PCERII Working Paper Series

THE LEGACY OF IMMIGRATION: THE LABOUR MARKET PERFORMANCE OF THE SECOND GENERATION

Derek Hum
University of Manitoba

Wayne Simpson
University of Manitoba

Working Paper No. WP06-04

June 2004

PRAIRIE CENTRE OF EXCELLENCE
METROPOLIS
FOR RESEARCH ON IMMIGRATION AND INTEGRATION

The *PCERII Working Paper Series* is published by the
Prairie Centre of Excellence for Research on
Immigration and Integration.

For additional information contact:

PCERII Working Paper Series
Attention: Ms. Lenise Levesque, Editorial Assistant
1-17 Humanities Centre, University of Alberta
Edmonton, AB T6G 2E5 Canada
Tel: (780) 492-0635 Fax: (780) 492-259
Email: lenise@ualberta.ca
Web Site: http://pcerii.metropolis.net

Funders

We are pleased to acknowledge the following organizations that provide funding in support of the Prairie Centre: the Social Sciences and Humanities Research Council of Canada; Citizenship and Immigration Canada; Canadian Heritage; Statistics Canada; Human Resources Development Canada; Canada Mortgage and Housing Corporation; Public Works and Government Services Canada; Status of Women Canada; the Royal Canadian Mounted Police; Public Service Commission; and the Solicitor General of Canada. The University of Alberta provides PCERII with a generous grant and the other participating universities offer supplementary support.

The Legacy of Immigration: The Labour Market Performance of the Second Generation

Derek Hum
University of Manitoba

Wayne Simpson
University of Manitoba

We develop a model of the earnings of different generations that emphasizes both observable components, including ethnic fixed effects, and unobservable group differences, such as motivation. We estimate this model and its components—schooling, wages, and labour supply—and find that the legacy of immigration is concentrated in the greater educational attainment of the second generation. Men and women of the second generation attend school about one year longer, other factors considered, which raises their wages and earnings permanently between 4 and 7%. Men and women with only one immigrant parent do better than other native born but not as well as those with two immigrant parents. Ethnic effects are significant in explaining schooling, but do not affect the estimated advantage of the second generation.

Keywords: Citizenship; Identity; Transculturalism/Transnationalism; Nationalism; Unity; Diversity.

2004 PCERII Working Paper Series

Introduction

A large literature has developed on the economic integration of immigrants, particularly with respect to their performance in the labour market. This literature generally suggests that immigrants face an initial disadvantage but overcome most, or all, of it during their lifetime. Beginning with Chiswick's (1978) initial estimates, many studies using cross-sectional, primarily census, microdata suggest that immigrants eventually do as well as their native born counterparts (e.g., recently Funkhauser & Trejo (1995) andYuengert (1994) for the US, Baker & Benjamin (1997) and Grant (1999) for Canada, McDonald & Worswick (1999) for the US and Friedberg (2000) for Israel). Other studies are more skeptical, however. In a series of studies, Borjas (1985, 1993b, 1996) argues that the success of immigrants is overstated by declining productivity of successive cohorts of migrants, and recent studies using panel data are also skeptical of the assimilation results based on cross-sectional data (Hum and Simpson, 2000, 2003).

But is the economic contribution of immigrants limited to their own successes or failures? What about the contributions of succeeding generations? In particular, what about the labour market performance of the children of immigrants, the second generation? The limited analysis of this question provides little consensus. Early papers by Chiswick (1977) and Carliner (1980) find that second generation men earn more than their parents and more than third (or later) generation counterparts in the 1970 US Census, but subsequent studies dispute these results and suggest that assimilation ends with the first generation. Borjas (1993a , 1994) looks for the parents of the second generation in earlier US Censuses. He finds that the ratio of first to third generation wages is marginally higher than the ratio of second to third generation wages, which implies that upward assimilation ends after the first generation. He finds similar results across all ethnic groups, implying that that the earnings disadvantages of immigrants are carried into future generations, and that the ethnic composition of immigration has long-lasting labour market effects. Chiswick and Miller (1985) also find no signficant difference in personal income for working men in the second and later generations using the 1981 Australian Census of Population and Housing.

In this paper, we explore this issue further and extend the analysis of the labour market performance of the second generation in two directions. First, we examine the three main observable components of earnings–education, wages, and labour

supply–to see how those belonging to the second generation differ from their parents and from subsequent generations. This allows us to decompose earnings differences among generations and identify in more detail which components of earnings account for these differences. Second, we attempt to understand which explanations for differences in labour market performance across generations, involving both observables such as ethnic capital and unobservables such as motivation, are most convincing. The layout of our paper is as follows. In the next section we set out our model of earnings and its components and how differences across generations may arise. In section 3, we describe our data source. Section 4 presents our basic results for earnings and its components, and section 5 presents some sensitivity tests based primarily on selection bias. The final section provides our conclusions.

A Model of Earnings Differences When Generations are Compared

Education, Wages, Labour Supply, and Earnings over the Life Cycle

Individuals, who differ in a number of ways that are typically unobserved, make a series of investment decisions that affect subsequent returns to their labour services. For those native born, including the second generation, these decisions principally involve formal education early in life, postschool investments in formal and informal job-related training during the working career, and intranational migration decisions to improve economic prospects. These investment decisions in turn determine the evolution of labour supply, wages, and earnings over the life cycle (e.g., Weiss, 1986).

Blinder and Weiss (1976) present the basic model of human capital accumulation and labour supply over the life cycle. The model contains four phases: formal education only, jobrelated training and work, work only, and retirement. Individuals continue in school until their marginal benefits no longer exceed their marginal costs, at which point they begin a working career that initially involves considerable formal and informal training. Training is an investment which involves a lower current wage (hourly earnings) to augment future potential wages. The returns to training decline as retirement approaches, leading to a period of work without training followed by no work. As training declines, the current wage rises but the future potential wage declines. This generates the observed "concave pattern" of wages, which rise until late

in the working career but eventually decline in the absence of training. Since labour supply (hours of work) responds to the incentive to work (the wage rate), labour supply initially rises and then declines as well. Thus, the model explains a pattern of education, wages, labour supply, and earnings over the life cycle for an individual, depending on their initial circumstances (abilities and opportunities or environment).

We can therefore write a very simple model that will be useful to compare the earnings of the second generation with those of their parents and other native born. Let t represent an individual's age, K represent human capital (formal schooling and informal, or at least typically unobserved, job-related training), and r be the return to human capital so that the hourly wage at age t is given by

$$W_t = rK_t \qquad [1]$$

If H represents hours of work, then earnings E are the product of wages and hours, or

$$E_t = W_t H_t = rK_t H_t \qquad [2]$$

$$or \quad \ln E_t = \ln W_t + \ln H_t, \; where \; \ln W_t = \ln r + \ln K_t \qquad [3]$$

In order to assess the performance of the second generation, we examine each of these links to earnings in our analysis; that is, we examine the roles of education, wages, and labour supply decisions in the determination of the earnings of the second generation.

Differences Across Generations

Why would earnings or its components differ across generations? We can start with the common view that immigrants are not a random sample of the population in their country of origin but a select group. In weighing the benefits and costs of migration, individuals will differ in their assessments. Clearly, migrants will be those individuals who place greater value on the benefits, including the economic benefits associated with a better material life, and smaller value on the costs associated with the loss of social ties and the challenge of a new economic and cultural environment. On the other hand, the human capital investment decisions of immigrants are confounded by the

international migration decision itself, which may involve a substantial interruption in labour market activity, retraining or additional schooling, acquiring proficiency in a new language, or learning new social and business customs. In practice, many immigrants start over at the time of entry and past human capital investments are effectively lost, amounting to a compression of the life cycle.

