The Main Culprit Behind the Immigrant Wage Gap in Canada: Lower Returns to Foreign Schooling or Work Experience?

Prepared for the QICSS 3rd New Scholars' Conference
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Introduction

- ***Purpose***:

  - To estimate the return to foreign and Canadian human capital using more precise measures than what is currently used in related census studies.

  - Investigate how the Canadian-born and immigrants differ in terms of being in jobs related to their education.

- Data: Survey of Labour and Income Dynamics (SLID) - 1993 – 2005.

Motivation

- ***Census results contradict popular perception***

  - **Popular perception**: Immigrants are not receiving recognition for their foreign education credentials.

  - ***Aydemir and Skuterud (2005)***
    - 1981 – 2001 Census - male and female immigrants.
    - Foreign education is **not** valued less than Canadian education.

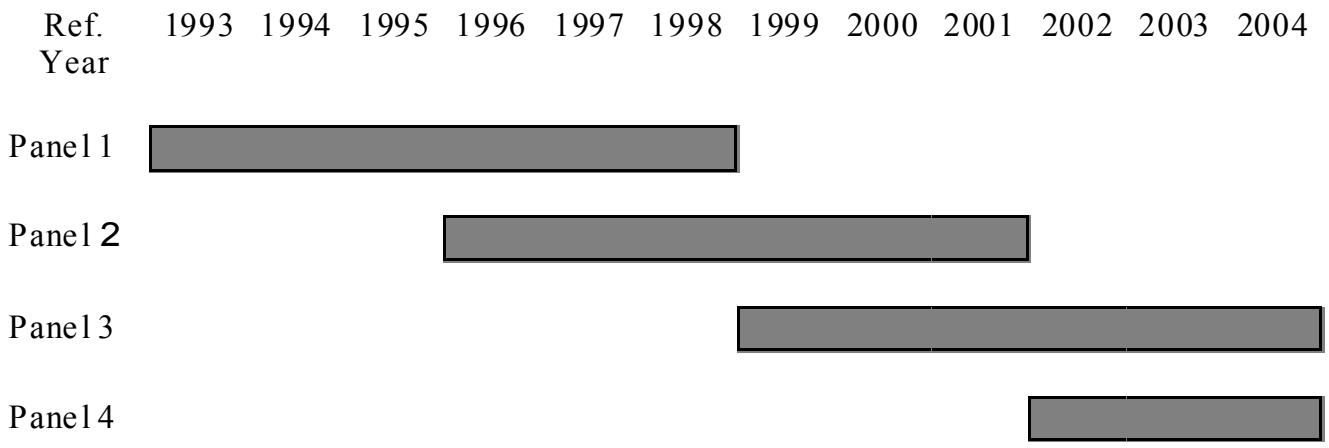
  - ***Ferrer and Riddell (2007)***
    - 1981 – 2001 Census (Public Use).
    - Sheep Skin Effects.
    - Immigrants receive larger return for completing degrees – men and women.

Existing Evidence

- ***Problem:***
  - Census does not identify foreign and Canadian **human capital.**
- ***Proposed Solution:***
  - Assume education is continuous.
  - Estimates are contaminated with measurement error.

The Survey of Labour and Income Dynamics

- **Survey design**



- A new panel starts every 3 years
- Each panel has 13 interviews spread over 6 years

The Survey of Labour and Income Dynamics

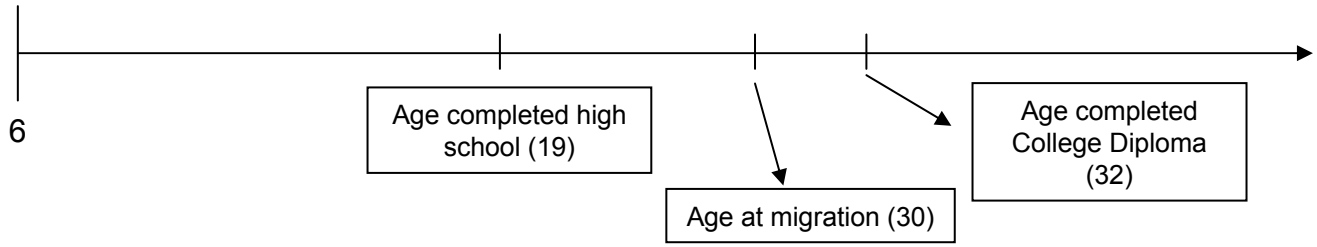
- Advantages of the SLID:
  - Detailed education variables.
  - Actual Experience.
  - How closely related current job is to education?
  - Over 80 percent of income data is from Revenue Canada.

