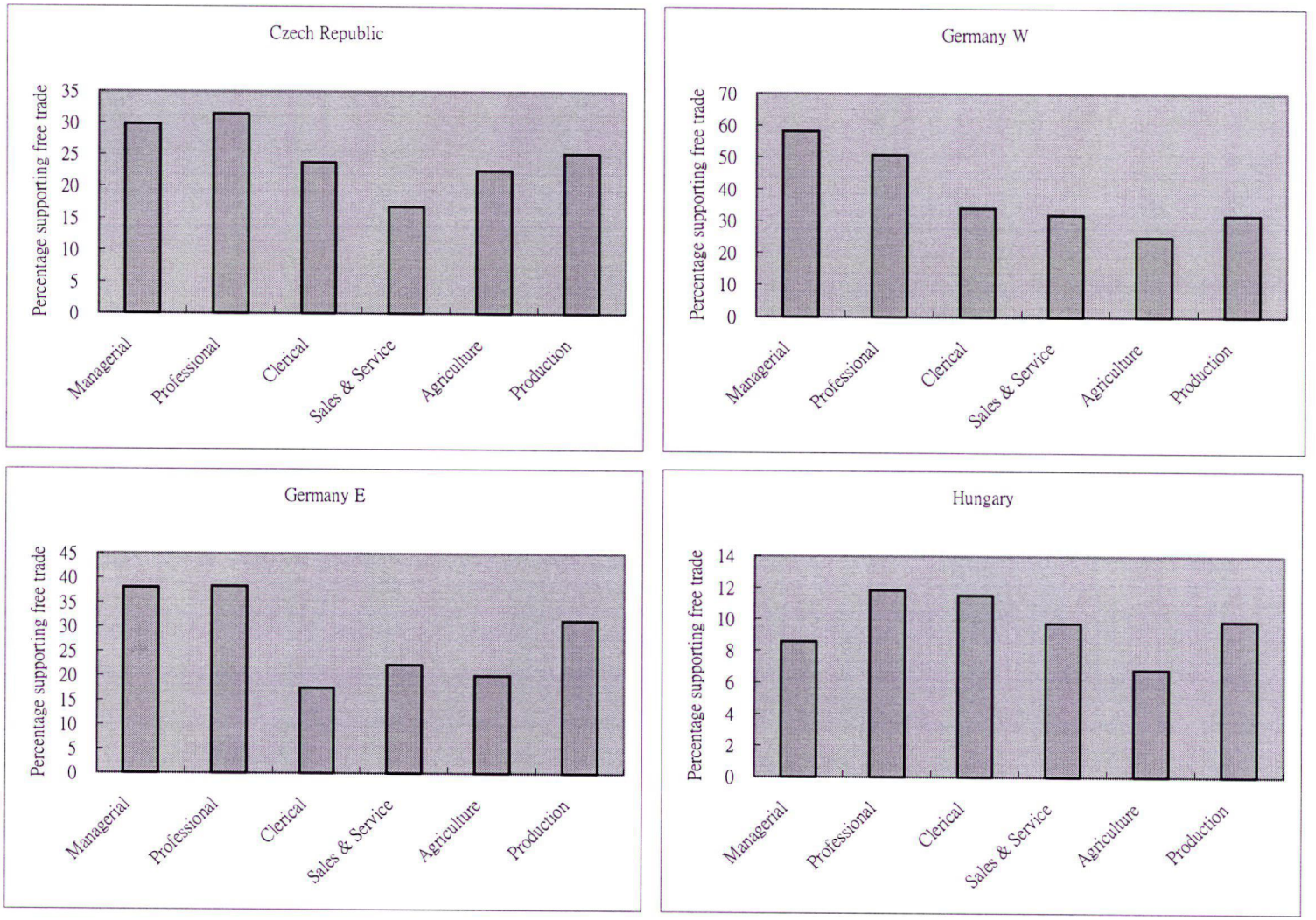

Czech Republic
Percentage supporting free trade
0
5
10
15
20
25
30
35
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Germany W
Percentage supporting free trade
0
10
20
30
40
50
60
70
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Germany E
Percentage supporting free trade
0
5
10
15
20
25
30
35
40
45
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Hungary
Percentage supporting free trade
0
2
4
6
8
10
12
14
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production