Carliner's (1980) model links these intangible elements to observable components of earnings. Earnings depend upon observable human capital characteristics–education, experience, and ability to speak English–and unobservable characteristics–native ability, motivation, and familiarity with local labour markets and business practices. The crucial link between immigrants, their children, and subsequent generations is the transmission of motivation. In particular, Carliner assumes that immigrants pass on a fraction of their motivation to their children, who in turn pass on a fraction of that motivation to their children, and so on. Although the motivational advantage of successive generations will eventually "regress to the mean," the second generation will be more motivated that other native born but less motivated than their parents.

The relative performance of successive generations in Carliner's model depends on the relative impacts of observable human capital accumulation and unobservable motivation. He argues that the second generation can be expected to do better than their parents because their relatively slight motivational disadvantage is offset by substantial advantages in human capital as a consequence of native birth—advantages in ability to speak English, familiarity with local markets and customs, and an education that may be more valuable than a comparable education obtained abroad by their parents. On the other hand, subsequent generations may not do as well as inherited advantages in motivation continue to decline and advantages in human capital over previous generations are much smaller (perhaps zero). Carliner's model predicts that immigrants will gain relative to their native born counterparts with years in the host country, that their children will do better than either their parents or other native born Americans, and that the third generation will not do as well as their parents.

An alternative explanation is provided by Borjas (1992), who concentrates on the parental investment in the human capital of their children. This investment in turn depends on parental human capital and "ethnic capital." Immigrants and their children typically reside within ethnic communities and otherwise maintain close contact with an extended family and network of those in the same ethnic group.

Ethnic capital reflects the average quality of the ethnic environment in which the children are raised, which has an external effect on the production of their human capital. This ethnic capital amounts to an "ethnic fixed effect" which is transferred across generations (Borjas, 1992, p 130). Borjas (1992) finds evidence of these ethnic effects, in addition to parental effects, which accounts for a greater persistence of skill and earnings differences across generations than other studies suggest. Using the 1910, 1940 and 1980 Censuses, Borjas (1994) finds that the Great Migration in the US introduced large ethnic skill and earnings differentials which, he estimates, may persist for up to four generations. Hence, these ethnic differences must be considered in any analysis of the labour market performance of the second generation.

Borjas (1992, 1994) considers a model of ethnic capital of the form

$$K_i = (_l K_i[-1] + 3_j T_j C_{ij} +>_i \qquad [4]$$

where K_i represents the human capital of individual i, which depends on parental capital K[-1] and an ethnic fixed effect representing by a series of ethnic dummy variables C_{ij}. In his empirical work, Borjas uses the average skill level or earnings to represent the ethnic fixed effect, since he relies on data which does not directly link parental capital, ethnic category, and own capital. In our study, we are able to link these variables directly.

While Borjas points to an observable ethnic capital fixed effect as the major determinant of differences in the labour market performance of immigrants, Carliner points to motivation. Differences in motivation are an unobservable effect, except insofar as Carliner assumes that they differ across generations.[1] Thus, for individual i at age t we can write equation [4] as

$$K_{it} = (_l K_i[-1] + 3_j T_j C_{ij} + 3_h *_h G_{ih} + u_i + v_{it} \qquad [5]$$

where we add a series of generational dummy variables, G_{ih}, to capture whether individual i is first, second, or later generation, and an additional person-specific error, u_i, to capture any other motivational effects. In effect, equation [5] is an error components version of equation [4] in which the person-specific effect consists of an observable component (generation) and an unobservable component. Carliner's

model effectively specifies that $u_i = 0$, i.e. that all unobserved differences are captured in differences between generations.

Differences in human capital feed directly into differences in wages and earnings through equations [1] and [2]. In addition, we do not preclude separate effects of ethnic capital and generation on wages, hours worked, and earnings, holding human capital constant in our empirical work below.

Data

We use the Canadian Survey of Labour and Income Dynamics (SLID), a series of overlapping six-year panels which began in 1993.[2] The first wave (1993-98) did not contain information on the immigration status of parents, but this information was added for the second wave, which began in 1996, and for the third wave, which enrolled in 1999. The SLID amalgamates former surveys of labour market activity and income in Canadian households and thus provides detailed accounts of these aspects of economic activity as well as other sociodemographic information. For further discussion of this data base, see Hum and Simpson (2003).[3]

Our initial analysis uses the 1999 SLID, which is the first year with two waves (a double cohort) of data that identifies the second generation in terms of the immigrant status of their parents. We define the second generation as anyone who has an immigrant mother or father, although we distinguish between "mixed" parentage (an immigrant mother or father but not both) and the "pure" second generation (an immigrant mother and father) in our subsequent empirical work. Our definition of the second generation corresponds to the one used by Borjas (1994). As Table 1 shows, the double cohort in 1999 consists of 2,058 immigrant men (the first generation, or simply G1), 2,328 second-generation (G2) men, and 12,040 third-or-more generation (G3+, or simply G3) men. Similarly, we have 2,394 G1 women, 2,710 G2 women, and 13,521 G3 women. These are respectable samples from which to compare the relative performance of these groups.

Table 1 also provides basic descriptive information on the variables to be explained—earnings, labour supply, wages, and schooling—by generation. Annual earnings are about 8% lower for second generation men than their fathers as a group and about 2% lower than other native born men (G3+); annual earnings are

Table 1
Selected Characteristics of First, Second, and Third or Greater Generations, 1999

7% higher for second generation women than their mothers as a group and about 3% lower than other native born women. The pattern of hourly wages is similar. But second generation men are not as well educated as their fathers and better educated than other native born men. Second generation men also do not work as hard as their fathers, but harder than other native born men. For women, the education pattern is more mixed, although second generation women do not appear to work as hard as either their mothers or other native born women. And, of course, men and women in the second generation will differ from both their parents and other native born Canadians in terms of other characteristics that determine education, labour supply, wages, and ultimately earnings. We therefore turn to a more careful analysis of the determinants of each component of earnings in our model.

Empirical Results

We estimate equations for education, wages, hours worked, and earnings for a male data set which includes all generations (i.e., G1, G2 and G3+) and a similar female data set. Each equation in our analysis has a basic set of controls for generation (G_{ih} in equation [5]), which will be a focus of our attention. Each equation also controls for recent immigration (last ten years), mixed second generation status (whether the father was an immigrant and whether the mother was an immigrant), and stage of the life cycle (age and its square), ethnic effects (Cih in equation [5]) and other variables as appropriate to capture other determinants of each component of earnings.

Education

Starting with education, we estimate an equation which includes the generation indicators, age, the educational attainment of the father and mother (K[-1] in equation [4] or [5]), region of residence, and size of urban area. These results, presented in Table 2, clearly show that second generation men and women obtain more schooling than their parents and other native Canadians. Second generation men obtain about one additional year of schooling compared to other Canadians, including their parents, while second generation women obtain about 0.8 years more schooling, provided that both parents are immigrants. The schooling effect is significantly weaker if only the father is an immigrant—only 0.4 years of additional schooling for men and 0.25 years

Table 2
Educational Attainment, Full Sample (Immigrants & Native Born)

for women—or only the mother is an immigrant—0.6 years of additional schooling for men and 0.4 years for women. That is, the "pure" second generation effect on educational attainment is significantly stronger than the "mixed" second generation effect arising from only one immigrant parent.

Other results are worth noting. The education of immigrant men is not statistically different from other native born (G3+), but immigrant women are estimated to obtain 0.6 years less schooling. Parents' schooling is an important determinant of educational attainment. For example, attainment of a high school degree by the father and mother adds about three years to the educational attainment of a child, whether male or female, compared to a father and mother without a high school diploma or its equivalent. Thus, parents' education is clearly an important standardizing factor in assessing schooling differences across generations.[4]

We then add a series of dummy variables to capture ethnic effects (C_{ij} in equation [5]) in Table 3. The ethnic effects are statistically significant as a group for men and women and there are also several notable ethnic effects on education. Children of Jewish parents attain more schooling than those who classify their ethnicity as Canadian (1.9 years for males, 1.4 years for females), while West Asian men and women, non-Chinese oriental men, and Arab and European women attain less education. But these ethnic effects do not alter the education advantage of the second generation observed in Table 2: Both men and women in the second generation with two immigrant parents have about a one year advantage in schooling, other factors considered, although men and women of with one immigrant parent do not do as well.

