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THE ECONOMICS OF CANADIAN CITIZENSHIP

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THE ECONOMICS OF CANADIAN CITIZENSHIP

Immigrants ascend to citizenship at differential rates in Canada. Why is this so? This paper investigates the economic costs and benefits derived from citizenship to rationalize the differential rates of citizenship ascension. Canadian earnings evidence confirms the sizable economic benefits of citizenship. A decomposition analysis attributes this benefit to self-selection, namely only the more productive immigrants become Canadian citizens.

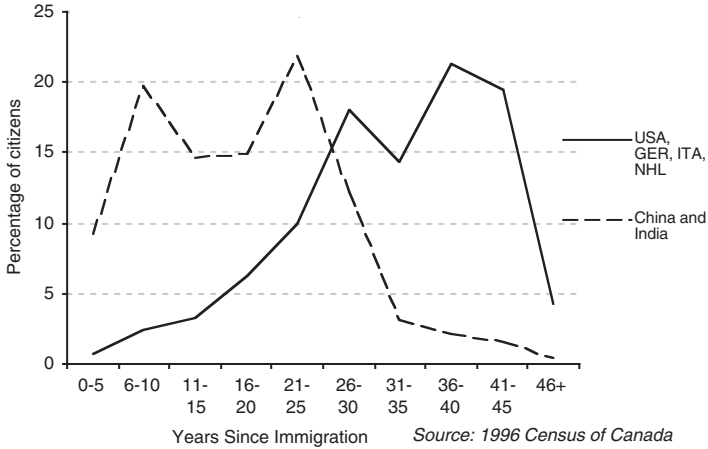
Keywords: immigration, citizenship, Canada

Introduction

The long-term goal of Canadian immigration policy is to insure that the majority of its foreign-born arrivals become citizens. To this end the current Canadian ministry of immigration is charged to perform both immigrant selection and citizenship functions.¹ Moreover, the majority of foreign-born permanent immigrants to Canada are entitled to apply for citizenship after a three-year period of residency. According to the 1996 Census of Canada, 74.6% of Canada's foreign-born were citizens.

Differential rates of citizenship ascension by number of years in Canada and immigrants' country of origin are illustrated in Figure 1. The majority of Canada's post-1986 immigrant flows emanate from China and India, and, after 5 years in residence, these immigrants ascend to citizenship at an annual rate of between 15 and 20% of the resident stock per year.² The process ends after the 25th year in residence as the stock of residents from China and India have largely acquired citizenship. Just the opposite picture emerges for immigrants from the traditional source countries of Western Europe and the United States. Here significant immigrant ascension to citizenship only appears after 25 years or more in residence.

Figure 1: Rates of Ascention to Canadian Citizenship by Immigrant Source Country and Years in Canada



Rates of ascension vary even amongst immigrants from Western Europe. For example, more than 68% of Polish immigrants to Canada had acquired citizenship, whereas only 24 per cent of Dutch immigrants had become citizens. Finally, over 17% of all foreign-born residents reported dual citizenship in 1996, with the largest source countries appearing in Western Europe and the United States.³

These stylized facts belie the degree of controversy that has arisen in Canada with respect to the economic implications of citizenship acquisition. In 2003 the Canadian Supreme Court upheld the citizenship requirement for an array of federal government jobs, and ruled against an immigrant class action suit to recover damages from alleged discrimination.⁴ The plaintiffs argued that both job and earnings discrimination arose under this requirement, since immigrants without citizenship were unable to practice their profession and enjoy the relatively high earnings from a federal position. Another issue has arisen as a byproduct of linking citizenship with the growth in return migration of erstwhile Canadian immigrants. It has been observed that over 25% of the post-1986 Chinese immigrants to Canada had returned to Hong-Kong or China by 2004, most with Canadian citizenship (DeVoretz and Ma 2002). Canadian policymakers have made ambivalent pronouncements over the economic impact of this phenomenon. Some policymakers consider the returning erstwhile Canadian immigrants a Canadian asset which will increase trade and investment. Other observers are less sanguine and feel that these Chinese-Canadian emigrants are potential future liabilities, especially if they return to retire, thus putting economic pressure on the social system.⁵ In addition, Canada's membership in NAFTA now affords all Canadian citizens, including

immigrants who recently ascended to citizenship, the right to work in the United States in selected highly skilled jobs. This exacerbates the concerns over Canada's brain drain (DeVoretz and Iturralde 2001).⁶

In sum, both Canadian immigrants and Canadian policymakers face a new set of economic issues that arose from the process and the outcomes of immigrant ascension to citizenship. Beyond these issues, a series of fundamental questions however need to be addressed, including:

- *What are the individual determinants that affect immigrants' decision to ascend to citizenship at various stages in their lifetime?*
- *Do immigrants economically gain in either the public or private labour markets from their ascension to citizenship?*
- *From an economic perspective, what is the optimal waiting period before Canada should allow ascension to citizenship?*

In order to answer these questions we propose to model:

- *The affect of economic (income, occupation), social (marital status, household size, children, etc.), political (dual citizenship) and demographic (age, years in Canada) variables on the immigrants' decision to ascend to citizenship;*
- *The economic impact of citizenship on the occupational distribution and earnings of immigrants.*

Literature

The economic literature on citizenship primarily consists of a series of studies with ad hoc references to the economic impact of ascension to citizenship. However, Bratsberg et al. (2002) are the exception. While they ignore the economic rationale for becoming a citizen, they address the possible economic impacts of immigrant citizenship on the United States labour market. Using a youth panel data set, they find that immigrant ascension to citizenship alters the immigrants' occupational distribution and raises their earnings. Moreover, they argue that these effects are greater for immigrants from less developed countries.

Other economic studies of citizenship are more limited in scope since they mostly incorporate the citizenship affect as addendum to a larger study. Pivnenko and DeVoretz (2004) found a strong citizenship affect on Ukrainian immigrant earnings in Canada. Mata (1999) reports no evidence on the economic impact of Canadian citizenship on immigrant earnings after conducting a principal components analysis with 1996 Canadian data. In reviewing the economic outcomes of Chinese-Canadian citizens who returned to Hong-Kong, DeVoretz and Zhang (2004) found that returnees earned higher incomes in Hong-Kong than any other resident group. In the Swedish case, Bevelander (2000) reports

that the log odds of obtaining employment improved for those immigrants who obtained Swedish citizenship in 1990.⁷

In sum, we conclude from this brief literature survey that no comprehensive study of both citizenship ascension and its economic impact exists.

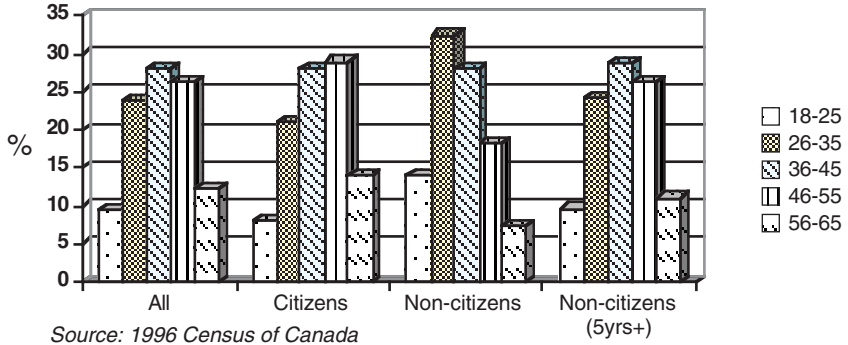
Stylized Facts

Table 1 reports typical socio-economic data for the 1996 Canadian foreign-born population by citizenship status. We focus on those variables which most frequently appear in a human capital model of earnings. The age of foreign-born non-citizens is much lower, with over 46% of this group under the age of 36, while foreign-born citizens comprise only 33% or less of this relatively young age group (Figure 2).