Creating Return Variables with SLID

- ***Foreign and Canadian Years of Schooling***
  - SLID provides the following variables:
    - Age at migration.
    - Age when received post-secondary certificates.
    - Years in elementary and high school.
    - Years post-secondary broken down into college and university.
    - Total years of schooling (FTE).
  - Only need to assume **continuous elementary and high school.**

Decomposing Returns with SLID

Example: Foreign and Canadian Years of Schooling

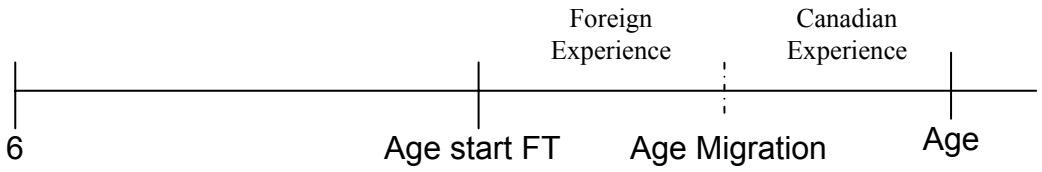


- **Canadian Years of Schooling** = Years post-secondary education.
- **Foreign Years of Schooling** = Years elementary and high school

- If you assume continuous education:
- **Canadian Years of Schooling** = 0
- **Foreign Years of Schooling** = Total years of schooling

Decomposing Returns with SLID

- ***Foreign and Canadian Years of Work Experience.***
- SLID also provides the following variables:
  - Years work-experience (FTE) i.e. ***actual experience***
  - Age when started to work full-time.
  - Current Age.



Sample Selection

- Men and Women.
- Workers aged between 16 – 64.
- Exclude the self-employed.
- Immigrants with non-missing years since migration.
- A number of individuals where it was impossible to determine immigrant status were removed.
- Workers who have a positive wage in any of the 6 panel years.

Regression Results for Men

	(1) *Continuous/Potential*	
Variables	Coefficient	Robust SE
Immigrant wage gap at entry	-0.007	0.043
Foreign Experience	0.003	0.003
Canadian Experience	**0.047**	0.001
Canadian Experience (Immigrant)	0.002	0.002
Foreign yrs. Schooling	**0.047**	0.003
Canadian yrs. Schooling	**0.054**	0.001
Cnd Schooling (Immigrant)/100	-0.200	0.003
P-value (F-test Experience)	(0.000)	
P-value (F-test Schooling)	(0.012)	

Regression Results for Men

	(1) *Continuous/Potential*		(2) *New Measures*	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
Immigrant wage gap at entry	-0.007	0.043	0.013	0.043
Foreign Experience	0.003	0.003	0.007	0.004
Canadian Experience	**0.047**	0.001	**0.050**	0.001
Canadian Experience (Immigrant)	0.002	0.002	**-0.007**	0.003
Foreign yrs. Schooling	**0.047**	0.003	**0.044**	0.003
Canadian yrs. Schooling	**0.054**	0.001	**0.047**	0.001
Cnd Schooling (Immigrant)/100	-0.200	0.003	-0.020	0.003
P-value (F-test Experience)	(0.000)		(0.000)	
P-value (F-test Schooling)	(0.012)		(0.086)	

Regression Results for Women

	(1) *Continuous/Potential*	
Variables	Coefficient	Robust SE
Immigrant wage gap at entry	0.034	0.042
Foreign Experience	0.001	0.003
Canadian Experience	**0.038**	0.001
Canadian Experience (Immigrant)	**0.006**	0.002
Foreign yrs. Schooling	**0.058**	0.003
Canadian yrs. Schooling	**0.072**	0.001
Cnd Schooling (Immigrant)/100	**-0.005**	0.003
P-value (F-test Experience)	(0.000)	
P-value (F-test Schooling)	(0.000)	