Hourly Wages

Table 4 examines hourly wages for those reporting employment in 1999. A standard Mincerian model of wages is estimated in which log wages depend on human capital (equation [1]) in the form of years of schooling, actual work experience, and experience squared with the addition of our previous control variables — generation, recent immigration, father or mother immigrant, age and its square, region, urban size and ethnic fixed effects. The hourly wages of the second generation are not significantly different from other generations when other factors, including schooling, are considered; whether both or one parent is an immigrant does not affect this

Table 3
Educational Attainment with Ethnic Group Effects,
Full Sample (Immigrants & Native Born)

conclusion. Immigrants have lower wages than their children and other native born, as has been commonly found.[5]

Our estimates in Table 4 indicate that an additional year of schooling raises wages by about 4% for men and 6% for women, implying that the additional year of schooling for those in the second generation would yield a permanent annual return of this magnitude. Insofar as this additional return reflected increased productivity associated with additional skills acquired through formal education, it reflects enhanced output to the Canadian economy.[6] Ethnic effects are significant as a whole and indicate a wage disadvantage for black and West Indian men as found in our earlier research (Hum & Simpson, 1999), for Indo-Pakistani men, for Hispanic women, and for non-Chinese oriental men and women. Oceanic men have a wage advantage over ethnic Canadians.

Labour Supply

Table 5 presents tobit estimates of hours worked for a reduced form labour supply models that include the factors determining wages above plus other household income to capture the standard income effect. Hours worked are again not significantly different for the second generation, whether one or both parents are immigrants. The income effect on labour supply is negative and highly significant as expected.[7] Ethnic effects are significant as a whole. European, Jewish, Indo-Pakistani and non-Chinese oriental men work more hours, while Indo-Pakistani women work more hours and women with origins in Oceania work fewer hours.[8]

Annual Earnings

Table 6 examines annual earnings for those employed in 1999. A standard Mincerian model of earnings is again estimated in which log earnings depend on years of schooling, actual work experience, experience squared, and weeks worked in addition to control variables for generation, recent immigration, father or mother immigrant, age and its square, region, urban size, and ethnic fixed effects as before. Earnings for the second generation are again not statistically significantly different from other native born once other factors, particularly schooling, are considered. There is again no significant effect associated with mixed parentage (one immigrant parent). Earnings are lower for immigrants, especially recent immigrants, as is typically found in the

Table 4
Models of Wages,
Full Sample (Immigrants & Native Born) in Employment

Notes: (1) Reports OLS regression coefficients and t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

literature.[9] Ethnic effects are now insignificant as a whole and for all ethnic groups, implying that the ethnic effects observed for schooling, wages and hours roughly cancel out.

The estimates in Table 6 suggest that an additional year of schooling increases the earnings of men by about 5% and the earnings of women by about 7%. Since the only significant effect of the second generation we find is about one additional year of formal education, this constitutes the main legacy of immigration. The legacy for those with only one immigrant parent will be less, roughly one-third to one-half as much.

Further Analysis

It is now well understood that the basic results we have presented on wages, hours and earnings may be biased because of sample selection.[10] To see this, let y be either

Table 5
Models of Hours,
Full Sample (Immigrants & Native Born) in Employment

wages or earnings, observed only if someone works during the survey period. Thus, our structural equation is

$$y_i = x_i\$ + \gamma_i \quad \textit{observed only if} \quad H_i = z_i(+ v_i > 0 \qquad [6]$$

which implies that

$$E(y_i^* H_i > 0) = x_i\$ + E(\gamma_i^* v_i > -z_i()$$

such that our basic results on wages and earnings will be biased if $E(\gamma_i^* v_i > z_i() = 0$. This condition (i.e., that there is correlation between γ_i and v_i) is satisfied when unobserved effects, such as motivation, affect both selection (labour force attachment) and the

Table 6
Models of Earnings,
Full Sample (Immigrants & Native Born) in Employment

structural model (wages) through past labour force experience. In our framework, where differences in motivationamong immigrants, their offspring, and other native born are an important consideration, selection bias cannot be ignored.

We therefore correct for selection bias in wages in the usual way by estimating a reduced form model for labour force participation (the selection equation) with a structural model of wages using the method of maximum likelihood.[11] These estimates are presented for men and women in Table 7. The significant inverse Mills ratio term rejects the hypothesis of no sample selection bias (δ=0) for both men and women.[12] Despite this, however, there is no change in the basic result that the wages of the second generation, whether defined by one or two immigrant parents, are not significantly different from other native born. The estimated effect of an additional year of schooling on wages also remains virtually unchanged, around 4% for men

Table 7
Models of Wages
Adjusted for Sample Selection Bias

Notes: (1) Reports maximum likelihood regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

Table 8
Structural Models of Hours with Imputed Wages

Notes: (1) Reports maximum likelihood (Tobit) regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.
(2) Imputed wage calculated for all sample respondents from coefficient estimates in Table 7.

and 6-7% for women. The ethnic effects are less robust to selection bias, however. The wage disadvantage for black men and Hispanic and non-Chinese oriental women are no longer significant and a large and statistically significant wage advantage appears for American men relative to ethnic Canadians.

With consistent estimates for wage offers which correct for selection bias arising from the unobserved offers to nonparticipants, we estimate structural models of labour supply using imputed wage offers. We use the Tobit framework once again to accomodate non-participants as censored observations[13]

$$\begin{aligned} H_i &= H_i^* = \alpha_1 W_i + \alpha_2 N_i + Z_i \gamma \quad if\ H_i > 0 \\ &= 0 \quad if\ H_i \leq 0 \end{aligned} \qquad [7]$$

Our results are presented in Table 8. There remains no statistically significant difference between the hours worked by the second generation and other native born, whether the second generation is defined by only two immigrant parents or by a single

Table 9
Models of Earnings Adjusted for Sample Selection Bias

Notes: (1)Reports maximum likelihood regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

immigrant parent. Immigrant men, but not immigrant women, work more hours; the estimate implies that immigrant men work about 130 hours per year more than the native born.[14] The estimated coefficient on the imputed log wage implies a gross wage elasticity for men of 0.47.[15] Combined with the coefficient on other income, which yields an income elasticity of -0.08, the implied substitution (net wage) elasticity for men is 0.55. For women, the coefficient estimates implies a gross wage elasticity of 0.64, an income elasticity of -0.003, and a substitution elasticity of 0.64. These elasticity estimates are consistent with the Canadian literature.[16]

Finally, we estimate a model of annual earnings correcting for selection bias in the same fashion as we did for hourly wages using a reduced form labour force participation equation to explain selection. These estimates for men and women are presented in Table 9. Our tests again reject the hypothesis of no sample selection bias for men but not for women. Adjusting for selection bias, the earnings of second generation men, whether defined by one or two immigrant parents, are not significantly different from other native born men. The estimated return to an additional year of schooling is reduced to about 3.5%, however. While ethnic effects remain generally insignificant, US men earn significantly more while non-Chinese oriental men earn significantly less.