Table 1: Stylized Facts of Canadian Citizen and non-Citizen Populations

	All immigrants		Citizens		Non-citizens (All)		Non-citizens (5yrs+)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Age								
17<age<26	6307	9.49	4033	8.02	2274	14.04	786	9.65
25<age<36	15833	23.82	10587	21.06	5246	32.39	1975	24.26
35<age<46	18668	28.08	14124	28.09	4544	28.06	2336	28.69
45<age<56	17505	26.33	14541	28.92	2964	18.30	2148	26.38
55<age<66	8158	12.27	6991	13.91	1167	7.21	897	11.02
Tenure in Canada								
0–5 years	10864	16.34	2811	5.59	8053	49.73	0	0
6–10 years	9813	14.76	7753	15.42	2060	12.72	2060	25.30
11–15 years	6213	9.35	5190	10.32	1023	6.32	1023	12.56
16–20 years	8014	12.06	6805	13.54	1209	7.47	1209	14.85
21–25 years	10015	15.07	8521	16.95	1494	9.23	1494	18.35
26–30 years	8864	13.34	7645	15.21	1219	7.53	1219	14.97
31–35 years	3977	5.98	3464	6.89	513	3.17	513	6.30
36–40 years	4512	6.79	4096	8.15	416	2.57	416	5.11
41–45 years	3103	4.67	2939	5.85	164	1.01	164	2.01
46+ years	1096	1.65	1052	2.09	44	0.27	44	0.54
Highest degree								
H/School or less	30087	45.26	22013	43.78	8074	49.85	4241	52.09
Diploma	21552	32.42	16904	33.62	4648	28.70	2494	30.63
Bachelor	8905	13.40	6852	13.63	2053	12.68	837	10.28
Above bachelor	4953	7.45	3777	7.51	1176	7.26	456	5.60
Ph.D.	974	1.47	730	1.45	244	1.51	114	1.40
Occupation								
Unskilled	32909	49.51	23569	46.88	9340	57.67	4250	52.20
Skilled	13749	20.68	10747	21.38	3002	18.54	1776	21.81
Professional	19813	29.81	15960	31.74	3853	23.79	2116	25.99
Weeks worked								
0–25	10297	15.49	6696	13.32	3601	22.24	1212	14.89
26–40	8498	12.78	5899	11.73	2599	16.05	1115	13.69
41–52	47676	71.72	37681	74.95	9995	61.72	5815	71.42
Wage earnings	<i>Mean \$</i>		<i>Mean \$</i>		<i>Mean \$</i>		<i>Mean \$</i>	
Total income	27,909		29,931		21,632		27,063	
	30,873		33,003		24,262		29,977	

Figure 2: Age distributions of immigrant groups by citizenship status



This finding may be spurious since age is correlated with years in Canada (tenure). Since an immigrant must wait approximately three years to qualify for citizenship, we would expect that the citizen (non-citizen) population would be older (younger). In fact, the distribution by tenure in Canada reported in Table 1 reflects this observation since 50% of non-citizens have been in Canada less than 5 years.

Non-citizens also report less education with 50% or more having a high school or less qualification; thus these non-citizens are also over-represented in the unskilled category, with 58%.

The labour participation of non-citizens is also skewed with only 61% full time in the Canadian labour force as compared to 75% for immigrants who became citizens.

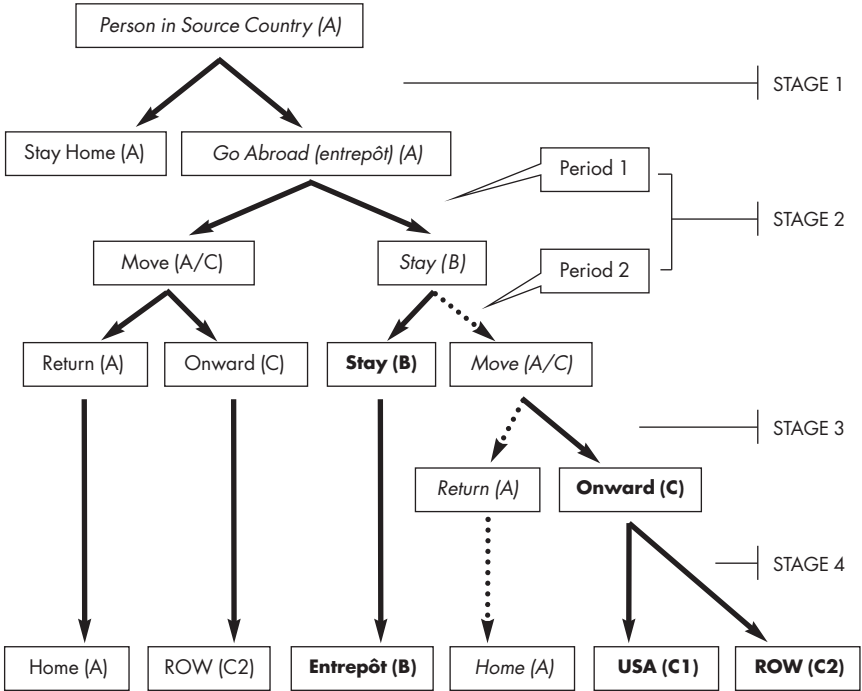
The observations above will later prove crucial in our simulation analysis. If young age, low educational qualifications, limited skills and weeks worked are combined for non-citizens, then you would expect that the wage earnings and total income of non-citizens would be considerably lower than that of citizens who have a greater human capital endowment. This proves to be true since non-citizens earn approximately 8,000 dollars, or 25%, less than citizens.

This brief overview indicates that citizenship status is correlated with human capital endowment and earnings performance of immigrants in Canada.

Theory: Costs and Benefits of Ascending to Canadian Citizenship

The economic problem that immigrants face is to choose a state: citizenship or non-citizenship, if it maximizes their income net of cost given their human capital stock. Figure 3 imbeds the citizenship decision inside a more general model of moving and staying (DeVoretz et al. 2002). Each stage of this journey involves a decision to move or stay, and this decision is, in turn, conditioned by citizenship.

Figure 3: Decision Tree: Stay – Leave
Citizens = bolded



For purposes of illustration, we will follow only one branch of this decision tree to simplify the argument. To focus on the citizenship decision, we only follow the italic-bolded path. In stage 1, the immigrant resides in country A and decides to move to country B. This movement was presumably motivated by the prospect of higher earnings and the opportunity to acquire subsidized human capital in stage 2 (period 1) and a public good (a passport) in stage 2 (period 2), if citizenship is obtained in country B in stage 2 (period 2).

Both the acquisition of subsidized human capital and the prospects of receiving a free public good (a passport) now increase the probability that this immigrant will ascend to citizenship in Stage 2, if the expected earnings stream in

country B net of costs exceeds the option of returning home. The latter result is an outcome of an assumption that country A (e.g. China) does not recognize dual citizenship, and would prohibit return migration as a citizen of country B.⁸ But will the newly ascended citizen of country B stay in country B in stage 3 and beyond? Only if the net income gains from staying as a citizen in country B exceed the income gains from a citizen of country B moving to the USA or the rest of the world (ROW). In sum, there will be no immigrant ascension to citizenship in country B if the home country (A) income rewards exceed the other 3 options when no dual citizenship is permitted by country A. In fact, the optimization problem for the immigrant is to choose a mobility path which maximizes the net income given the human capital endowment, and transaction costs of movement and obtaining citizenship.

In the absence of mutual recognition of dual citizenship by both Canada and the sending country, the major cost of ascending to Canadian citizenship is the loss of home country citizenship. This implies,

- *no access to the home country labour market;*
- *the possible loss of the right to hold land, or higher taxes to pay on land;*
- *no entitlement to public services, such as subsidized education for children;*
- *curtailing of social insurance benefits.*

Application fees and any foregone income arising from continued residence in Canada to fulfill citizenship requirements add to the costs of ascending to citizenship.