Regression Results for Women

	(1) *Continuous/Potential*		(2) *New Measures*	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
Immigrant wage gap at entry	0.034	0.042	**0.109**	0.038
Foreign Experience	0.001	0.003	0.001	0.004
Canadian Experience	**0.038**	0.001	**0.041**	0.001
Canadian Experience (Immigrant)	**0.006**	0.002	**-0.004***	0.002
Foreign yrs. Schooling	**0.058**	0.003	**0.051**	0.003
Canadian yrs. Schooling	**0.072**	0.001	**0.064**	0.001
Cnd Schooling (Immigrant)/100	**-0.005**	0.003	**-0.005**	0.003
P-value (F-test Experience)	(0.000)		(0.000)	
P-value (F-test Schooling)	(0.000)		(0.000)	

Traditional vs. Non-Traditional Sources

	Return Variables
Traditional	Foreign Schooling
	Canadian Schooling
	Canadian Schooling-Immigrants
Non-Traditional	Foreign yrs. Schooling
	Canadian yrs. Schooling
	Canadian Schooling-Immigrants
	Experience Controls
	Demographic Controls

Traditional vs. Non-Traditional Sources

		(1) Males	
	Return Variables	**Coefficient**	**Robust SE**
Traditional	Foreign Schooling	**0.044**	0.004
	Canadian Schooling	**0.047**	0.001
	Canadian Schooling-Immigrants	-0.007	0.004
Non-Traditional	Foreign yrs. Schooling	**0.048**	0.004
	Canadian yrs. Schooling	**0.047**	0.001
	Canadian Schooling-Immigrants	**0.006***	0.004
	Experience Controls	Yes	
	Demographic Controls	Yes	

Traditional vs. Non-Traditional Sources

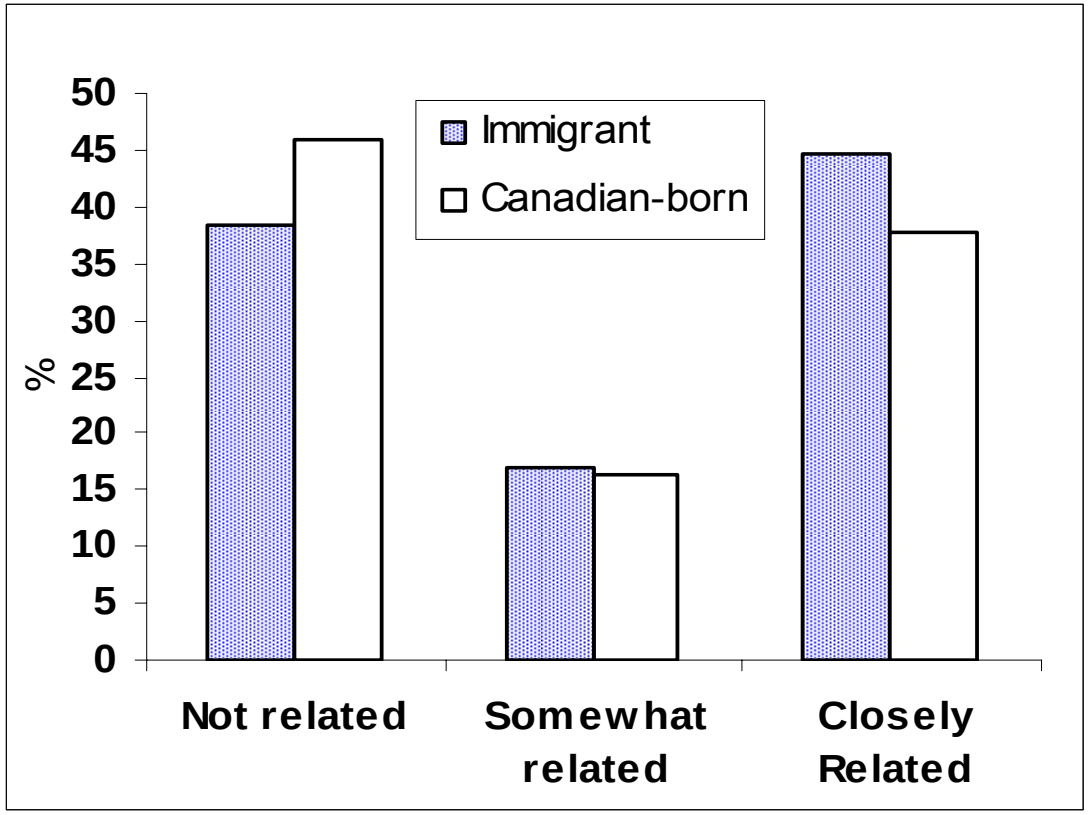
		(1) Males		(2) Females	
	Return Variables	**Coefficient**	**Robust SE**	**Coefficient**	**Robust SE**
Traditional	Foreign Schooling	**0.044**	0.004	**0.053**	0.003
	Canadian Schooling	**0.047**	0.001	**0.064**	0.001
	Canadian Schooling-Immigrants	-0.007	0.004	-0.007	0.003
Non-Traditional	Foreign yrs. Schooling	**0.048**	0.004	**0.051**	0.004
	Canadian yrs. Schooling	**0.047**	0.001	**0.064**	0.001
	Canadian Schooling-Immigrants	**0.006***	0.004	-0.003	0.004
	Experience Controls	Yes		Yes	
	Demographic Controls	Yes		Yes	