Figure 3

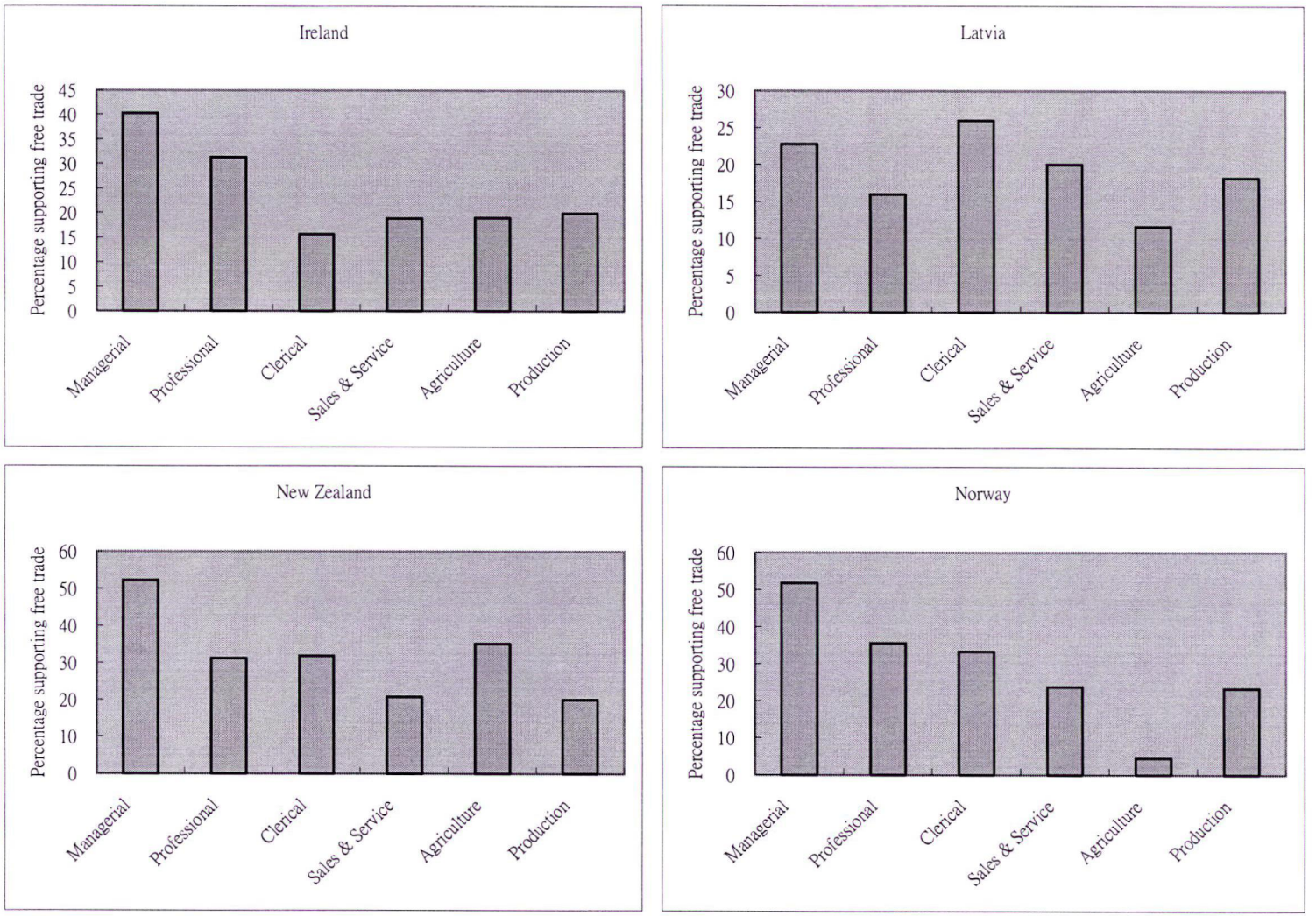

Ireland
Percentage supporting free trade
45
40
35
30
25
20
15
10
5
0
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Latvia
Percentage supporting free trade
30
25
20
15
10
5
0
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
New Zealand
Percentage supporting free trade
60
50
40
30
20
10
0
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Norway
Percentage supporting free trade
60
50
40
30
20
10
0
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production