On the other hand, the benefits from Canadian citizenship include:

- *access to the federal government labour market;*
- *potential access to the US labour market (NAFTA TN visa);*
- *any wage premium paid by private Canadian employers to Canadian citizens;*
- *a Canadian passport and visa waivers which lead to greater mobility.*

If this model holds, then rates of ascension to citizenship are a positive function of the immigrant's age, years in Canada, skilled occupational status, marital status and presence of children, since each of these factors affects the costs and benefits of ascending to citizenship. In addition, the greater the income earned by the immigrant prior to citizenship in the destination country, the greater the probability of ascending to citizenship.

We acknowledge that other factors outside this human capital framework affect the immigrant's decision. Figure 4 points to further conditioning factors in the citizenship acquisition decision beyond the human capital arguments cited above.

Figure 4: Proportion of naturalized citizens among immigrants from high income countries (USA, Germany, Italy, Netherlands) and low income countries (China and India)

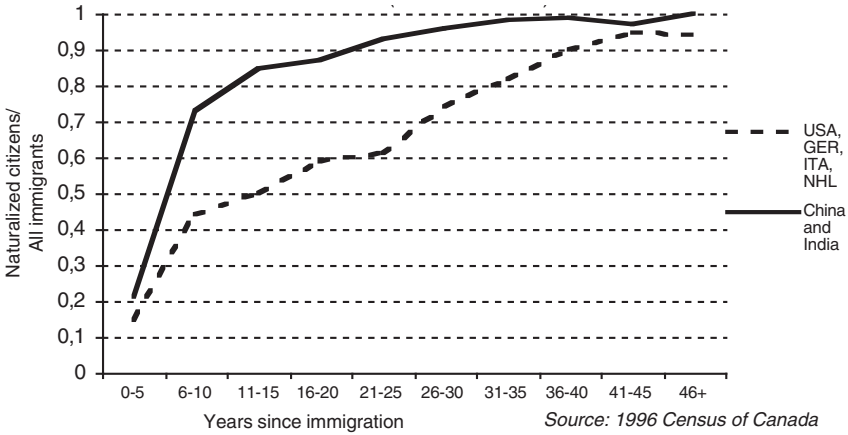


Figure 4 illustrates the cumulative process of immigrant ascension to citizenship for two vintages of immigrants. As noted earlier, immigrants from China and India largely complete their citizenship acquisition between the 6th and 11th year (after five years in residence), when 80 % of the Chinese and Indian stock of immigrants have become Canadian citizens.

The older vintage of European and United States immigrants experience a mild spurt in citizenship acquisition in the first five years of eligibility, from 10% to 40%, but do not approach the Chinese or Indian rates of citizenship acquisition until after 45 years of residence in Canada.

Why is there such a gap across countries of origin and vintages of immigrants? Several forces appear to be acting on these vintages of immigrants to affect their probability of citizenship acquisition. Any modeling exercise must recognize them. First, the foregone income in the home country conditions the speed of ascension. In the absence of dual citizenship recognition, the immigrant faces a low opportunity cost by foregoing the opportunity of return migration after the move to Canada then citizenship acquisition is earlier and faster.

Next, the ease and desire for family reunification will affect the immigrant's decision to acquire citizenship. If Chinese and Indian immigrants show a greater propensity to sponsor family members than the older European vintage of immigrants (Akbar 1995), return migration by Chinese and Indian immigrants will be less likely.

In addition, differential benefits of acquiring Canadian citizenship accrue to the two groups depicted in Figure 4. Acquisition of Canadian citizenship by Chinese and Indian nationals affords a potential increase in labour mobility since these groups can enter the United States labour market with a TN or NAFTA visa. Of course, United States and Western European passports would yield entry to their holders into NAFTA or EU labor markets respectively, without the necessity of acquiring Canadian citizenship and a Canadian passport.

In sum, human capital characteristics plus immigrant source country characteristics (level of development, dual citizenship recognition and portability of home citizenship) should be incorporated in an economic model of citizenship acquisition.

Results: Citizenship Acquisition

First we report our regression results for all Canada's major immigrant sending countries.⁹ Since we also feel that citizenship may vary by gender, we further disaggregate our results by gender.¹⁰ For male immigrants (Table 2-A) all the life-cycle variables obtain the predicted sign and are significant. In particular we note that the income variable (LNWDIF) that measured the log of the mean differences of citizen versus non-citizens wages, along with years since immigration, strongly influenced the log odds of ascending to citizenship.¹¹

Table 2-A. Logit Model of probability of acquiring Canadian Citizenship (1996)

Male Immigrants from all countries					
<i>Logistic regression: dependent variable CTZN</i>					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	.048	.016	8.866	.003	1.049
AGESQ	.000	.000	7.223	.007	1.000
MARRIED	-.090	.058	2.384	.123	.914
LMAR_CHL	.078	.049	2.506	.113	1.081
YSM11_20	1.504	.056	722.865	.000	4.501
YSM21_30	1.600	.051	982.377	.000	4.952
YSM31_40	2.169	.070	970.056	.000	8.749
YSM40PLS	3.151	.118	718.506	.000	23.367
LNWDIF	.706	.043	276.134	.000	2.027
Constant	-7.120	.496	205.674	.000	.001

Table 2-B indicates that there is no structural difference in immigrant ascension by gender for all immigrants, as the coefficients of the variables for females obtain similar signs and significance as those reported for males in Table 2-A.¹²

Table 2-B. *Logit Model of probability of acquiring Canadian Citizenship (1996)*

Female Immigrants from all countries					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	.027	.017	2.664	.103	1.028
AGESQ	.000	.000	1.701	.192	1.000
MARRIED	-.085	.053	2.531	.112	.919
LMAR_CHL	.130	.052	6.292	.012	1.138
YSM11_20	1.337	.056	560.064	.000	3.808
YSM21_30	1.524	.053	818.562	.000	4.588
YSM31_40	2.057	.074	778.453	.000	7.822
YSM40PLS	3.114	.129	584.587	.000	22.505
LNWDIF	.742	.044	278.597	.000	2.100
Constant	-7.074	.513	189.772	.000	.001

We now turn to the effect of the level of development in the immigrant source country on ascension to Canadian citizenship in Tables 3-A and 3-B. The results for males or females from non-OECD countries and OECD countries are vastly different.¹³ In the OECD case, the income difference between immigrants with and without citizenship status and years in Canada are significant and correctly signed. The household composition effects (age, marital status, presence of children) and political realities (dual citizenship) are either insignificant, or obtain the incorrect sign and do not condition either male or female OECD immigrant citizenship ascension as predicted.¹⁴

Table 3-A. *Logit Model of probability of acquiring Canadian Citizenship (1996)*

Female and Male Immigrants from OECD countries					
<i>Logistic regression: dependent variable CTZN</i>					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	-.023	.015	2.339	.126	.977
AGESQ	.000	.000	2.148	.143	1.000
MARRIED	.024	.050	.226	.634	1.024
LMAR_CHL	-.035	.046	.554	.457	.966
YSM11_20	1.041	.065	254.779	.000	2.833
YSM21_30	1.484	.059	629.683	.000	4.413
YSM31_40	2.221	.069	1049.047	.000	9.221
YSM40PLS	3.286	.099	1092.998	.000	26.747
LNWDIF	.700	.048	208.883	.000	2.015
Constant	-5.696	.504	127.641	.000	.003

Table 3-B. Logit Model of probability of acquiring Canadian Citizenship (1996)

Male and Female Immigrants from NON OECD countries					
<i>Logistic regression: dependent variable CTZN</i>					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	.110	.019	32.965	.000	1.116
AGESQ	-.001	.000	28.579	.000	.999
MARRIED	-.178	.066	7.251	.007	.837
LMAR_CHL	.262	.057	21.049	.000	1.300
YSM11_20	1.984	.062	1026.711	.000	7.274
YSM21_30	2.846	.091	974.757	.000	17.211
YSM31_40	3.195	.209	232.805	.000	24.417
YSM40PLS	3.626	.388	87.138	.000	37.577
LNWDIF	-.455	.058	60.578	.000	.635
Constant	1.984	.643	9.530	.002	7.272

The non-OECD results reported in reported in Table 3-B are in sharp contrast to the OECD results. First, the wage variable obtains an incorrect sign, and household composition plus time-related variables (age and years in Canada) positively affect immigrant ascension to citizenship.