Can immigrants find jobs related to their education?

– How closely related is your education to your current job?

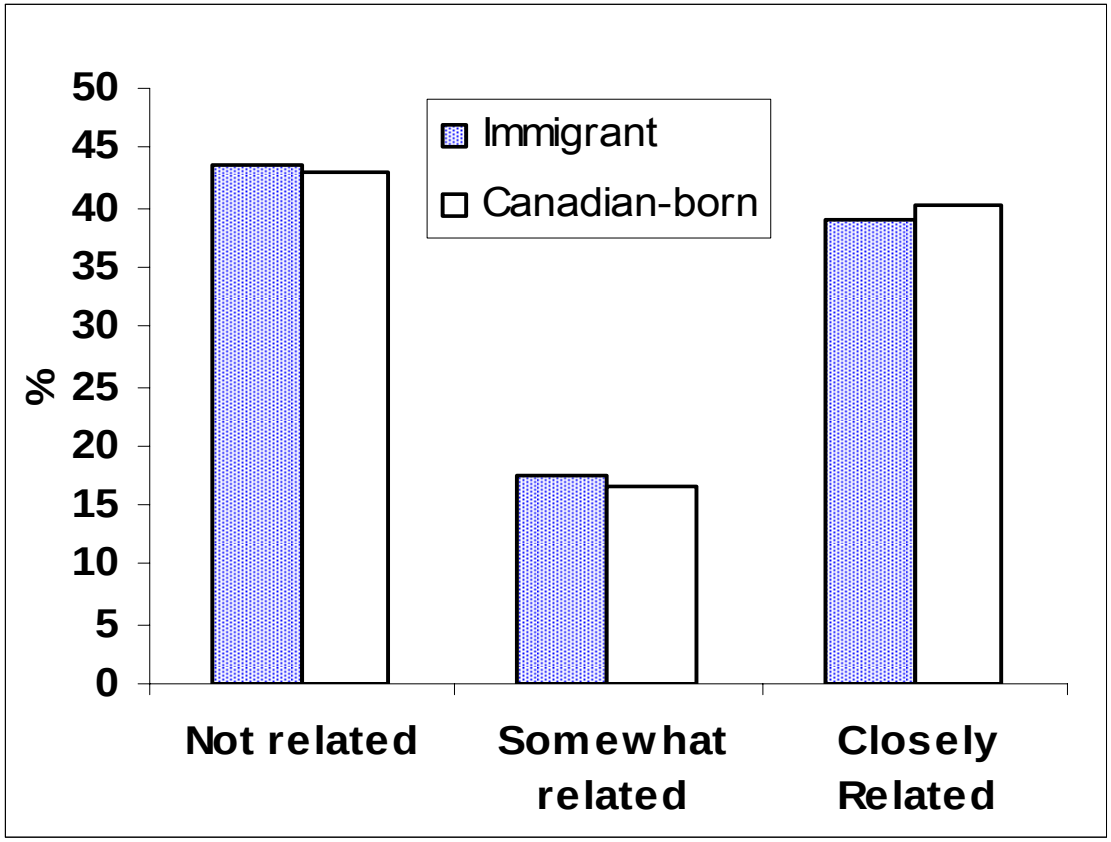
- **0** – Not related
- **1** – Somewhat related
- **2** – Closely related