These results reinforce our earlier conclusion that the legacy of immigrants is contained in the increased educational attainment of the second generation. While our results have relied on cross-sectional data from the 1999 SLID, earlier evidence on returns to education from panel data are reassuring.[17] Hum and Simpson (2003) estimated the return to an additional year of schooling to be 3.5% for men and 6% for women in a fixed effects model, which are consistent with other fixed effects estimates of the returns to education in the US literature and virtually identical to the cross-sectional estimates obtained here. While the impact of this additional education on output is less clear, the most recent study of OECD countries estimates the contribution of an additional year of education to growth of GDP per capita in the same range, between 4% and 7% (OECD, 2003).

Concluding Remarks

Models of the earnings of different generations have emphasized ethnic effects and motivation. We develop a model of earnings and its components—schooling, wages,

and labour supply—to test these ideas and assess what legacy immigration provides to the second generation. We use recent data which is able to distinguish immigrants, the second generation, and other native born Canadians for the first time. Our results suggest that it is important to analyze the components of earnings, since the legacy of immigration is concentrated in the greater educational attainment of the second generation. Men and women of the second generation with two immigrant parents attend school about one year longer than other Canadians, other factors considered. We estimate that this additional schooling which raises their wages and earnings permanently between 4 and 7%. Men and women with only one immigrant parent do better than other Canadians but only about one-third to one-half as well as those with two immigrant parents. Once differences in education are considered, we find no differences in wages, hours or earnings between the second generation, whether one or two parents are immigrants, and other native born.

Ethnic effects are significant in explaining schooling, wages and hours, but have little effect on earnings as a whole. Moreover, the estimated advantage of the second generation in education, and the insignificant difference between the second generation and the native born in wages and hours, are insensitive to the inclusion or exclusion of ethnic effects. Hence, we conclude from this study that it is more likely to be unobserved motivational differences in immigrants which are passed on to their children that account for greater educational attainment and economic performance of the second generation, rather than differences in ethnic capital.

Notes

1 In addition, motivation may be an aspect of ethnic capital. Parents and the ethnic community may transmit different intangible characteristics, including differences in motivation toward labour market activity. These differences would be captured by Borjas' ethnic fixed effects.

2 By special arrangement with Statistics Canada we use the internal or master file, which contains information on such crucial variables as immigrant status that is not available in the external or public file.

3 An overview of SLID can be found at: http://www.ssc.uwo.ca/sociology/longitudinal/giles.pdf

4 In results not presented here, we estimate that the inclusion of this factor reduces the apparent advantage of the second generation in schooling by about 0.25 years for men and 0.2 years for women.

5 See the references in the Introduction. Our estimate of a wage gap of 27% for recent immigrant men (0.119+0.149) and 22% for recent immigrant women are consistent with the estimates of immigrant entry effects in the literature.

6 Actual gains in output may be higher as a result of spillover effects. On the other hand, the usual caveat applies that additional education may represent a signal to employers and not actual productivity growth through skill acquisition.

7 We estimate structural labour supply models and calculate standard wage and income effects below.
8 Some of the estimates of ethnic effects may be driven by a small number of outliers in a very small sample.
9 The estimated effects for recent immigrants are about 27% for men and 29% for women, well within the bounds of other estimates in the literature. The insignificant coefficient for all immigrant men suggests reasonably rapid convergence of earnings to those of comparable native born, whereas the significant coefficient for women suggests slower convergence. This is consistent with our earlier findings using the 1993 SLID cross-section (Hum and Simpson, 1999).
10 There is no basis to suspect selection bias for educational attainment, since all observations with a valid schooling response are included in the analysis.
11 The ML estimation is performed using the Heckman procedure in STATA 7.0
12 A likelihood ratio test for independent selection (participation) and structural (wage) equations also rejects the hypothesis of no sample selection bias.
13 Alternatively, we could have used a sample selection model using the same reduced form labour supply equation as the selection model. For a more complete discussion of estimation alternatives for "second generation" labour supply models, see Killingsworth (1983, 130-168).
14 The expected difference in hours worked between the two groups is given by the Tobit coefficient estimate multiplied by the proportion of uncensored observations (McDonald and Moffitt, 1980, 319).
15 That is, where is the estimated coefficent of the imputed log wage on hours worked and is the proportion of uncensored observations, since the effect on expected hours worked for the entire sample can be obtained by multiplying the Tobit regression coefficient by the proportion of the sample above the limit (McDonald and Moffitt, 1980, p.319).
16 See, for example, Hum and Simpson (1991, 18-39) for a discussion of labour supply elasticity estimates from cross-sectional nonexperimental and longitudinal experimental data in Canada and the United States.
17 Little can be gained from analysis of educational attainment with panel data, since the crucial regressors are all fixed effects (demographic factors).

References

Baker, M., & Benjamin, D. (1997). The Role of the Family in Immigrants' Labor-Market Activity: An Evaluation of Alternative Explanations. *American Economic Review 87*, 705-727.
Borjas, G. (1996). The earnings of Mexican immigrants in the United States. *Journal of Development Economics 51*, 69-98.
Borjas, G. (1994). Long-Run Convergence of Ethnic Skill Differentials: The Children and Grandchildren of the Great Migration. *Industrial and Labor Relations Review 47*, 553-573.
Borjas, G. (1993a). The Intergenerational Mobility of Immigrants. *Journal of Labor Economics 11*, 113-135.
Borjas, G. (1993b). Immigration Policy, National Origin, and Immigrant Skills: A Comparison of Canada and the United States. In D. Card and R. B. Freeman, *Small Differences That Matter* (Chicago: University of Chicago Press), 21-43.
Borjas, G. (1992). Ethnic Capital and Intergenerational Mobility. *Quarterly Journal of Economics*, 123-150.
Borjas, G. (1985). Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants. *Journal of Labor Economics 3*, 463-489.
Carliner, G. (1980). Wages, Earnings and Hours of First, Second, and Third Generation American Males. *Economic Inquiry 18*, 87-102.

Chiswick, B. (1977). Sons of Immigrants: Are They at an Earnings Disadvantage? *American Economic Review 67* (Supplement), 376-380.
Chiswick, B. (1978). The Effects of Americanization on the Earnings of Foreign-Born Men. *Journal of Political Economy 86*, 897-921.
Chiswick, B., Miller, P. (1985). Immigrant Generation and Income in Australia. *Economic Record 61*, 540-553.
Friedberg, R. (2000). You Can't Take it With You? Immigrant Assimilation and the Portability of Human Capital. *Journal of Labor Economics 18*, 221-251.
Funkhauser, E., & Trejo, S. (1995). The Labor Market Skills of Recent Male Immigrants: Evidence from the Current Population Survey. *Industrial and Labor Relations Review 48*, 792-811.
Grant, M. (1999). Evidence of new immigrant assimilation in Canada. *Canadian Journal of Economics 32*, 930-955.
Hum, D., & Simpson, W. (1991). *Income Maintenance, Work Effort and the Canadian Mincome Experiment*. Ottawa: Economic Council of Canada.
Hum, D., & Simpson, W. (1999). Wage Opportunities for Visible Minorities in Canada. *Canadian Public Policy 25*(3): 379-394.
Hum, D., & Simpson, W. (2000). Closing the Wage Gap: Economic Assimilation of Canadian Immigrants Reconsidered. *Journal of International Migration and Integration 1*, 427-441
Hum, D., & Simpson, W. (forthcoming). Reinterpreting the Performance of Immigrant Wages from Panel Data. *Empirical Economics.*
Killingsworth, M. (1983). *Labor Supply*. Cambridge, U.K.: Cambridge University Press.
McDonald, J. F., & Moffitt, R.A. (1980). The Uses of Tobit Analysis. *The Review of Economics and Statistics 62*, 318-321
McDonald, J., & Worswick, C. (1999). The Earnings of Immigrant Men in Australia: Assimilation, Cohort Effects, and Macroeconomic Conditions. *The Economic Record 75*, 49-62.
OECD (2003). *The Sources of Economic Growth in OECD Countries*. Paris, France: Organisation for Economic Cooperation and Development.
Weiss, Y. (1986). The Determination of Life Cycle Earnings: A Survey. In Orley Ashenfelter and Richard Layard (eds.) *Handbook of Labor Economics, Volume 1* (New York: North-Holland), 603-640.
Yuengert, A. (1994). Immigrant Earnings, Relative to What? The Importance of Earnings Function Specification and Comparison Points. *Journal of Applied Econometrics 9*, 71-90.