Given the stylized facts reported in Figure 1, there also appears to be a distinct behavioral break between those groups who ascend to citizenship when first eligible (between 4 to 6 years) and a second group who ascends to citizenship after 20 years of residence in Canada. Tables 3-C and 3-D report the regression results for those immigrants who chose to ascend to Canadian citizenship when it was first available to them, i.e., between the 4th and 6th year of residence in Canada, and after 10 years in residence.

Table 3-C. Logit Model of probability of acquiring Canadian Citizenship (1996)

All Immigrants with 4-6 years in residence					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	.132	.036	13.300	.000	1.141
AGESQ	-.002	.000	12.037	.001	.998
MARRIED	-.536	.127	17.858	.000	.585
LMAR_CHL	.094	.101	.874	.350	1.099
LNWDIF	.390	.087	19.895	.000	1.477
Constant	-4.848	1.054	21.176	.000	.008

Table 3-D. *Logit Model of probability of acquiring Canadian Citizenship (1996)*

All Immigrants with 10 years or more in residence					
	B	S.E.	Wald	Sig.	Exp(B)
AGEP	-.028	.015	3.589	.058	.972
AGESQ	.000	.000	3.599	.058	1.000
YSM21_30	.157	.041	14.699	.000	1.170
YSM31_40	.760	.053	202.927	.000	2.139
YSM40PLS	1.822	.089	422.026	.000	6.187
MARRIED	.084	.048	3.005	.083	1.087
LMAR_CHL	-.013	.045	.080	.777	.987
LNWDIF	1.009	.039	654.779	.000	2.744
Constant	-6.704	.450	221.499	.000	.001

For the immigrants with 4 to 6 years in residence, all the reported variables obtain significance and follow the model's predicted signs. For the immigrants who ascended to citizenship after 10 years of residence in Canada, the significance levels of the variables change (table 3-D). The socio-demographic variables of age and presence of children are either no longer significant, or obtain the incorrect sign. However, the wage coefficient increases in magnitude and significance along with the years-in-Canada variables.

In sum, the proposed socio-economic model of immigrant ascension rationalizes the decision process for both OECD and non-OECD immigrants in different dimensions with wage differences proving relevant in both cases. The model best describes the process of immigrant ascension for those with less than six years in Canada.

Economic Impact: Occupational Shift

Given the literature reviewed and the arguments contained in our theory section, two major citizenship effects should appear. First, the occupational distribution of citizens should change to increase the number of foreign-born TN-professional and government occupations after citizenship.

Next, controlling for all other human capital arguments, citizenship acquisition should increase the earnings for all immigrants, since they should face less labour market discrimination owing to perceived cultural differences.¹⁵

Moreover, the earnings effect from citizenship should be greater for those immigrants with professional qualifications, since their labour market has become larger given possible entry into the United States and employment by the Canadian federal government.¹⁶

Finally, the citizenship effect should differ by source country, with a greater effect being generated for foreign-born citizens from non-English-speaking countries. The rationale for this argument is found in Figure 2: prior to citizenship acquisition, subsidized English language training is made available to non-English-speaking immigrants to allow them to qualify as citizens. Thus, citizenship acquisition signals to the Canadian employer that a minimum standard of English (or French, if relevant) has been obtained.

Figures 5 and 6 illustrate the citizenship effect on immigrant occupational distributions for males and females respectively. The three classifications of occupational distributions for the foreign-born reflect different stages in the tree diagram (Figure 3). Upon arrival in Canada immigrants must declare what their intended occupation is before entering the labour market. This intention is based on an immigrant officer's assessment of the candidate's educational qualifications prior to admission to Canada. The intended occupation of the resident foreign-born stock was strongly biased toward the professions (occupation 5), while the actual experience after arrival is strongly weighted to the low-skilled (1) or clerical (2) occupations. There is a perverse shift in the actual occupational structure for males toward clerical, and away from skilled, when they become citizens (Actual_C).

Figure 5: Intended and actual occupations of male immigrants in Canada

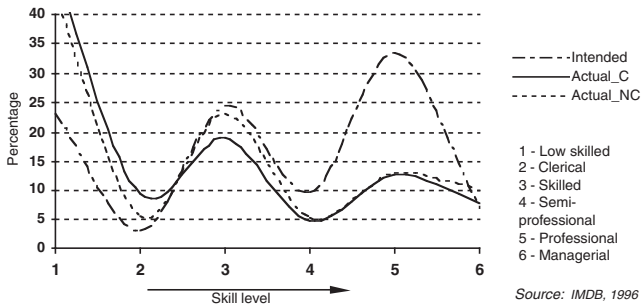
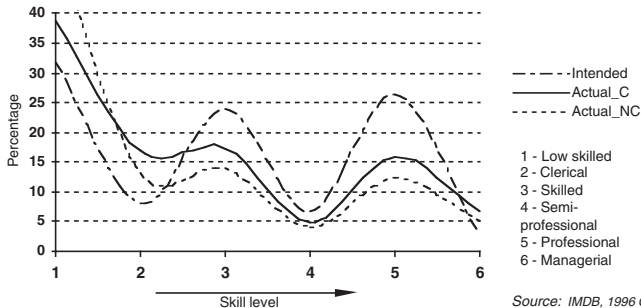


Figure 6: Intended and actual occupations of female immigrants in Canada



For the female foreign-born residents in Canada (Figure 6), the distributional shifts across the three states are as predicted. The intended occupations are strongly professional upon arrival, and then the actual distribution collapses toward the low-skilled categories after arrival. When female immigrants gain citizenship, there is a restoration in the occupational distribution as it shifts back to mimic the intended occupation with a greater professional content.

In sum, we observe in Figures 5 and 6 a large shift between intended and actual occupations after arrival, and some restoration of the occupational gap for females after citizenship is obtained. This restoration does not occur for foreign-born males. This perverse result could arise since many other factors are not controlled for in this diagram between the time period of entry (intended occupation) and 1996 (actual occupation).¹⁷

Table 4. Citizenship Effect on all foreign-born earnings

	Males	Females
Predictors	Regression coefficients (t-statistics)	
(Constant)	3.397 (57.664)	3.896 (61.362)
AGEP	.121 (42.101)	.092 (28.966)
AGESQ	-.001 (-37.435)	-.001 (-26.081)
YSM11_20	.193 (13.317)	.145 (9.376)
YSM21_30	.353 (24.928)	.258 (16.803)
YSM31_40	.406 (22.222)	.194 (9.544)
YSM40PL	.408 (17.523)	.193 (7.293)
CTZN	-.003 (-.194)	-.091 (-6.351)
MAN_CTZ	.321 (18.646)	.550 (20.763)
PROF_CTZ	.448 (28.799)	.645 (36.655)
ADM_CTZ	.002 (.092)	.334 (22.690)
LNWEEKS	.989 (105.396)	.955 (107.473)
F-statistics	2244.68	1892.02
Adj. R-square	0.410	.402

Dependent Variable: LNWAGE

Economic Impact: Earnings Shift

Even in the absence of a meaningful occupational shift (males), an earnings effect can potentially be observed. Tables 4 and 5 report the results for two alternative human capital models to explain foreign-born earnings by gender and citizenship.

Table 4 reports our preliminary earnings functions with a citizenship dummy variable (CTZN) and a variable that interacts citizenship with occupational status. The standard human capital variables, age, age squared and years in Canada, all obtain the expected signs under a human capital earnings model. In this pre-

liminary model, the citizenship variable (CTZ) is insignificant in the male earnings model, obtains the incorrect sign, and is insignificant in the female case. However, for males and females the interaction variables for occupation and citizenship status obtain a positive sign and in most cases are significant.¹⁸

We augment our initial model by focusing only on Canada's major immigrant-sending countries¹⁹ and explicitly recognizing the importance of citizenship as a signal of language competency.