Men: How related is education to current job?



Source: SLID Years (2001 – 2005)
Immigrant sample: 2,090
Canadian-born sample: 21,074

Women: How related is education to current job?



Source: SLID Years (2001 – 2005)
Immigrant sample: 2,124
Canadian-born sample: 21,074

Ordered Logit Results

Ordered Logit results: (SLID panels 2 - 4: Years 2001 - 2005)
Dependant Variable: Is education related to job?

	(1) Men	
Variables	Coefficient	Robust SE
Immigrant	0.040	0.104
Foreign Experience	-0.012	0.008
Canadian Experience	**0.003**	0.001
Demographic Controls	Yes	
N	22,430	

Ordered Logit Results

Ordered Logit results: (SLID panels 2 - 4: Years 2001 - 2005)
Dependant Variable: Is education related to job?

	(1) Men		(2) Women	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
Immigrant	0.040	0.104	**-0.211**	0.092
Foreign Experience	-0.012	0.008	0.003	0.010
Canadian Experience	**0.003**	0.001	**0.016**	0.002
Demographic Controls	Yes		Yes	
N	22,430		23,288	

Conclusion

- Men: No evidence to support the popular perception.
- Women: Some evidence to support the popular perception.

- Virtually no returns to foreign work experience.

- Do better measures make a difference?

Men: Impact of Relatedness on Returns

Regression results: Men (SLID panels 2 – 4: Years 2001 - 2005)
Dependant Variable: Natural Logarithm of real composite wages

	(1) Separate Returns: New Measure		(2) Separate Returns: New Measure	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	-0.004	0.059	-0.039	0.054
(3) Foreign Experience	**0.016**	0.006	**0.013**	0.006
(4) Canadian Experience	**0.049**	0.001	**0.046**	0.001
(7) Foreign yrs. Schooling	**0.045**	0.004	**0.032**	0.004
(8) Canadian yrs. Schooling	**0.051**	0.001	**0.039**	0.001
(9) (Can. Yrs. Sch ●Imm)	0.018	0.005	-0.001	0.004
Somewhat Related			**0.132**	0.009
Closely Related			**0.221**	0.009
Somewhat Related●Imm			0.048	0.030
Closely Related ●Imm			**0.090**	0.026
F-test/(pvalue): (7) = (8)	2.210 (0.138)		0.800 (0.371)	
Demographic Controls	Yes		Yes	
N	22,607		22,607	
R^2	0.4357		0.3848	

Women: Impact of Relatedness on Returns

Regression results: Women (SLID panels 2 – 4: Years 2001 - 2005)
Dependant Variable: Natural Logarithm of real composite wages

	(1) Separate Returns: New Measure		(2) Separate Returns: New Measure	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	0.067	0.047	0.023	0.044
(3) Foreign Experience	0.000	0.005	-0.001	0.004
(4) Canadian Experience	**0.040**	0.001	**0.036**	0.001
(7) Foreign yrs. Schooling	**0.053**	0.003	**0.040**	0.003
(8) Canadian yrs. Schooling	**0.066**	0.002	**0.049**	0.002
(9) (Can. Yrs. Sch ●Imm)	-0.004	0.003	-0.001	0.003
Somewhat Related			**0.159**	0.009
Closely Related			**0.300**	0.008
Somewhat Related●Imm			0.018	0.025
Closely Related ●Imm			0.016	0.023
F-test/(pvalue): (7) = (8)	12.400 (0.000)		7.930 (0.005)	
Demographic Controls	Yes		Yes	
N	23,309		23,309	
R^2	0.3848		0.4453	