Figure 4

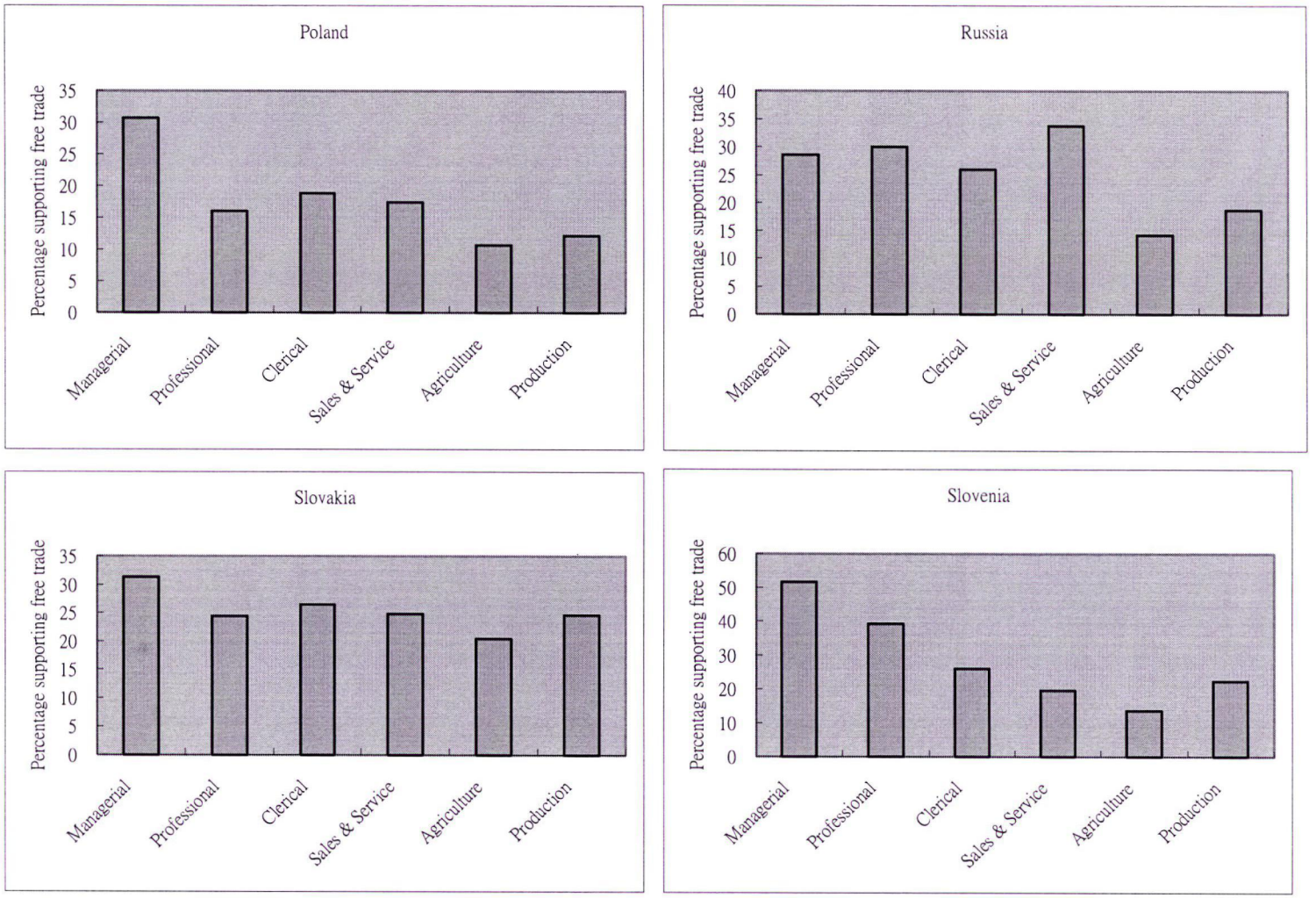
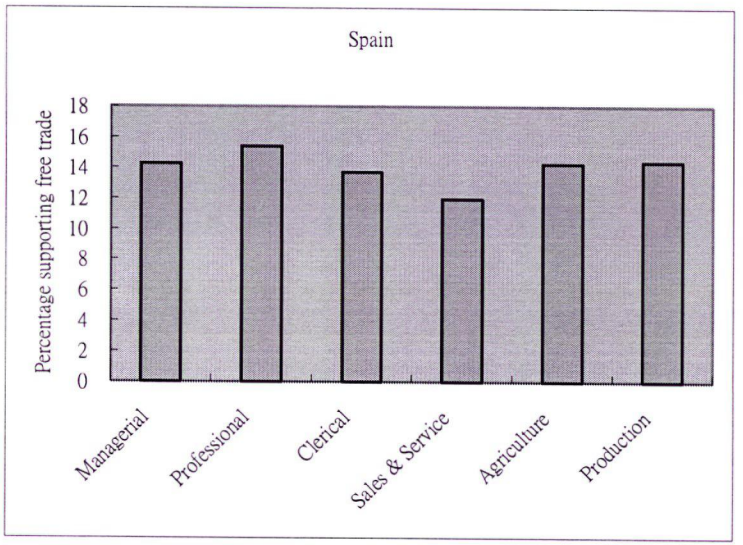
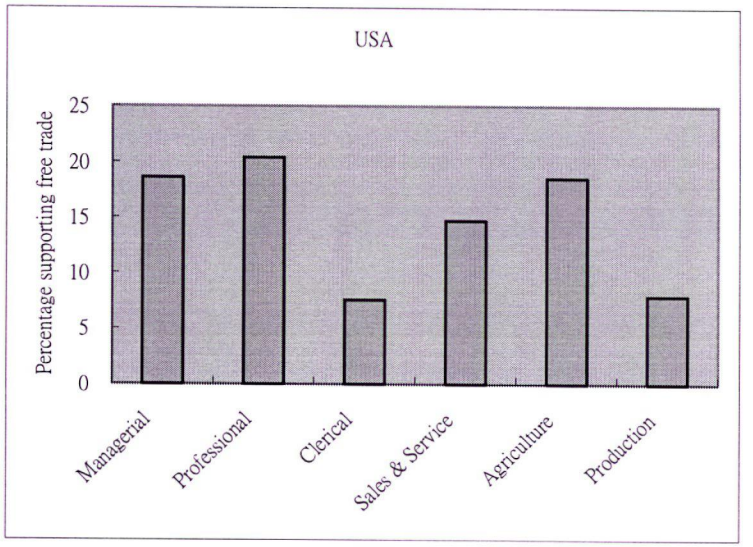
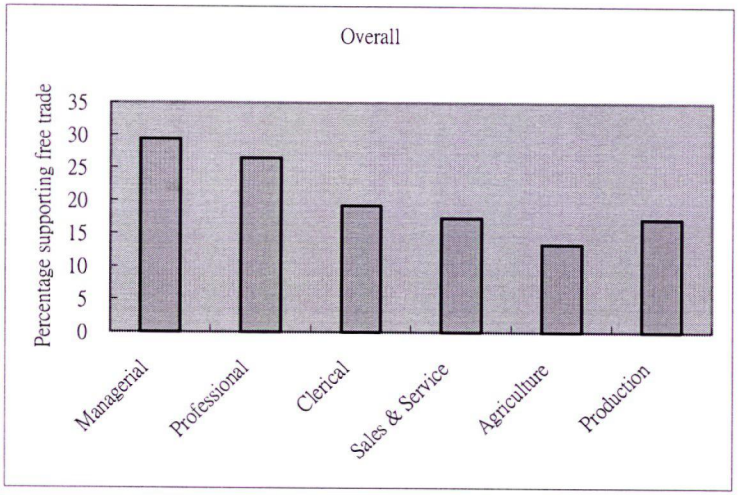