Table 1. Selected Characteristics of First, Second, and Third or Greater Generations, 1999

Characteristic	MEN			WOMEN		
	G1	G2	G3+	G1	G2	G3+
Sample size	2,058	2,328	12,040	2,394	2,710	13,521
HighSchool	73.8%	71.8%	69.0%	68.6%	73.0%	71.9%
University	21.9%	19.4%	13.8%	16.9%	15.9%	13.8%
YrsSchool	12.89	12.77	12.28	11.99	12.78	12.46
Hourly Wage	$20.02	$19.91	$17.99	$14.83	$15.98	$14.33
Hours/Yr	1,364.2	1,264.7	1,012.8	879.89	841.55	969.3
Weeks/Yr	34.12	30.33	24.41	26.43	26.40	30.04
Earnings/Yr	$30,012	$27,798	$28,303	$13,410	$14,413	$14,890

Source: Survey of Labour and Income Dynamics internal file. Calculations by the authors.

Notes: (1) Second generation includes individuals with one immigrant parent.
(2) Mean hourly wage only for those employed

Table 2. Educational Attainment, Full Sample (Immigrants & Native Born)

	MEN	**WOMEN**
	Dependent Variable: Years of Schooling	
Immigrant	0.031 (0.2)	**-0.615 (3.9)**
Recent immigrant	-0.323 (1.6)	-0.160 (0.9)
Second generation	**1.059 (9.4)**	**0.782 (8.1)**
Only father immigrant	**-0.653 (3.9)**	**-0.539 (3.8)**
Only mother imm	**-0.487 (2.6)**	**-0.417 (2.7)**
Age	**0.271 (28.3)**	**0.148 (18.3)**
Age^2	**-0.0030 (32.2)**	**-0.0019 (24.8)**
Father's ed: some h.s.	**1.051 (11.9)**	**0.949 (13.0)**
High school	**1.374 (13.8)**	**1.431 (17.6)**
Postsecondary cert.	**1.950 (14.6)**	**1.905 (17.4)**
University degree	**2.438 (14.4)**	**2.314 (16.1)**
Degrees	**3.242 (16.1)**	**2.772 (16.3)**
Mother's ed: some h.s.	**1.024 (11.3)**	**1.006 (13.7)**
High school	**1.612 (16.7)**	**1.540 (19.3)**
Postsecondary cert.	**1.963 (16.2)**	**2.161 (22.0)**
University degree	**2.223 (11.5)**	**2.296 (13.4)**
Degrees	**2.226 (7.0)**	**2.888 (10.2)**
Atlantic	**-0.520 (6.2)**	**-0.484 (6.8)**
Quebec	**-0.258 (3.1)**	**-0.428 (6.1)**
Man/Sask	**-0.551 (6.1)**	**-0.370 (4.8)**
Alberta	**-0.452 (4.0)**	**-0.277 (2.8)**
British Columbia	**-0.445 (4.0)**	**-0.393 (4.2)**
Urban size: 0-29,999	**0.416 (5.5)**	**0.158 (2.4)**
30,000-99,999	**1.016 (10.3)**	**0.521 (6.4)**

100,000-499,999	**1.078 (11.9)**	**0.559 (7.3)**
500,000 or more	**1.323 (15.6)**	**0.559 (7.6)**
Constant	**5.451 (16.5)**	**8.860 (30.9)**
R^2/F	0.267/**229.6**	0.299/**305.1**
Sample size		

Notes: (1) Reports OLS regression coefficients and t-values in parentheses for years of schooling; reports ordered probit regression coefficients and asymptotic t-values in parentheses for education level; bold values indicate statistically significant coefficients at the 5% level.

(2) Base for generation is native born other than second generation (G3+); base for parents' education is less than high school; base for urban size is rural; base for region is Ontario.

Table 3. Educational Attainment with Ethnic Group Effects, Full Sample (Immigrants and Native Born)

	MEN	**WOMEN**
	Yrs of School	Yrs of School
Immigrant	0.231 (1.1)	**-0.412 (2.3)**
Recent imm	-0.201 (1.0)	-0.101 (0.6)
Second generation	**1.093 (9.3)**	**0.915 (9.1)**
Only father immigrant	**-0.677 (4.0)**	**-0.622 (4.4)**
Only mother immigrant	**-0.524 (2.8)**	**-0.557 (3.6)**
Ethnic Grp: British	**0.302 (3.8)**	**0.505 (7.5)**
French Canadian	-0.066 (0.8)	-0.088 (1.2)
U.S.	1.001 (1.3)	0.875 (1.3)
West Indian	0.366 (0.5)	0.079 (0.1)
Hispanic	-0.931 (1.4)	-0.306 (0.6)
Black	0.743 (1.6)	0.075 (0.2)
European	-0.032 (0.4)	**-0.252 (3.6)**
Arab	-0.196 (0.5)	**-0.836 (2.2)**
Jewish	**1.902 (2.8)**	**1.388 (2.2)**
West Asian	**-3.656 (2.6)**	**-3.638 (2.6)**
Indo-Pakistani	-0.242 (0.7)	-0.037 (0.1)
Non-Chinese Oriental	**-0.676 (2.3)**	0.161 (0.7)
Oceania	-0.639 (0.5)	2.359 (1.5)
Chinese	0.130 (0.5)	-0.418 (1.9)
Other	**-0.811 (2.5)**	-0.511 (1.8)
R^2/F	0.267/**147.2**	0.304/**197.7**
F-test for ethnic effect	**3.50**	**8.38**
Sample size	16,426	18,625

Notes: (1) See Table 2. Base for ethnic effects is "Canadian."

(2) Other regressors include age, father's education, mother's education, urban size, region, and a constant term as in Table 2. Results are comparable to Table 2 and are not reported here because of space considerations. A full set of results are available from the authors upon request.

Table 4. Models of Wages, Full Sample (Immigrants & Native Born) in Employment

	MEN	**WOMEN**
	Dep Var: Log Hourly Wage	
Immigrant	**-0.119 (4.1)**	**-0.127 (4.0)**
Recent immigrant	**-0.149 (5.0)**	**-0.094 (2.9)**
Second generation	-0.005 (0.3)	0.025 (1.3)
Only father imm	0.021 (0.8)	-0.021 (0.8)
Only mother imm	-0.001 (0.0)	-0.017 (0.6)
Age	**0.055 (14.0)**	**0.041 (13.3)**
Age^2	**-0.0006 (12.8)**	**-0.0005 (12.5)**
Yrs school	**0.042 (35.4)**	**0.063 (48.5)**
Experience	**0.017 (9.1)**	**0.015 (10.2)**
$Experience^2$	**-0.0002 (5.1)**	**-0.0001 (3.4)**
Atlantic	**-0.221 (17.6)**	**-0.169 (13.7)**
Quebec	**-0.116 (9.1)**	**-0.070 (5.3)**
Man/Sask	**-0.127 (9.3)**	**-0.078 (5.7)**
Alberta	-0.023 (1.3)	**-0.082 (4.9)**
B.C.	**0.055 (3.5)**	**0.056 (3.4)**
Urban size: 2	**0.035 (3.0)**	-0.007 (0.6)
3	**0.042 (2.9)**	0.023 (1.6)
4	**0.046 (3.4)**	**0.048 (3.6)**
5	**0.056 (4.3)**	**0.103 (8.0)**
Ethnic Grp: British	-0.016 (1.4)	0.008 (0.7)
French Canadian	-0.004 (0.3)	-0.022 (1.7)
U.S.	0.286 (1.3)	0.061 (0.5)
West Indian	**-0.256 (2.7)**	0.050 (0.5)
Hispanic	-0.038 (0.4)	**-0.185 (2.1)**
Black	**-0.141 (2.0)**	-0.082 (1.5)