Table 5 reports the results for our fully-specified citizenship-earnings model. Now the human capital, citizenship and interactive citizenship variables all obtain the correct sign and are significant. The citizenship variable

(CTZN) boasts the earnings for both male and female foreign-born wage earners. When we interact first language ability and occupational status (professionals and administrators) with citizenship, a strong positive interaction occurs to boost male and female foreign-born citizen earnings.²⁰

Appendix D contains the earnings regression result for the two entry cohorts of pre-1980 and post-1981 movers by gender. These two immigrant vintages were chosen to reflect the impact of the 1978 Immigration Act, which dramati-

Table 5. Citizenship Effect on all foreign-born earnings (Full Model)

	All Immigrants	Males	Females
Predictors	Regression coefficients (t-statistics)		
(Constant)	3.752 (64.909)	3.805 (44.496)	3.200 (41.157)
AGEP	.130 (47.326)	.115 (27.739)	.146 (39.931)
AGESQ	-.001 (-43.561)	-.001 (-26.117)	-.002 (-36.285)
YSM11_20	.165 (11.510)	.143 (6.838)	.187 (9.624)
YSM21_30	.307 (22.005)	.274 (13.263)	.337 (17.955)
YSM31_40	.291 (16.893)	.204 (7.845)	.357 (15.682)
YSM40PL	.297 (13.842)	.214 (6.517)	.353 (12.581)
FEMALE	-.469 (-48.754)	–	–
CTZN	.241 (15.855)	.224 (10.007)	.264 (12.849)
NESC_CZN	-.255 (-19.417)	-.271 (-13.404)	-.260 (-15.197)
NE_PR_CZ	.539 (28.223)	.671 (22.879)	.442 (17.746)
NE_AD_CZ	.236 (12.705)	.338 (14.560)	.035 (1.018)
LNWEEKS	.872 (103.590)	.849 (73.066)	.901 (74.126)
F-statistics	2030.882	857.80	1151.26
Adj. R-square	0.363	0.318	0.359

Dependent Variable: LNWAGE

cally changed the immigrant entry gates and refined the points system. The main implication of these changes was to reconfigure the immigrant source countries from Europe and the United States to Asia and Africa.²¹ In addition, human capital characteristics became the major entry criteria for economically-assessed immigrants after 1981.²²

One important difference appears across the cohorts with respect to the citizenship effect on earnings. In the pre-1980 period the citizenship effect is significantly negative for males and females, while it is significantly positive after 1981. The remaining parameters in these earnings equations were stable between the two cohorts, suggesting that only the labour market's response to citizenship changed between these two periods.

Figure 7: Age-earnings profiles for the Canadian Born (CB), British Immigrants Canadian citizenz (BritIm_C) and non-citizenz of Canada (BritIm_NC), Chinese Immigrants Canadian citizenz (ChinIm_C) and non-citizenz of Canada (ChinIm_NC).

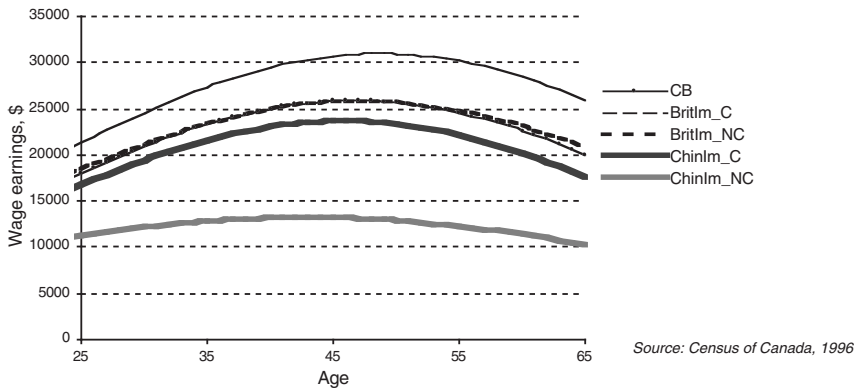
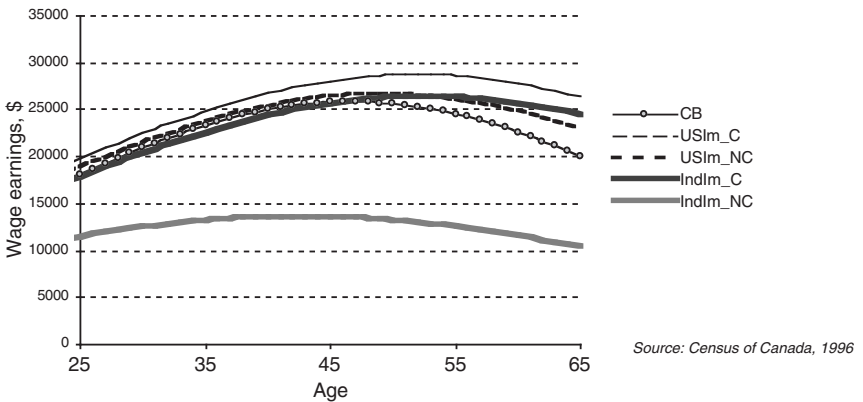


Figure 8: Age-earnings profiles for the Canadian Born (CB), US Immigrants Canadian citizenz (USIm_C) and non-citizenz of Canada (USIm_NC), Indian Immigrants Canadian citizenz (IndIm_C) and non-citizenz of Canada (IndIm_NC).



Economic Impact: Age Earnings Simulations²³

To illustrate the importance of the citizenship effect we produce below a series of country- specific age-earnings simulations with and without the detected citizenship effect.

Figures 7 and 8 illustrate the citizenship effects for pairs (British and Chinese, and United States and Indian) of old and new vintages of Canadian immigrants.

The citizenship effects for both the Chinese and the British are positive. However, the citizenship effect on Chinese earnings is larger. The Canadian-born age earnings functions are now reported as a reference point (CB), and further highlight the citizenship effect on earnings. For a Chinese immigrant who experiences a substantial earnings disadvantage upon arrival, becoming a citizen augments his/her earnings such as to nearly equal that of the Canadian-born. The citizenship effect on British immigrant earnings is sufficient to make these immigrants “overachievers”. In other words, with citizenship British immigrants do not suffer an initial earnings disadvantage, but rather experience a continuous earnings advantage.

Figure 8 portrays a similar effect when we pair United States and Indian immigrants. Citizenship status grants United States immigrants a slight lifetime earnings premium relative to the Canadian-born. There is once again a substantial boost in the earnings of Indian immigrants from citizenship acquisition, such that Indians now overtake the earnings of the Canadian-born at age 45.

Figures B-1 through B-3 in Appendix B report a similar pattern of citizenship effects on earnings for older-vintage German and Italian immigrants and the newer Ukrainian arrivals. In all these cases, citizenship status causes immigrants earnings to overtake the Canadian-born norm, with the largest effect occurring for the more recent Ukrainian arrivals.

In sum, under these age-earnings simulations the citizenship effect on earnings for the reviewed countries was substantial, and in every case except the Chinese, citizenship allowed the respective immigrants to outperform the earnings of the Canadian-born.

Economic Impact: Decomposition of Wage Differentials Between Naturalized and Native-born Canadians

As suggested earlier, ascension to Canadian citizenship not only provides immigrants with access to an expanded labour market, but also rewards the newly naturalized citizen with a wage premium, as shown in Figures 6 and 7. But are these equalized earnings a consequence of non-discriminatory treatment due to citizenship or a result of the fact that newly ascended citizens have a greater stock of human capital? Given that immigrants are either singly or doubly selected, the average immigrant may have a greater human capital endowment than

the average native-born Canadian. Then, after acquiring Canadian citizenship, do these better-educated and more experienced immigrants actually earn more than their native-born counterparts? If so, why? In order to answer these questions we employ the Binder-Oaxaca decomposition methodology. The basic idea underlying this method is that differences in wages between two population groups (citizens and non-citizens) can be explained by the differences in their productive characteristics, and by the differences in the OLS (Ordinary Least Squares) regression coefficients, which in turn represent returns to those characteristics.