Tradition vs. Non-Traditional Sources

Existing Evidence: Background

- ***Background on Entry Earnings and Assimilation of Immigrants to Canada***
  - Most studies use the Canadian Census
  - Baker and Benjamin (1994)
  - Bloom, Grenier and Gunderson (1995)
  - Grant (1999)
  - Frenette and Morissette (2005)
  - These studies typically find:
    - That immigrant's entry earnings are below that of the Canadian-born
    - Immigrants experience higher earnings growth than the Canadian-born
    - Declining trend in entry earnings beginning in the 1980s
    - True for both men and women

Clarification

- If immigrants receive similar returns to education than the Canadian born.
- If immigrants and the Canadian-born are equality in jobs related to their education. No differences in underemployment.

Immigrants are receiving recognition for their education credentials.

Clarification

$$\ln y = \beta_0 + \beta_1 I + \beta_2 CEXP + \beta_3 FEXP + \underbrace{\beta_4 CSH + \beta_5 FSCH + \beta_5 CSHI}_{\downarrow} + Demo + res$$

Differences here can be explained by:

Differences between IMM and CAN in terms of job relatedness to education.

- Since I find no differences in the returns for men– then I would expect to find no differences in the likelihood of being in related jobs for IMM and CAN. If I found large differences it would not make sense and cast doubt on the earnings regressions.
- Women have slightly less returns than Canadians for foreign schooling – so you would expect them to be slightly less likely to be in related jobs. This is what I find.

Results (2001-2005 sample)

Separate Returns Results: Men and Women (Panels 2 - 4: Years 2001 - 2005)
Dependant Variable Natural Logarithm of real composite wages

	(1) Men		(2) Women	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	0.059	0.068	**0.093***	0.051
(2) Foreign Experience	**0.017**	0.006	0.001	0.005
(3) Canadian Experience	**0.050**	0.001	**0.041**	0.001
(4) Can.Experience●Immigrant	**-0.009**	0.004	**-0.006**	0.003
(5) Foreign yrs. Schooling	**0.045**	0.004	**0.053**	0.003
(6) Canadian yrs. Schooling	**0.051**	0.001	**0.065**	0.002
(7) Can. Yrs. Sch ●Immigrant/100	0.004	0.005	**-0.404**	0.004
Demographic Controls	Yes		Yes	
F-test (5)=(6)/(p-value)	2.070 (0.150)		10.800 (0.001)	
N	22,398		23,309	

The standard errors have been adjusted using the cluster command in Stata. The data has been weighted using the longitudinal weights provided by Statistics Canada. Bolded entries are statistically significant at the 5% level while entries that are bolded with an asterisk are significant at the 10% significance level.

Regression Results for Men

	(1) Standard Specification (Actual Experience)	
Variables	Coefficient	Robust SE
(1) Immigrant	**-0.281**	0.030
(2) Work Experience	**0.047**	0.001
(3) Foreign Experience		
(4) Canadian Experience		
(5) Can.Experience*(imm)		
(6) Total Years of Schooling	**0.046**	0.001
(7) Foreign yrs. Schooling		
(8) Canadian yrs. Schooling		
(9) Can. Yrs. Sch (imm)/100		
(10) YSM●(imm)	**0.015**	0.003
F-test/(pvalue): (3) = (4) + (5)		
F-test/(pvalue): (7) = (8) + (9)		

Regression Results for Men

	(1) Standard Specification (Actual Experience)		(2) Separate Returns: New Measure	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	-0.281	0.030	0.013	0.043
(2) Work Experience	0.047	0.001		
(3) Foreign Experience			0.007	0.004
(4) Canadian Experience			0.050	0.001
(5) Can.Experience*(imm)			-0.007	0.003
(6) Total Years of Schooling	0.046	0.001		
(7) Foreign yrs. Schooling			0.044	0.003
(8) Canadian yrs. Schooling			0.047	0.001
(9) Can. Yrs. Sch (imm)/100			-0.020	0.003
(10) YSM●(imm)	0.015	0.003		
F-test/(pvalue): (3) = (4) + (5)			51.060	(0.000)
F-test/(pvalue): (7) = (8) + (9)			2.950	(0.086)