European	-0.004 (0.3)	0.011 (0.9)
Arab	-0.013 (0.2)	0.120 (1.5)
Jewish	0.125 (0.7)	0.163 (1.2)
West Asian	-0.233 (1.2)	-0.136 (0.6)
Indo-Pakistani	**-0.147 (3.2)**	0.015 (0.3)
Non-Chinese Oriental	**-0.143 (3.6)**	**-0.084 (2.1)**
Oceania	**0.458 (3.0)**	0.440 (1.6)
Chinese	-0.056 (1.4)	0.018 (0.5)
Other	-0.091 (1.9)	-0.024 (0.5)
Constant	**1.091 (15.0)**	**0.819 (12.1)**
R^2/F	0.347/**136.8**	0.351/**141.6**
F (ethnic effects)	**3.16**	1.65
Sample size		

Notes: (1) Reports OLS regression coefficients and t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

Table 5. Models of Hours, Full Sample (Immigrants & Native Born) in Employment

	MEN	**WOMEN**
	Dep Var: Annual Hours Worked	
Immigrant	**158.6 (2.4)**	-30.7 (0.4)
Recent immigrant	54.3 (0.8)	-128.6 (1.9)
Second generation	-56.6 (1.4)	17.6 (0.4)
Only father imm	82.1 (1.4)	9.5 (0.2)
Only mother imm	-3.7 (0.1)	-16.6 (0.3)
Age	**189.2 (28.2)**	**127.7 (24.0)**
Age^2	**-3.0 (39.4)**	**-2.1 (34.8)**
Yrs school	**38.0 (15.3)**	**48.4 (16.9)**
Experience	**28.4 (8.3)**	**69.6 (24.6)**
Exp^2	**0.38 (5.3)**	**-0.77 (10.4)**
Other hhld income	**-0.005 (15.3)**	**-0.004 (15.9)**
Atlantic	**-192.0 (7.0)**	-50.8 (1.8)
Quebec	**-184.8 (6.5)**	**-228.3 (7.7)**
Man/Sask	**79.3 (2.7)**	**118.7 (3.8)**
Alberta	**120.8 (3.2)**	54.2 (1.4)
B.C.	**-109.0 (3.0)**	-41.5 (1.1)
Urban size: 2	**-96.9 (4.0)**	-8.0 (0.3)
3	**-126.8 (4.0)**	7.4 (0.2)
4	**-185.0 (6.3)**	47.4 (1.6)
5	**-183.8 (6.5)**	**69.9 (2.4)**
Ethnic Grp: British	-17.9 (0.7)	-47.3 (1.8)
Fr Canadian	-39.0 (1.4)	-25.9 (0.9)
U.S.	-381.4 (1.3)	-226.6 (0.7)
West Indian	30.3 (0.1)	39.2 (0.2)
Hispanic	139.9 (0.7)	196.1 (1.0)

Black	-214.4 (1.4)	191.6 (1.5)
European	**68.9 (2.6)**	13.3 (0.5)
Arab	76.1 (0.5)	-46.9 (0.3)
Jewish	**607.8 (2.3)**	-148.1 (0.6)
West Asian	-354.0 (0.8)	-83.2 (0.2)
Indo-Pakistani	**298.9 (2.9)**	**240.3 (2.2)**
Non-Chin Oriental	**239.4 (2.6)**	175.8 (1.9)
Oceania	-38.6 (0.1)	**-1171.5 (2.1)**
Chinese	**280.6 (3.2)**	-9.7 (0.1)
Other	78.0 (0.8)	-65.0 (0.6)
Constant	**-1609.9 (11.4)**	**-1506.9 (11.1)**
ln$\mathcal{L}$/LR	-88711/**12955**	-85888/**12638**
F (ethnic effects)	**2.64**	
Sample size		

Notes: (1) Reports maximum likelihood (Tobit) regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

Table 6. Models of Earnings, Full Sample (Immigrants & Native Born) in Employment

	MEN	**WOMEN**
	Dep Var: Log Annual Earnings	
Immigrant	-0.079 (1.2)	**-0.151 (2.2)**
Recent imm	**-0.186 (2.8)**	**-0.136 (2.0)**
Second generation	0.056 (1.4)	0.034 (1.0)
Only father imm	0.016 (0.3)	-0.036 (0.6)
Only mother imm	-0.089 (1.4)	-0.068 (1.1)
Age	**0.078 (12.0)**	**0.042 (7.7)**
Age^2	**-0.0010 (13.8)**	**-0.0006 (8.9)**
Yrs school	**0.051 (19.3)**	**0.070 (24.5)**
Experience	**0.025 (6.9)**	**0.032 (10.9)**
Exp^2	**-0.0003 (4.5)**	**-0.0004 (5.5)**
Weeks worked	**0.036 (51.3)**	**0.035 (57.3)**
Atlantic	**-0.136 (4.9)**	**-0.113 (4.1)**
Quebec	**-0.134 (4.7)**	**-0.133 (4.5)**
Man/Sask	**-0.191 (6.4)**	**-0.068 (2.3)**
Alberta	-0.005 (0.1)	-0.045 (1.2)
B.C.	0.026 (0.7)	-0.014 (0.4)
Urban size: 2	**0.083 (3.3)**	0.040 (1.6)
3	**0.084 (2.6)**	0.051 (1.6)
4	**0.107 (3.6)**	**0.159 (5.4)**
5	**0.169 (5.9)**	**0.190 (6.7)**
Ethnic Grp: British	-0.036 (1.4)	-0.019 (0.7)
French Canadian	0.032 (1.1)	-0.040 (1.4)
U.S.	-0.082 (0.3)	0.265 (0.9)
West Indian	-0.188 (0.8)	0.171 (0.8)

Hispanic	-0.402 (2.0)	0.030 (0.2)
Black	-0.261 (1.6)	0.040 (0.3)
European	-0.023 (0.9)	-0.008 (0.3)
Arab	-0.294 (2.0)	0.229 (1.4)
Jewish	-0.047 (0.2)	-0.125 (0.5)
West Asian	-0.133 (0.3)	-0.134 (0.3)
Indo-Pakistani	-0.158 (1.5)	0.140 (1.3)
Non-Chinese Oriental	-0.110 (1.2)	0.032 (0.4)
Oceania	0.311 (0.9)	-0.276 (0.5)
Chinese	-0.093 (1.0)	0.033 (0.4)
Other	-0.051 (0.5)	0.056 (0.5)
Constant	**1.091 (15.0)**	**6.151 (46.0)**
R^2/F	0.413/**219.2**	0.398/**195.6**
F (ethnic effects)	1.11	0.57
Sample size		

Notes: (1) Reports OLS regression coefficients and t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