We now turn to estimating the sources of earnings differences between naturalized and native-born Canadians. Using the pooled wage structure as a benchmark (“non-discriminatory” structure) we obtain the decomposition of wage differential in the following matrix form:²⁴

$$\ln W_{CB} - \ln W_{FB} = \bar{X}_{CB}^T (\hat{\beta}_{CB} - \hat{\beta}_P) + \bar{X}_{FB}^T (\hat{\beta}_P - \hat{\beta}_{FB}) + (\bar{X}_{CB} - \bar{X}_{FB})^T \hat{\beta}_P$$

In this decomposition formula, the first term on the right hand side represents the amount by which productive characteristics of the Canadian-born are overvalued (positive discrimination), the second term measures the amount of the labour market undervaluation of productive characteristics for naturalized Canadian citizens (negative discrimination), and the third term attributes earnings differences to differences in different productive characteristics (human capital endowments) of the two populations. We conduct this decomposition experiment across genders and source country groups.

Table 6 reports the decomposition results which suggest that, regardless of the region of origin, naturalized male citizens are better endowed with human capital than their native-born counterparts, whereas females are approximately on a par with native-born females.²⁵ For example, in the absence of (positive) labour market discrimination, naturalized male Canadians would have earned 12.87% greater wages than native-born males if they came from OECD countries, and 9.18% more if they came from Asian countries. However, this advantage in human capital endowments is completely offset by the negative labour market treatment for the Asian group (22.62%), and slightly reinforced by the overvaluation of productive characteristics for the OECD immigrant citizen group (3.66%). As a result, males from OECD group earn on average 16.8% greater wages than the native born, contrary to their counterparts from Asia who earn 14.15% smaller wages than the native-born average.

Interesting conclusions arise from the decomposition results for females in Table 7. Compared to their native-born counterparts, female workers from

Table 6: Decomposition of wage differentials between naturalized and native-born Canadians: population of male employees 25-65 years old

Source countries for naturalized citizens	Native-born – naturalized citizens wage differential	Positive discrimination for native-born	Negative discrimination for naturalized citizens	Human capital endowments effect
All countries	-0.6%	1.57%	7.85%	10.03%
US, UK, Germany, Netherlands, Italy, Portugal, France and Spain	-16.8%	-0.26%	-3.66%	-12.87%
China, India, Philippines, Vietnam	14.15%	0.71%	22.62%	-9.18%

Asian countries demonstrate equal wage earnings performance and an absence of any kind of labour market discrimination or human capital disparity. Small positive discrimination (4.78%) is detected for females from OECD countries. This positive discrimination and their slightly greater productive characteristics translate into 8.6% wage premium over the average native-born female.

In sum, ascension to Canadian citizenship does not equalize the earning potentials of immigrants and native-born. Our analysis indicates that labour market earnings performance of naturalized foreign-born Canadians is conditioned

Table 7. Decomposition of wage differentials between naturalized and native-born Canadians: population of female employees 25-65 years old

Source countries for naturalized citizens	Native-born – naturalized citizens wage differential	Positive discrimination for native-born	Negative discrimination for naturalized citizens	Human capital endowments effect
All countries	-4.16%	-0.41%	-2.13%	-1.62%
US, UK, Germany, Netherlands, Italy, Portugal, France and Spain	-8.6%	-0.31%	-4.78%	-3.5%
China, India, Philippines, Vietnam	1.69%	0.0%	0.26%	1.42%

by their country of birth.²⁶ We found that, depending on their birthplace, male foreign-born citizens experience a greater over- or under-valuation of their productive characteristics than the female foreign-born.

How does the Canadian labour market discriminate between foreign-born workers with and without citizenship? Is the foreign-born citizenship earnings premium reported in Figures 6 and 7, owing to discrimination by citizenship status within the foreign-born group, or due to varying degrees of human capital endowment? If the earnings premium derived from citizenship is due to differential human capital endowments across the foreign-born, we will have established evidence of positive self-selection into citizenship ascension. In other words, better endowed foreign-born immigrants ascend to citizenship. If the earnings premium is owing to overvaluation of foreign-born citizens' productive characteristics, then positive discrimination explains the citizenship wage premium.

To answer these questions, we turn to our decomposition analysis between foreign-born citizens and non-citizens in Table 8.

Table 8. Decomposition of wage differentials between naturalized citizens and permanent residents of Canada: population of foreign-born employees 25-65 years old

	Naturalized citizens – permanent residents wage differential	Positive discrimination for naturalized citizens	Negative discrimination for permanent residents	Human capital endowments effect
ALL OCCUPATIONS				
Males	29.56%	0.84%	3.26%	25.46%
Females	29.09%	1.78%	6.27%	21.04%
PROFESSIONALS				
Males	23.07%	0.99%	5.01%	17.01%
Females	20.82%	0.88%	3.96%	15.99%

It is clear that for either males or females in general (all occupations), or for professionals in particular, the substantial wage differential which arises between foreign-born citizens and non-citizens (column 2) is due predominately to differences in human capital endowments. For example, all foreign-born males earned 29.5% more as citizens than non-citizens, and differences in human capital endowments explained over 80% of this wage premium. A similar pattern holds for the foreign-born professionals, suggesting positive self-selection into

citizenship acquisition for both professionals and all the foreign-born. It also should be noted from Table 1, which reports the endowments for the various populations, that the most profound difference in endowments reported is number of weeks worked. In short, a greater percentage of naturalized citizens work full-time (75%) than non-citizens (62%).

Conclusions

Ascension to citizenship for a select group of Canadian immigrants follows the socio-economic model presented here. Immigrants from poor countries (non-OECD) and immigrants who ascend to citizenship when it is first possible (4-6 years) have their decision conditioned by their wage, marital status, age and presence of children. Immigrants from developed OECD countries base their decision primarily on the prospect of an earning gain from citizenship and years in Canada. This decision-making process holds for both males and females.

The economic impact of this citizenship decision is substantial in the Canadian context. There exists a substantial gap between the immigrants' intended occupation prior to arrival and the actual occupations after entering Canada's labour force. Female immigrants' acquisition of citizenship restored their occupational distribution, which then more closely resembled their intended occupation prior to arrival. This restoration does not occur for foreign-born males.

In addition, after citizenship acquisition, both male and female immigrants experience a boost in earnings. If we interact citizenship, occupation and language, then earnings rise for professionally trained immigrants from non-English-speaking source countries. This suggests that citizenship acts as a signal for language competency, and that it reduces cultural distance.

Our simulation experiments traced the effect of citizenship on foreign-born earnings relative to Canadians. They indicated that, in the majority of cases, ascension to citizenship reduced the earnings gaps relative to Canadians, and allowed the foreign-born citizens to earn a premium.

Finally, decomposition analysis indicates that the citizenship earnings premium awarded to the Canadian foreign-born is owing to their greater human capital endowment relative to their Canadian-born reference group. In addition, citizens from OECD countries received a premium for these human capital characteristics, while Asian immigrants experienced a devaluation in their credentials. When we decompose the sources of earnings differences between foreign-born citizens and non-citizens, the earnings advantage from citizenship is explained almost entirely by the greater human capital endowment of foreign-born citizens, especially the number of full-time workers. This suggests positive self-selection into citizenship and the need to explore a model which recognizes that number of weeks worked, or earnings and citizenship, may be endogenous.