Poland
Percentage supporting free trade
0
5
10
15
20
25
30
35
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Russia
Percentage supporting free trade
0
5
10
15
20
25
30
35
40
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Slovakia
Percentage supporting free trade
0
5
10
15
20
25
30
35
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production
Slovenia
Percentage supporting free trade
0
10
20
30
40
50
60
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production

Figure 5


Spain
Percentage supporting free trade
0
2
4
6
8
10
12
14
16
18
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production


USA
Percentage supporting free trade
0
5
10
15
20
25
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production


Overall
Percentage supporting free trade
0
5
10
15
20
25
30
35
Managerial
Professional
Clerical
Sales & Service
Agriculture
Production

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APPENDIX A: List of occupations groups in ISCO88/68 format

ISCO68 is originally composed of 8 groups as follows:

Group 0/1 - professional, technical and related workers

Group 2 - administrative and managerial workers

Group 3 - clerical and related workers

Group 4 - sales workers

Group 5 - service workers

Group 6 - agriculture, animal husbandry and forestry workers, fishermen and hunters

Group 7/8/9 - production and related workers, transport equipment operators and laborers

Group A - armed forces

ISCO88 is originally composed of 10 groups as follows:

Group 1 - legislator, senior officials, and managers

Group 2 - professionals

Group 3 - technicians, associate professionals

Group 4 - clerks

Group 5 - service workers, shop and market sales workers

Group 6 - skilled agricultural and fishery workers

Group 7 - craft and related workers

Group 8 - plant and machine operators and assemblers

Group 9 - elementary occupations

Group 0 - armed forces

APPENDIX B: GDPs of the selected countries

The GDPs of the selected countries are obtained from *European Marketing Data and Statistics 2001* in billion US dollars at the year of 1995 in order to merge with the two data sets used in this study.