Table 7. Models of Wages Adjusted for Sample Selection Bias

	MEN		**WOMEN**	
	Structural Eqn: Log Hourly Wage	Selection Eqn:Labour Force Participation	Structural Eqn: Log Hourly Wage	Selection Eqn:Labour Force Participation
Immigrant	**-0.136 (4.3)**	0.148 (1.5)	**-0.141 (4.4)**	**-0.299 (3.5)**
Recent imm	**-0.155 (4.8)**	0.091 (0.9)	**-0.108 (3.3)**	**-0.284 (3.3)**
G2	0.008 (0.4)	-0.095 (1.6)	0.025 (1.3)	0.019 (0.3)
Father imm	0.027 (0.9)	0.062 (0.8)	-0.018 (0.7)	0.043 (0.6)
Mother imm	-0.025 (0.8)	0.161 (1.8)	-0.011 (0.4)	0.099 (1.1)
Age	**0.035 (8.6)**	**0.075 (8.6)**	**0.047 (13.5)**	**0.092 (14.1)**
Age^2	**-0.0003(5.1)**	**-0.0015 (15.9)**	**-0.0006 (12.2)**	**-0.0017 (22.9)**
Yrs school	**0.037 (29.2)**	**0.033 (9.5)**	**0.065 (44.6)**	**0.048 (13.0)**
Experience	**0.014 (7.3)**	**0.014 (3.0)**	**0.018 (10.5)**	**0.062 (17.8)**
Exp^2	**-0.0003 (5.7)**	0.0002 (1.7)	**-0.0002 (4.2)**	**-0.0009 (9.6)**
Other Income ($,000)		**-0.010 (22.1)**		**-0.003 (8.8)**
Atlantic	**-0.226 (16.9)**	0.074 (1.9)	**-0.165 (13.1)**	0.069 (1.9)
Quebec	**-0.110 (8.0)**	-0.067 (1.7)	**-0.079 (5.8)**	**-0.187 (4.9)**
Man/Sask	**-0.117 (8.0)**	**-0.100 (2.3)**	**-0.073 (5.3)**	0.069 (1.7)
Alberta	-0.017 (0.9)	-0.104 (1.9)	**-0.084 (5.0)**	-0.036 (0.7)
B.C.	**0.049 (2.9)**	0.006 (0.1)	**0.053 (3.3)**	-0.067 (1.4)
Urban size: 2	0.003 (0.3)	**0.193 (5.6)**	-0.004 (0.3)	0.051 (1.6)
3	0.002 (0.1)	**0.241 (5.3)**	**0.029 (2.0)**	**0.097 (2.3)**
4	0.004 (0.3)	**0.303 (7.2)**	**0.057 (4.2)**	**0.172 (4.3)**
5	0.014 (1.0)	**0.310 (7.8)**	**0.112 (8.4)**	**0.179 (4.8)**
Ethnic Grp: British	-0.013 (1.0)	-0.022 (0.6)	0.007 (0.6)	-0.024 (0.7)

French Canadian	-0.005 (0.4)	-0.013 (0.3)	-0.022 (1.7)	-0.013 (0.3)
U.S.	**0.514 (2.4)**	**-1.377 (3.1)**	0.074 (0.6)	0.359 (0.8)
West Indian	**-0.294 (2.9)**	0.701 (1.9)	0.047 (0.5)	-0.122 (0.4)
Hispanic	-0.004 (0.0)	-0.128 (0.4)	-0.167 (1.9)	0.333 (1.2)
Black	-0.085 (1.1)	**-0.464 (2.3)**	-0.075 (1.4)	0.120 (0.8)
European	0.014 (1.1)	**-0.116 (3.1)**	0.010 (0.8)	-0.008 (0.2)
Arab	0.105 (1.4)	**-0.732 (3.9)**	0.096 (1.2)	**-0.402 (2.1)**
Jewish	0.230 (1.3)	**-0.864 (2.1)**	0.136 (1.0)	-0.520 (1.7)
West Asian	-0.212 (1.0)	-0.226 (0.4)	-0.127 (0.6)	0.095 (0.2)
Indo-Pakistani	**-0.141 (2.8)**	**0.313 (2.0)**	0.020 (0.4)	0.139 (1.0)
Non-Chinese Oriental	**-0.179 (4.1)**	**0.353 (2.4)**	-0.072 (1.8)	**0.249 (2.0)**
Oceania	**0.460 (2.8)**	-0.337 (0.7)	0.381 (1.4)	-0.930 (1.5)
Chinese	-0.035 (0.8)	-0.060 (0.5)	-0.021 (0.5)	-0.031 (0.3)
Other	-0.049 (1.0)	**-0.301 (2.2)**	-0.026 (0.5)	-0.063 (0.4)
Constant	**1.566 (20.1)**	**-0.438 (2.2)**	**0.655 (8.1)**	**-1.157 (6.8)**
λ (Inv Mills Ratio)	**-0.303 (25.3)**		**0.109 (3.6)**	
LR(independent eqns)	**182.83**		**9.19**	
ln$\mathcal{L}$/LR	-10004.0/**4036.3**		-11486.5/**4061.6**	
Sample size	14,659		17,180	

Notes: (1) Reports maximum likelihood regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

Table 8. Structural Models of Hours with Imputed Wages

	MEN	**WOMEN**
	Dep Var: Annual Hours Worked	
Immigrant	**180.5 (2.6)**	74.9 (1.1)
Recent imm	130.2 (1.9)	-46.3 (0.7)
G2	-56.3 (1.3)	-44.3 (1.0)
Father imm	48.9 (0.8)	51.0 (0.8)
Mother imm	1.5 (0.0)	6.7 (0.1)
Age	**158.4 (26.3)**	**99.4 (17.9)**
Age^2	**-2.4 (38.4)**	**-1.5 (24.6)**
Imputed log wage $\hat{W}$	**952.1 (14.9)**	**1430.4 (38..5)**
Other income N ($,000)	**-5.79 (15.7)**	**-4.87 (-17.6)**
Atlantic	-26.0 (0.8)	**178.9 (5.9)**
Quebec	**-97.2 (3.2)**	**-120.6 (3.9)**
Man/Sask	**222.6 (7.0)**	**240..3 (7.4)**
Alberta	**178.7 (4.7)**	**184.0 (4.7)**
B.C.	**-127.8 (3.4)**	**-95.2 (2.5)**
Urban size: 2	**-108.0 (4.3)**	-3.6 (0.1)
3	**-135.0 (4.1)**	-45.7 (1.4)
4	**-221.6 (7.3)**	-44.1 (1.4)
5	**-244.2 (8.4)**	**-85.8 (2.8)**
Ethnic Grp: British	0.1 (0.0)	-48.8 (1.8)
French Canadian	-41.4 (1.5)	22.3 (0.7)
U.S.	**-926.6 (2.9)**	-316.1 (1.0)
West Indian	259.6 (1.1)	-74.4 (0.3)
Hispanic	172.0 (0.8)	**426.7 (2.0)**
Black	-177.1 (1.2)	**283.4 (2.2)**
European	53.5 (1.9)	28.5 (1.0)

Arab	-159.2 (1.1)	-234.7 (1.5)
Jewish	365.3 (1.3)	-365.6 (1.4)
West Asian	-300.1 (0.7)	123.9 (0.2)
Indo-Pakistani	**360.8 (3.3)**	106.5 (0.9)
Non-Chinese Oriental	**291.8 (3.0)**	**275.5 (2.9)**
Oceania	-443.3 (1.2)	**-1637.8 (2.9)**
Chinese	**179.9 (2.0)**	19.6 (0.2)
Other	113.9 (1.1)	-24.8 (0.2)
Constant	**-3209.3 (19.8)**	**-3624.7 (26.3)**
ln$\mathcal{L}$/LR	-89199/**11979**	-86263/**11887**
Sample size	14537	17043
Censored Observations (H=0)	4091	9882

Notes: (1) Reports maximum likelihood (Tobit) regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.
(2) Imputed wage calculated for all sample respondents from coefficient estimates in Table 7.