NOTES

- 1 The title of the ministry is Citizenship and Immigration Canada. In the past, the immigration ministry has been merged with the Ministry of Justice, and, prior to that, with the Ministry of Manpower. Each reorganization of the immigration ministry reflected the perspective of successive governments on issues surrounding immigration.
- 2 The Census of Canada does not provide any information on the year of citizenship acquisition.
- 3 The Western European countries include Italy, Poland, Portugal and United Kingdom.
- 4 The Court argued in the majority that, since there was no barrier to becoming a Canadian citizen, then inherently immigrants did not face discrimination, but just a waiting period which applied to all immigrants.
- 5 Of course, there are many non-economic objections to returning immigrants, including an alleged lack of patriotism or integration into the Canadian economy.
- 6 Concerns over the brain drain are redoubled if emigrating Canadian citizens obtained their schooling in Canada.
- 7 The interesting exceptions were immigrants from Denmark, Finland, Greece and the USA, who experienced no citizenship effect on employment probabilities in Sweden.
- 8 One apparent strategy for Chinese immigrants is for one of the two spouses to ascend to Canadian citizenship, while the other spouse remains Chinese. This insures access to China for the spouse who is not a Canadian citizen.
- 9 These countries include China, France, Germany, India, Italy, Lebanon, Netherlands, Philippines, Poland, Portugal, United Kingdom, United States, Vietnam, and Yugoslavia, for a total of 23,715 observations.
- 10 Our target population includes male and female immigrants 25-65 years old, who reported wage income in 1995, from OECD and non-OECD countries respectively.
- 11 This variable equals the mean income difference between a 35-year old immigrant with Canadian citizenship and without, from the particular country of origin, for the sampled observation. Figures 7 and 8 illustrate how this was computed.
- 12 Only the duality variable becomes significant in the female OECD case.
- 13 The OECD countries include France, Germany, Italy, Netherlands, United Kingdom, and United States.
- 14 Note that the dual variable was found incorrectly signed in the process of model testing and dropped from further analysis. We believe that by increasing our sample size (20%), the results will improve as they did for Blo-

- emraad (2002). In the currently available 5 % censored sample, most of the immigrant source countries are grouped, which limits the identified non-OECD countries to China, India, Lebanon, Philippines, Poland, Vietnam, and Yugoslavia.
- 15 See Bevelander (2000) and Scott (1999) who argue that cultural distance causes segmentation in the Swedish labour market.
 - 16 Most foreign-born Canadian citizens can immediately apply for 64 occupations on the United States labour market with a TN or NAFTA visa after a bone fide job offer.
 - 17 In fact, the time period between the declaration of intended occupation and the observed occupation before and after citizenship can be long, and many intervening variables could negate our prediction. For example, selected out-migration or disappearance from the Canadian labour market could have occurred. This would leave us potentially with a less-skilled male foreign-born population, if only skilled Canadian immigrants leave over time, as suggested by DeVoretz and Ma (2002).
 - 18 The exception is the male administrative-citizenship variable, which is insignificant.
 - 19 Countries selected were, China, France, Germany, Hong Kong, India, Italy, Lebanon, Netherlands, Philippines, Poland, Portugal, United Kingdom, United States, Vietnam, and Yugoslavia.
 - 20 The simple interaction of citizenship and non-English-speaking background reduces earnings, so apparently this is not a labour-wide signal for productivity improvement.
 - 21 Under the 1951 Immigration Act, 75% of Canada's immigrants entered from Western Europe and the United States in 1967. In 1981, 25 % entered from these countries.
 - 22 However, these changes in source country and economic assessment did not lead to a rise in the human capital content of Canada's immigrant flow until after 1986.
 - 23 Under all these simulations the mean values of the relevant variables except age are used for the relevant estimating equation. These equations are available upon request.
 - 24 This modification of the original Binder-Oaxaca decomposition method was suggested by Cotton (1988).
 - 25 Because we had to pool natives and immigrants, and because we had to subtract vectors of their regression coefficients, we had to omit the language variable. Its effect was partially captured in the intercept for the foreign-born. Nevertheless, the estimates will be biased.
 - 26 This confirms the findings of Pendakur and Pendakur (1998).

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APPENDIX A: List of Variables

Table 3

Dependent variable: natural logarithm of annual wage earnings

AGEP	age
AGESQ	age squared
YSM	years since immigration dummy variable
CTZN	citizenship indicator (1 for naturalized citizens, 0 – non-citizens)
MAN_CTZ	indicator for citizens in managerial occupations
PROF_CTZ	indicator for citizens in professional occupations
ADM_CTZ	indicator for citizens in administrative and clerical occupations
LNWKS	natural logarithm of weeks worked

Table 4

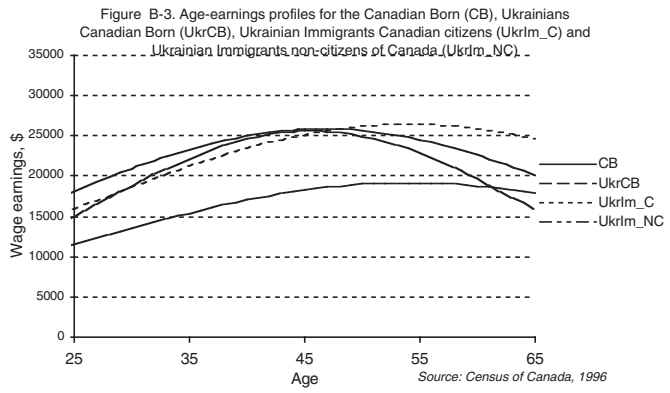
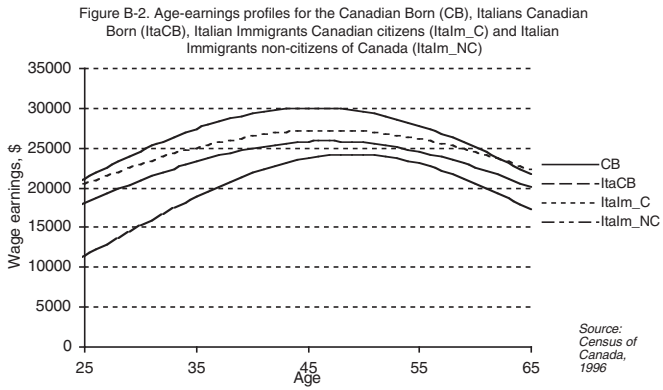
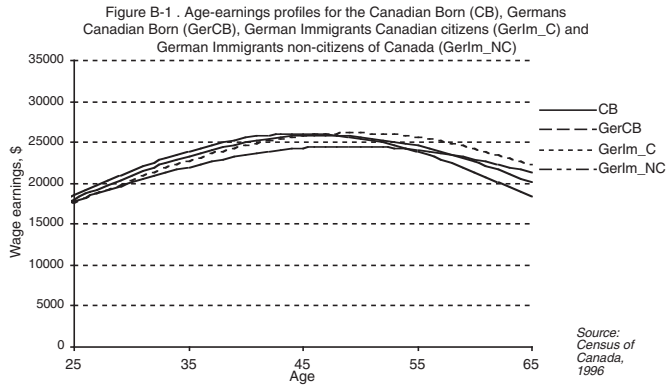
Countries selected: China, France, Germany, Hong Kong, India, Italy, Lebanon, Netherlands, Philippines, Poland, Portugal, United Kingdom, United States, Vietnam, and Yugoslavia.

LNWAGE	natural logarithm of wage earnings
AGESQ	age squared
LNWEEKS	natural logarithm of weeks worked

Dummy variables:

YSM	years since immigration
CTZN	citizenship indicator
NESC_CZN	non-English speaking country of origin interacted with citizenship
NE_PR_CZ	triple interaction of non-English speaking, professional occupation and citizen
NE_AD_CZ	triple interaction of non-English speaking, administrative occupation and citizen

APPENDIX B: Age-Earnings Simulations by country of origin and Citizenship status



APPENDIX C: Pre-1981 and Post-1980 Cohort Analysis

Table C-1 Males and females

All cohorts

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.320	.054		98.539	.000
AGEP	.060	.002	.678	24.853	.000
AGESQ	-.001	.000	-.596	-21.854	.000
FEMALE	-.372	.006	-.207	-61.219	.000
DIPL	.156	.007	.083	23.048	.000
BACH	.237	.010	.092	24.733	.000
BACHPL	.304	.012	.092	25.178	.000
PHD	.516	.024	.073	21.360	.000
CTZN	.083	.008	.039	10.763	.000
MAN_CTZ	.092	.023	.028	4.032	.000
PROF_CTZ	.195	.017	.074	11.158	.000
ADM_CTZ	.058	.016	.022	3.541	.000
M_CZ_P81	.307	.025	.084	12.226	.000
P_CZ_P81	.201	.019	.067	10.821	.000
A_CZ_P81	.124	.018	.040	6.762	.000
LNWEEKS	.852	.006	.448	135.608	.000