Table B GDP and the share of world consumption of the selected countries with assumption of these countries constitute the whole world

	GDP (in billion US Dollars)	Share of world consumption
Australia	375.8	3.01%
Austria	235.2	1.89%
Bulgaria	13.0	0.10%
Canada	579.2	4.65%
Czech Republic	52.0	0.42%
Germany	2458.3	19.72%
Hungary	44.7	0.36%
Ireland	66.4	0.53%
Latvia	4.0	0.03%
New Zealand	60.0	0.48%
Norway	146.6	1.18%
Poland	127.1	1.02%
Russia	348.0	2.79%
Slovakia	17.0	0.14%
Slovenia	19.0	0.15%
Spain	584.2	4.69%
USA	7338.4	58.85%
Total GDP	12468.9	100.00%

APPENDIX C: Regressions with different ordering in dependent variable

Recall that the ordering of responses to the question of import protection is: strongly agree, agree, neither disagree, and strongly disagree. A series of ordered logistic regressions used to examine individual trade policy preferences across all countries are presented in Table C.1. As mentioned in Chapter 3, the middle category "neither agree nor disagree" caused some difficulty interpreting the results. Instead of coding the dependent variable as disagree or strongly disagree versus other, which has been shown in Chapter 4, there are two other ways to treat this middle category: to drop it from the regressions (as shown in Table C.2); to code the dependent variable as agree or strongly agree versus other (as shown in Table C.3). Note that all models are estimated with country fixed effect, which include the country dummy variables that serve as the controls for unobserved differences between individuals from different countries in the preferences on trade policy that are not picked up by the explanatory variables.

The purpose of constructing these regressions with different ordering of responses to the question of import protection is to check with the results of the ordering used in this paper - the ordering of coding the dependent variable as disagree or strongly disagree versus other. As shown in Table C.1, C.2 and C.3, the ordered logistic regressions and the different approaches to "neither" category do not affect the results and the conclusion of the ordering used in this paper. The sign patterns of the occupation groups, occupation abundance and the degree of abundance in Table C.1 and Table C.3 are similar to those in Table 6 and 7. The sign patterns of the occupation groups and the occupation abundance in Table C.2 are similar to those in Table 6 and 7 as well, but the signs of the degree of abundance are all positive in Table C.2. The estimated coefficients of the occupation

groups in Table C.1, C.2 and C.3 are jointly significant at one percent level. The estimated coefficients of the occupation abundance in these tables are statistically significant, and the estimated coefficients of the degree of abundance are not statistically significant as usual.

Table C.1 Ordered logitistic regression results on different models with country fixed effect