Table 9. Models of Earnings Adjusted for Sample Selection Bias

	MEN		**WOMEN**	
	Dep Var: Log Annual Earnings	Selection Eqn:Labour Force Participation	Dep Var: Log Annual Earnings	Selection Eqn:Labour Force Participation
Immigrant	-0.099 (1.8)	0.113 (1.2)	**-0.118 (2.0)**	**-0.305 (3.5)**
Recent imm	**-0.158 (2.8)**	0.076 (0.8)	-0.114 (2.0)	**-0.304 (3.5)**
G2	0.035 (1.0)	-0.083 (1.5)	0.014 (0.4)	0.006 (0.1)
Father imm	0.000 (0.0)	0.031 (0.4)	-0.009 (0.2)	0.056 (0.7)
Mother imm	-0.062 (0.1)	0.144 (1.7)	-0.044 (0.9)	0.110 (1.3)
Age	**0.027 (4.0)**	**0.068 (8.4)**	**0.041 (6.6)**	**0.090 (13.7)**
Age^2	-0.0001 (0.7)	**-0.001 (15.5)**	**-0.0005 (6.7)**	**-0.002 (22.5)**
Yrs school	**0.035 (16.1)**	**0.025 (7.6)**	**0.067 (25.9)**	**0.049 (13.2)**
Experience	**0.027 (8.1)**	**0.009 (2.0)**	**0.034 (11.3)**	**0.063 (18.0)**
Exp^2	**-0.0006(7.7)**	**0.0002 (2.4)**	**-0.0004 (4.9)**	**-0.0009 (9.7)**
Wks worked	**0.028(40.2)**	**0.036 (51.3)**	**0.040 (56.9)**	
Other income ($,000)		**-0.001 (27.4)**		**-0.003 (9.9)**
Atlantic	**-0.278(11.9)**	-0.065 (1.7)	**-0.127 (5.6)**	0.053 (1.5)
Quebec	**-0.178 (7.4)**	-0.073 (1.9)	**-0.126 (5.2)**	**-0.184 (4.8)**
Man/Sask	**-0.161 (6.3)**	**-0.112 (2.8)**	**-0.101 (4.1)**	0.066 (1.6)
Alberta	-0.031 (1.0)	**-0.108 (2.1)**	**-0.076 (2.5)**	-0.059 (1.2)
B.C.	**-0.060 (2.0)**	0.022 (0.4)	-0.05 (0.2)	-0.062 (1.3)
Urban size: 2	0.005 (0.3)	**0.167 (5.1)**	0.005 (0.3)	0.062 (1.9)
3	-0.039 (1.5)	**0.215 (5.0)**	0.030 (1.2)	**0.115 (2.7)**
4	-0.044 (1.8)	**0.267 (6.7)**	**0.106 (4.3)**	**0.182 (4.6)**
5	-0.028 (1.2)	**0.251 (6.6)**	**0.155 (6.5)**	**0.190 (5.1)**
Ethnic Grp: British	-0.019 (0.9)	-0.012 (0.3)	-0.003 (0.1)	-0.033 (1.0)

French Canadian	0.003 (0.1)	00.001 (0.0)	-0.012 (0.5)	-0.010 (0.3)
U.S.	**0.702 (2.0)**	**-1.249 (2.8)**	0.228 (1.0)	0.363 (0.8)
West Indian	-0.236 (1.3)	-0.468 (1.4)	0.020 (0.1)	-0.107 (0.4)
Hispanic	-0.027 (0.2)	-0.042 (0.2)	-0.025 (0.2)	0.344 (1.2)
Black	0.005 (0.0)	**-0.399 (2.0)**	-0.086 (0.9)	0.136 (0.9)
European	0.035 (1.5)	**-0.089 (2.5)**	-0.008 (0.4)	-0.006 (0.2)
Arab	0.030 (0.2)	**-0.566 (3.1)**	0.252 (1.7)	**-0.382 (2.0)**
Jewish	0.370 (1.3)	**-0.818 (2.0)**	0.276 (1.1)	-0.493 (1.6)
West Asian	-0.446 (1.3)	0.240 (0.4)	-0.214 (0.5)	0.125 (0.2)
Indo-Pakistani	-0.107 (1.2)	**0.353 (2.4)**	0.121 (1.4)	0.163 (1.2)
Non-Chinese Oriental	**-0.183 (2.4)**	0.203 (1.5)	0.034 (0.5)	**0.271 (2.2)**
Oceania	0.314 (1.1)	-0.308 (0.7)	**-1.265 (2.6)**	-0.896 (1.5)
Chinese	0.005 (0.1)	-0.105 (0.9)	-0.062 (0.9)	-0.088 (0.8)
Other	-0.015 (0.2)	**-0.298 (2.2)**	0.001 (0.0)	-0.037 (0.3)
Constant	**7.879(59.4)**	-0.285 (1.6)	**6.019 (42.6)**	**-1.138 (6.7)**
λ (Inv Mills Ratio)	**-0.665(47.1)**		-0.012 (0.3)	
LR(independent eqns)	**760.2**		0.1	
lnℒ/LR	**-14267/4586**		**-16699/5961**	
Sample size	14,659		17,180	

Notes: (1) Reports maximum likelihood regression coefficients and asymptotic t-values in parentheses; bold values indicate statistically significant coefficients at the 5% level.

General Information

• What are PCERII Working Papers?
PCERII's working paper series is related to the broad mandate of the Metropolis Project. This initiative is designed to: (1) speed up the dissemination of research results relevant to the interests and concerns of Metropolis researchers, policy-makers, NGOs; (2) fulfill a commitment made in the application to SSHRC/CIC for a renewal grant for the Prairie Centre; and (3) populate the Virtual Library on the PCERII web site.

• Will these be considered "official" publications?
The inclusion of a manuscript in the working paper series does not preclude, nor is it a substitute for its subsequent publication in a peer reviewed journal. In fact, we would encourage authors to submit such manuscripts for publication in professional journals (or edited books) as well.

• What subject content is acceptable?
The Working Paper Series welcomes research reports and theoretical discussions relevant to the mandate of the Metropolis Project, providing insight into the policy concerns not only of immigration and integration, but also ethnocultural diversity. Examples of these areas include: socioeconomic, political, cultural, and educational integration of migrants and refugees; impacts on the host society; language; transnationalism; spatial distribution; gender roles and family; ethnic, cultural, and religious diversity; multiculturalism; media and communication; social cohesion-inclusion; racism and discrimination-exclusion; employment equity-anti-discrimination; youth; identity; citizenship; temporary migration; immigration and demographic planning; justice and security; settlement programs and policy; and population health.

• Who may submit papers?
Paper submissions are open to Metropolis researchers, policy-makers and service providers. Submissions from non-affiliates will be examined on a case-by-case basis.

• How do I submit a paper?
All submissions must include an electronic copy of the paper.
By post please send a hard copy of your paper and an electronic copy on disk or via email to:

Editor, Working Paper Series
Prairie Centre of Excellence for Research on Immigration and Integration
1-17 Humanities Centre, University of Alberta
Edmonton, AB T6G 2E5 Canada
By email please send to: lenise@ualberta.ca with a subject heading of:
Working Paper Series Submission

• What happens when I submit a paper?
The Prairie Centre will acknowledge receipt of the paper via email within 10 working days. The series editors will review your submission to ensure that it falls within the mandate of the Metropolis Project and that it is properly referenced and documented. If these standards are met, the paper will then be referred to the appropriate Domain Leader for review and advice. Once the review is completed the author will be contacted with the results. Note: Authors of papers accepted for inclusion in the PCERII Working Papers Series may be asked to make revisions, in which case they will be asked to provide the Centre with 2 hard copies of the final version of the paper and an electronic copy.

For format and style guidelines please visit PCERII web site at:
http://pcerii.metropolis.net/WorkingPapers/index.htm

Back issues of the PCERII Working Paper Series
are available from the Prairie Centre
for $5.00 a copy.

Please contact the Prairie Centre at
1-17 Humanities Centre, University of Alberta,
Edmonton, AB T6G 2E5 Canada.
Tel: (780) 492-0635; Fax: (780) 492-2594;
Email: lenise@ualberta.ca