Table C-2 Males and females

Pre 1981 cohorts

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.454	.072		75.738	.000
AGEP	.065	.003	.756	21.551	.000
AGESQ	-.001	.000	-.701	-19.970	.000
FEMALE	-.418	.008	-.245	-55.595	.000
DIPL	.149	.008	.084	18.265	.000
BACH	.280	.012	.110	22.750	.000
BACHPL	.375	.016	.115	24.036	.000
PHD	.566	.031	.082	18.497	.000
CTZN	-.056	.011	-.022	-4.950	.000
MAN_CTZ	.317	.013	.112	25.042	.000
PROF_CTZ	.302	.012	.130	25.035	.000
ADM_CTZ	.130	.011	.054	11.749	.000
LNWEEKS	.848	.009	.421	99.695	.000

Table C-3 Males and females

Post 1980 cohorts

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.341	.091		58.383	.000
AGEP	.065	.004	.618	14.899	.000
AGESQ	-.001	.000	-.600	-14.481	.000
FEMALE	-.305	.010	-.168	-30.397	.000
DIPL	.155	.012	.079	13.266	.000
BACH	.206	.015	.083	13.700	.000
BACHPL	.262	.019	.084	13.964	.000
PHD	.515	.038	.076	13.432	.000
CTZN	.068	.011	.037	5.986	.000
MAN_CTZ	.257	.024	.059	10.506	.000
PROF_CTZ	.346	.020	.109	17.462	.000
ADM_CTZ	.170	.018	.055	9.378	.000
LNWEEKS	.822	.009	.486	88.812	.000

Table C-4 Males

Post 1981 cohorts

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.918	.096		51.453	.000
AGEP	.086	.004	1.076	21.478	.000
AGESQ	-.001	.000	-.987	-19.707	.000
DIPL	.152	.011	.091	13.995	.000
BACH	.255	.017	.105	15.224	.000
BACHPL	.356	.020	.121	17.478	.000
PHD	.560	.034	.104	16.295	.000
CTZN	-.029	.015	-.012	-1.889	.059
MAN_CTZ	.239	.015	.101	15.972	.000
PROF_CTZ	.197	.016	.089	12.016	.000
ADM_CTZ	-.049	.020	-.015	-2.414	.016
LNWEEKS	.858	.012	.432	72.369	.000

Table C-5 Males

Post 1980 cohort

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.943	.128		38.680	.000
AGEP	.075	.006	.729	12.458	.000
AGESQ	-.001	.000	-.701	-11.996	.000
DIPL	.175	.016	.090	10.742	.000
BACH	.196	.021	.079	9.328	.000
BACHPL	.262	.025	.089	10.423	.000
PHD	.474	.045	.084	10.475	.000
CTZN	.083	.015	.045	5.387	.000
MAN_CTZ	.203	.030	.054	6.758	.000
PROF_CTZ	.322	.027	.104	11.800	.000
ADM_CTZ	.010	.032	.002	.315	.753
LNWEEKS	.868	.014	.489	64.067	.000

Table C-6 Females

Pre 1981 cohort

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.640	.109		51.801	.000
AGEP	.042	.005	.482	9.145	.000
AGESQ	.000	.000	-.459	-8.716	.000
DIPL	.118	.012	.067	9.582	.000
BACH	.301	.018	.121	16.698	.000
BACHPL	.402	.024	.119	16.734	.000
PHD	.670	.068	.064	9.872	.000
CTZN	-.108	.017	-.044	-6.431	.000
MAN_CTZ	.459	.023	.133	19.700	.000
PROF_CTZ	.442	.018	.194	24.842	.000
ADM_CTZ	.241	.014	.125	17.576	.000
LNWEEKS	.839	.012	.443	69.316	.000

Table C-7 Females

Post 1980 cohort

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.463	.130		41.956	.000
AGEP	.052	.006	.510	8.329	.000
AGESQ	-.001	.000	-.500	-8.177	.000
DIPL	.123	.017	.066	7.392	.000
BACH	.212	.021	.089	9.915	.000
BACHPL	.257	.028	.079	9.076	.000
PHD	.626	.077	.067	8.171	.000
CTZN	.045	.017	.025	2.667	.008
MAN_CTZ	.356	.043	.069	8.267	.000
PROF_CTZ	.384	.029	.122	13.356	.000
ADM_CTZ	.261	.022	.106	11.763	.000
LNWEEKS	.780	.013	.504	62.000	.000

APPENDIX D: OAXACA-BINDER Decomposition Results by Cohorts

Table D-1: Decomposition of wage differentials between naturalized and native-born Canadians: population of male employees 25-65 years old

Source countries for naturalized citizens	Cohorts	Native-born – naturalized citizens wage differential	Positive discrimination for native-born	Negative discrimination for naturalized citizens	Human capital endowments effect
US, UK, Germany, Netherlands, Italy, Portugal, France and Spain	All	-16.8%	-0.26%	-3.66%	-12.87%
	Pre 1981	-17.5%	-2.04%	-0.1%	-15.38%
	Post 1980	-10.62%	0.37%	-0.49%	-10.5%
China, India, Philippines, Vietnam	All	14.15%	0.71%	22.62%	-9.18%
	Pre 1981	-0.01%	15.9%	-0.18%	-15.78%
	Post 1980	31.82%	33.8%	-0.14%	-1.83%

Table D-2: Decomposition of wage differentials between naturalized and native-born Canadians: population of female employees 25-65 years old

Source countries for naturalized citizens	Cohorts	Native-born – naturalized citizens wage differential	Positive discrimination for native-born	Negative discrimination for naturalized citizens	Human capital endowments effect
US, UK, Germany, Netherlands, Italy, Portugal, France and Spain	All	-8.6%	-0.31%	-4.78%	-3.5%
	Pre 1981	-9.96%	-7.0%	-0.3%	-2.66%
	Post 1980	-1.98%	5.36%	0.65%	-4.02%
China, India, Philippines, Vietnam	All	1.69%	0.0%	0.26%	1.42%
	Pre 1981	-15.08%	-8.54%	0.0%	-6.53%
	Post 1980	18.84%	15.41%	0.09%	3.34%

TableD-3 Decomposition of wage differentials between naturalized citizens and permanent residents of Canada: population of foreign born employees 25-65 years old

	<i>Cohorts</i>	Native-born – naturalized citizens wage differential	Positive discrimination for native-born	Negative discrimination for naturalized citizens	Human capital endowments effect
		ALL OCCUPATIONS			
Males	<i>All</i>	29.56%	0.84%	3.26%	25.46%
	<i>Pre 1981</i>	8.38%	0.21%	1.58%	6.59%
	<i>Post 1980</i>	21.97%	4.17%	7.34%	10.46%
Females	<i>All</i>	29.09%	1.78%	6.27%	21.04%
	<i>Pre 1981</i>	10.78%	0.87%	5.62%	4.29%
	<i>Post 1980</i>	26.91%	5.12%	8.62%	13.17%
		PROFESSIONALS			
Males	<i>All</i>	23.07%	0.99%	5.01%	17.01%
	<i>Pre 1981</i>	5.29%	0.33%	3.22%	1.74%
	<i>Post 1980</i>	19.51%	4.16%	9.15%	6.2%
Females	<i>All</i>	20.82%	0.88%	3.96%	15.99%
	<i>Pre 1981</i>	8.01%	0.41%	2.91%	4.69%
	<i>Post 1980</i>	16.28%	3.3%	7.13%	5.86%

Notes

M_CTZ_P81 – interacted pre1981 cohort indicator with MAN_CTZ dummy

P_CTZ_P81 – interacted pre1981 cohort indicator with PROF_CTZ dummy

A_CTZ_P81 – interacted pre1981 cohort indicator with ADM_CTZ dummy

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