	Model 1: Logit with occupation variables	Model 2: Logit with education variables	Model 3: Logit with occupation and edcuation variables	Model 4: Logit with occupation abundance (D)	Model 5: Logit with degree of abundance (Z)	Model 6: Logit with D and Z	Model 7: Logit with interaction variables (occup*Z)	Model 8: Logit with occup + D + Z + intercation variables
Managerial	0.6805 **		0.4929 **					0.4494 **
	(0.0633)		(0.0650)					(0.0703)
Professional	0.6234 **		0.3832 **					0.4223 **
	(0.0425)		(0.0473)					(0.0492)
Clerical	0.3374 **		0.2553 **					0.2645 **
	(0.0530)		(0.0537)					(0.0544)
Sales & Service	0.2871 **		0.2498 **					0.2564 **
	(0.0492)		(0.0496)					(0.0498)
Agriculture	0.0509		0.0798					-0.0315
	(0.0552)		(0.0565)					(0.0625)
D				0.1529 **		0.1533 **		0.1374 *
				(0.0495)		(0.0558)		(0.0619)
Z					0.0581	-0.0007		-0.0242
					(0.0423)	(0.0477)		(0.0787)
Managerial * Z							-0.1999 **	-0.1720 *
							(0.0678)	(0.0868)
Professional * Z							-0.1017	-0.2845 **
							(0.0593)	(0.0662)
Clerical * Z							-0.0553	-0.1624
							(0.0913)	(0.0949)
Sales & Service * Z							0.2095 **	0.1088
							(0.0765)	(0.0835)
Agriculture * Z							0.1625 **	0.1966 **
							(0.0491)	(0.0761)
secondary		0.2736 **	0.1809 **	0.2759 **	0.2750 **	0.2758 **	0.2989 **	0.1953 **
		(0.0436)	(0.0460)	(0.0436)	(0.0436)	(0.0436)	(0.0441)	(0.0461)
tertiary		0.8187 **	0.5883 **	0.8126 **	0.8191 **	0.8125 **	0.8530 **	0.5991 **
		(0.0499)	(0.0576)	(0.0500)	(0.0499)	(0.0501)	(0.0506)	(0.0577)
male	0.3691 **	0.2781 **	0.3479 **	0.2845 **	0.2805 **	0.2845 **	0.2741 **	0.3501 **
	(0.0313)	(0.0286)	(0.0314)	(0.0287)	(0.0287)	(0.0287)	(0.0287)	(0.0314)
age	-0.0086 **	-0.0060 **	-0.0067 **	-0.0060 **	-0.0060 **	-0.0060 **	-0.0062 **	-0.0068 **
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
union	-0.0436	-0.0667	-0.0595	-0.0658	-0.0674	-0.0657	-0.0617	-0.0601
	(0.0336)	(0.0335)	(0.0337)	(0.0335)	(0.0335)	(0.0335)	(0.0335)	(0.0338)
married	-0.0093	-0.0028	-0.0141	-0.0032	-0.0021	-0.0032	0.0021	-0.0098
	(0.0306)	(0.0305)	(0.0307)	(0.0306)	(0.0306)	(0.0306)	(0.0306)	(0.0307)
rural	0.2692 **	0.2679 **	0.2491 **	0.2675 **	0.2680 **	0.2675 **	0.2780 **	0.2561 **
	(0.0329)	(0.0327)	(0.0330)	(0.0327)	(0.0327)	(0.0327)	(0.0328)	(0.0331)
left party	-0.1388 **	-0.1481 **	-0.1428 **	-0.1493 **	-0.1496 **	-0.1493 **	-0.1438 **	-0.1430 **
	(0.0355)	(0.0355)	(0.0355)	(0.0355)	(0.0355)	(0.0355)	(0.0355)	(0.0524)
center party	-0.1308 **	-0.1262 **	-0.1321 **	-0.1269 **	-0.1249 **	-0.1270 **	-0.1105 **	-0.1128 **
	(0.0417)	(0.0417)	(0.0417)	(0.0417)	(0.0417)	(0.0417)	(0.0418)	(0.0419)
Cut 1	-0.3968	-0.2586	-0.1306	-0.1603	-0.2586	-0.1600	-0.2265	-0.0339
Cut 2	1.1374	1.2777	1.4113	1.3766	1.2778	1.3768	1.3119	1.5115
Cut 3	2.1525	2.2946	2.4325	2.3938	2.2947	2.3941	2.3312	2.5360
Cut 4	3.8569	4.0020	4.1447	4.1017	4.0023	4.1020	4.0415	4.2521
joint signifance of occupation	289.36 **		89.61 **					101.56 **
joint signifance of D and Z						9.54 **		5.74
joint signifance of the interaction variables							35.75 **	51.42 **
joint signifance of education		344.24 **	135.88 **	334.53 **	343.59 **	334.28 **	360.06 **	136.19 **
number of observations	16302	16302	16302	16302	16302	16302	16302	16302
chi2	1978.81	2030.95	2112.67	2039.51	2034.89	2039.89	2104.62	2220.95
pseudo R2	0.0420	0.0429	0.0448	0.0430	0.0429	0.0430	0.0436	0.0460

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table C.2 Regression results on different models with the middle category dropped and country fixed effect