Regression Results for Men

	(1) Standard Specification (Actual Experience)		(2) Separate Returns: New Measure		(3) Separate Returns: Continuous/ Potential	
Variables	Coefficient	Robust SE	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	-0.281	0.030	0.013	0.043	-0.007	0.043
(2) Work Experience	0.047	0.001				
(3) Foreign Experience			0.007	0.004	0.003	0.003
(4) Canadian Experience			0.050	0.001	0.047	0.001
(5) Can.Experience*(imm)			-0.007	0.003	0.002	0.002
(6) Total Years of Schooling	0.046	0.001				
(7) Foreign yrs. Schooling			0.044	0.003	0.047	0.003
(8) Canadian yrs. Schooling			0.047	0.001	0.054	0.001
(9) Can. Yrs. Sch (imm)/100			-0.020	0.003	-0.200	0.003
(10) YSM●(imm)	0.015	0.003				
F-test/(pvalue): (3) = (4) + (5)			51.060	(0.000)	5.79	(0.000)
F-test/(pvalue): (7) = (8) + (9)			2.950	(0.086)	6.310	(0.012)

Regression Results for Women

	(1) Standard Specification (Actual Experience)	
Variables	Coefficient	Robust SE
(1) Immigrant	**-0.260**	0.028
(2) Total Experience	**0.039**	0.001
(3) Foreign Experience		
(4) Canadian Experience		
(5) Can.Experience*(imm)		
(6) Total Years of Schooling	**0.063**	0.001
(7) Foreign yrs. Schooling		
(8) Canadian yrs. Schooling		
(9) Can. Yrs. Sch *(imm)		
(10) YSM*(imm)	**0.013**	0.002
F-test/(pvalue): (3) = (4) + (5)		
F-test/(pvalue): (7) = (8) + (9)		

Regression Results for Women

	(1) Standard Specification (Actual Experience)		(2) Separate Returns New Measure	
Variables	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	-0.260	0.028	0.109	0.038
(2) Total Experience	0.039	0.001		
(3) Foreign Experience			0.001	0.004
(4) Canadian Experience			0.041	0.001
(5) Can.Experience*(imm)			-0.004*	0.002
(6) Total Years of Schooling	0.063	0.001		
(7) Foreign yrs. Schooling			0.051	0.003
(8) Canadian yrs. Schooling			0.064	0.001
(9) Can. Yrs. Sch *(imm)			-0.005	0.003
(10) YSM*(imm)	0.013	0.002		
F-test/(pvalue): (3) = (4) + (5)			70.860	(0.000)
F-test/(pvalue): (7) = (8) + (9)			24.730	(0.000)

Regression Results for Women

	(1) Standard Specification (Actual Experience)		(2) Separate Returns New Measure		(3) Separate Returns: Continuous and Potential	
Variables	Coefficient	Robust SE	Coefficient	Robust SE	Coefficient	Robust SE
(1) Immigrant	-0.260	0.028	0.109	0.038	0.034	0.042
(2) Total Experience	0.039	0.001				
(3) Foreign Experience			0.001	0.004	0.001	0.003
(4) Canadian Experience			0.041	0.001	0.038	0.001
(5) Can.Experience*(imm)			-0.004*	0.002	0.006	0.002
(6) Total Years of Schooling	0.063	0.001				
(7) Foreign yrs. Schooling			0.051	0.003	0.058	0.003
(8) Canadian yrs. Schooling			0.064	0.001	0.072	0.001
(9) Can. Yrs. Sch *(imm)			-0.005	0.003	-0.005	0.003
(10) YSM*(imm)	0.013	0.002				
F-test/(pvalue): (3) = (4) + (5)			70.860	(0.000)	35.120	(0.000)
F-test/(pvalue): (7) = (8) + (9)			24.730	(0.000)	23.720	(0.000)

Motivation

- ***<u>Why do we care?</u>***
  - Canada receives many immigrants.
  - Policy Implications.
    - Should the government regulate the flow?
    - Are government programs effective?