	Model 1: Logit with occupation variables	Model 2: Logit with education variables	Model 3: Logit with occupation and edcuation variables	Model 4: Logit with occupation abundance (D)	Model 5: Logit with degree of abundance (Z)	Model 6: Logit with D and Z	Model 7: Logit with interaction variables (occup*Z)	Model 8: Logit with occup + D + Z + intercation variables
Managerial	0.9700 **		0.6993 **					0.6729 **
	(0.0861)		(0.0899)					(0.0988)
Professional	0.8392 **		0.5073 **					0.5856 **
	(0.0611)		(0.0680)					(0.0749)
Clerical	0.5170 **		0.3998 **					0.4178 **
	(0.0813)		(0.0824)					(0.0867)
Sales & Service	0.3632 **		0.3034 **					0.3272 **
	(0.0772)		(0.0780)					(0.0801)
Agriculture	-0.0123		0.0237					-0.0906
	(0.0860)		(0.0876)					(0.1070)
D				0.2084 **		0.2269 **		0.1586
				(0.0863)		(0.0945)		(0.1049)
Z					-0.0425	-0.0333		-0.0973
					(0.0692)	(0.0741)		(0.1287)
Managerial * Z							-0.3603 **	-0.4082 **
							(0.0969)	(0.1218)
Professional * Z							-0.1212	-0.4159 **
							(0.0861)	(0.0980)
Clerical * Z							0.0295	-0.1581
							(0.1437)	(0.1475)
Sales & Service * Z							0.3560 **	0.1727
							(0.1119)	(0.1208)
Agriculture * Z							0.1745 *	0.1931
							(0.0834)	(0.1364)
secondary		0.4400 **	0.2834 **	0.4440 **	0.4407 **	0.4438 **	0.4552 **	0.2841 **
		(0.0712)	(0.0742)	(0.0713)	(0.0712)	(0.0713)	(0.0717)	(0.0743)
tertiary		1.1847 **	0.8362 **	1.1778 **	1.1846 **	1.1772 **	1.1251 **	0.8371 **
		(0.0784)	(0.0885)	(0.0786)	(0.0784)	(0.0786)	(0.0798)	(0.0889)
male	0.6514 **	0.5304 **	0.6244 **	0.5373 **	0.5321 **	0.5366 **	0.5229 **	0.6226 **
	(0.0469)	(0.0432)	(0.0471)	(0.0433)	(0.0433)	(0.0433)	(0.0436)	(0.0471)
age	-0.0110 **	-0.0073 **	-0.0084 **	-0.0072 **	-0.0072 **	-0.0072 **	-0.0073 **	-0.0084 **
	(0.0015)	(0.0015)	(0.0016)	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0016)
union	-0.0141	-0.0501	-0.0354	-0.0481	-0.0505	-0.0475	-0.0389	-0.0295
	(0.0487)	(0.0485)	(0.0490)	(0.0486)	(0.0486)	(0.0486)	(0.0487)	(0.0493)
married	0.0041	0.0107	-0.0043	0.0103	0.0110	0.0101	0.0145	0.0000
	(0.0466)	(0.0466)	(0.0469)	(0.0468)	(0.0467)	(0.0467)	(0.0467)	(0.0470)
rural	0.3065 **	0.3066 **	0.2761 **	0.3070 **	0.3068 **	0.3070 **	0.3173 **	0.2871 **
	(0.0518)	(0.0516)	(0.0521)	(0.0516)	(0.0516)	(0.0516)	(0.0517)	(0.0522)
left party	-0.1015	-0.1144 *	-0.1096	-0.1144 *	-0.1155 *	-0.1135 *	-0.1045	-0.1039
	(0.0545)	(0.0546)	(0.0548)	(0.0547)	(0.0547)	(0.0547)	(0.0549)	(0.0552)
center party	-0.1260 *	-0.1208 *	-0.1249 *	-0.1203 *	-0.1192	-0.1216 *	-0.1012	-0.0979
	(0.0612)	(0.0610)	(0.0612)	(0.0610)	(0.0611)	(0.0611)	(0.0615)	(0.0618)
constant	-2.3917 **	-2.6523 **	-2.7996 **	-2.7897 **	-2.6514 **	-2.8024 **	-2.7048 **	-2.9462 **
	(0.1203)	(0.1344)	(0.1427)	(0.1478)	(0.1344)	(0.1499)	(0.1357)	(0.1572)
joint signifance of occupation	280.17 **		88.24 **					92.79 **
joint signifance of D and Z						6.10 *		5.11
joint signifance of the interaction variables							35.33 **	45.84 **
joint signifance of education		309.20 **	121.29 **	300.49 **	308.64 **	300.22 **	310.16 **	119.85 **
number of observations	13183	13183	13183	13183	13183	13183	13183	13183
chi2	1279.73	1304.35	1356.91	1308.48	1304.22	1309.40	1339.46	1381.30
pseudo R2	0.1010	0.1032	0.1091	0.1036	0.1033	0.1036	0.1057	0.1126

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.

Table C.3 Regression results on different models with coding the dependent variable as "agree" or "strongly agree" versus other and country fixed effect

	Model 1: Logit with occupation variables	Model 2: Logit with education variables	Model 3: Logit with occupation and edcuation variables	Model 4: Logit with occupation abundance (D)	Model 5: Logit with degree of abundance (Z)	Model 6: Logit with D and Z	Model 7: Logit with interaction variables (occup*Z)	Model 8: Logit with occup + D + Z + intercation variables
Managerial	0.6444 **		0.4577 **					0.4248 **
	(0.0723)		(0.0752)					(0.0811)
Professional	0.6078 **		0.3726 **					0.4494 **
	(0.0489)		(0.0545)					(0.0602)
Clerical	0.3215 **		0.2457 **					0.2780 **
	(0.0637)		(0.0646)					(0.0688)
Sales & Service	0.2781 **		0.2420 **					0.2568 **
	(0.0589)		(0.0592)					(0.0614)
Agriculture	0.0984		0.1175					-0.0179
	(0.0642)		(0.0655)					(0.0797)
D				0.1699 **		0.1547 **		0.1639 *
				(0.0657)		(0.0739)		(0.0814)
Z					0.0840	0.0272		0.0340
					(0.0555)	(0.0618)		(0.0996)
Managerial * Z							-0.2979 **	-0.3483 **
							(0.0849)	(0.1035)
Professional * Z							-0.1546 **	-0.3910 **
							(0.0674)	(0.0781)
Clerical * Z							-0.1019	-0.2402 *
							(0.1104)	(0.1171)
Sales & Service * Z							0.2398 **	0.0965
							(0.0862)	(0.0939)
Agriculture * Z							0.2287 **	0.2300 *
							(0.0651)	(0.0986)
secondary		0.2178 **	0.1360 **	0.2204 **	0.2197 **	0.2208 **	0.2551 **	0.1488 **
		(0.0519)	(0.0547)	(0.0520)	(0.0519)	(0.0520)	(0.0526)	(0.0547)
tertiary		0.7699 **	0.5554 **	0.7641 **	0.7707 **	0.7648 **	0.8270 **	0.5669 **
		(0.0590)	(0.0679)	(0.0591)	(0.0590)	(0.0591)	(0.0606)	(0.0682)
male	0.3480 **	0.2609 **	0.3287 **	0.2669 **	0.2640 **	0.2674 **	0.2552 **	0.3310 **
	(0.0368)	(0.0339)	(0.0369)	(0.0340)	(0.0340)	(0.0340)	(0.0343)	(0.0369)
age	-0.0080 **	-0.0057 **	-0.0064 **	-0.0057 **	-0.0057 **	-0.0057 **	-0.0058 **	-0.0065 **
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
union	-0.0440	-0.0663	-0.0580	-0.0649	-0.0671	-0.0653	-0.0575	-0.0560
	(0.0392)	(0.0390)	(0.0394)	(0.0390)	(0.0390)	(0.0390)	(0.0391)	(0.0395)
married	-0.0650	-0.0612	-0.0639	-0.0616	-0.0604	-0.0613	-0.0555	-0.0647
	(0.0364)	(0.0364)	(0.0394)	(0.0364)	(0.0364)	(0.0364)	(0.0365)	(0.0366)
rural	0.3202 **	0.3152 **	0.3010 **	0.3154 **	0.3156 **	0.3155 **	0.3307 **	0.3107 **
	(0.0399)	(0.0397)	(0.0402)	(0.0397)	(0.0397)	(0.0397)	(0.0391)	(0.0403)
left party	-0.1392 **	-0.1471 **	-0.1442 **	-0.1474 **	-0.1490 **	-0.1480 **	-0.1412 **	-0.1420 **
	(0.0437)	(0.0438)	(0.0438)	(0.0438)	(0.0437)	(0.0438)	(0.0439)	(0.0441)
center party	-0.1412 **	-0.1354 **	-0.1415	-0.1359 **	-0.1330 **	-0.1350 **	-0.1125 *	-0.1136 *
	(0.0490)	(0.0489)	(0.0490)	(0.0489)	(0.0489)	(0.0489)	(0.0492)	(0.0494)
constant	-1.3957 **	-1.4889 **	-1.6266 **	-1.5955 **	-1.4838 **	-1.5855 **	-1.5481 **	-1.7694 **
	(0.0934)	(0.1026)	(0.1096)	(0.1117)	(0.1026)	(0.1138)	(0.1036)	(0.1201)
joint signifance of occupation	199.43 **		59.93 **					72.54 **
joint signifance of D and Z						6.87 *		5.83
joint signifance of the interaction variables							46.08 **	63.25 **
joint signifance of education		235.02 **	96.11 **	228.16 **	234.46 **	228.18 **	248.59 **	95.87 **
number of observations	16302	16302	16302	16302	16302	16302	16302	16302
chi2	1406.23	1423.85	1473.66	1430.08	1425.43	1430.10	1451.55	1494.28
pseudo R2	0.0724	0.0740	0.0768	0.0743	0.0741	0.0743	0.0763	0.0801

Note: Robust standard errors are reported. ** statistically significant at 1%; * statistically significant at 5%.