The Long-Term Economic Benefits of Refugee Private Sponsorship

Lisa Kaida [a*], Feng Hou[b], and Max Stick[c]

[a]*Department of Sociology, McMaster University*

[b]*Social Analysis and Modelling Division, Statistics Canada*

[c]*Department of Sociology, McMaster University*

Abstract: Private refugee sponsorship has been an important Canadian policy initiative for 40 years. It is now attracting international attention as Europe grapples with the influx of refugees. However, no Canadian research has evaluated the long-term economic effects of private sponsorship using rigorous multivariate analysis. This study compares the economic outcomes of Privately Sponsored Refugees (PSRs) with those of Government-Assisted Refugees (GARs) using the Longitudinal Immigration Database, administrative data on virtually all immigrants and refugees who have arrived in Canada since 1980. Our regression analysis finds PSRs maintain higher employment rates and earnings than GARs up to 15 years after arrival when measurable compositional differences between the two groups are adjusted. The PSR advantage is particularly noticeable among less educated refugees. The findings suggest unmeasured factors (e.g. effectiveness of settlement policies, refugee selection processes, societal or community reception of refugees) may partly explain PSRs' relative economic advantage over time.

Introduction

The timely economic integration of refugees is a pressing policy issue for Western democracies, with refugees arriving *en masse* from the Middle East, West Asia and Africa. Most immigrants are accepted on the basis of economic merit, but refugees are admitted for humanitarian reasons. Many lack host country language skills and/or postsecondary education and thus struggle to achieve economic independence. As finding employment and earning an income is often perceived as the first step to full participation in the host society, refugee economic integration is essential from a social policy perspective (Hynie, Korn, and Tao 2016).

One refugee integration policy attracting international attention is Canada's private sponsorship. It has played a key role in the country's responses to various international refugee crises, from Southeast Asian "boat people" in 1979-1981 to recent Syrian refugees. Created in 1978, Canada's private sponsorship is a "privately funded" refugee programme (Treviranus and Casasola 2003, 181). Sponsors, such as churches, other faith groups, ethnic organizations, and groups of individuals, take in refugee applicants of their choice or refugees approved by visa officers. The sponsors are responsible for providing financial, material, and personal support to refugees during their first year in Canada or until they become self-sufficient. Although private sponsorship is one of the two main refugee admission/integration programmes (the other is government assistance), empirical evidence of its economic impact is limited (Beirens and Ahad 2018; Kumin 2015). Nor do we know if the economic impact of private sponsorship differs according to the refugees' initial levels of human capital.

To fill this gap, this paper evaluates the short- and long-term economic outcomes of private sponsorship of refugees with various human capital levels. We have two main research questions. First, are the economic advantages of private sponsorship of refugees, relative to government-assisted resettlement, limited to the initial period of resettlement? Or do they extend into a long-term resettlement process? Second, does the economic impact of private sponsorship vary by the initial levels of human capital (official language skills and education) of refugees? We answer these questions by drawing on the Longitudinal Immigration Database (IMDB), administrative data that contain the landing and annual tax records of virtually all immigrants/refugees who arrived in Canada in 1980 and onwards.

This paper makes three contributions to the literature. First, by using multivariate analysis, we compare the economic outcomes of Privately Sponsored Refugees (PSRs) with

those of Government-Assisted Refugees (GARs) while controlling for the differences in their measurable demographic, socioeconomic, and contextual characteristics. This allows us to better assess the economic benefit of private sponsorship as an immigrant integration policy than the previous research, which mostly uses simple bivariate analysis.

Second, this is the first study to examine the interaction effect of admission categories (PSR vs GAR) by refugees' initial human capital. It considers the reality that refugees are a heterogeneous population, with varying degrees of educational attainment and host country language skills at the time of arrival. Programmes like private sponsorship and government assistance may facilitate refugees' economic integration differently depending on their initial human capital level. Policies can potentially be tailored to target sub-groups of refugees who would benefit more from private sponsorship or government assistance to achieve their economic mobility quickly.

Third, the study makes a timely contribution to the refugee integration policy internationally, as a number of Western nations are grappling with the sudden need to integrate tens of thousands of refugees. By providing empirical evidence of the economic outcomes of private sponsorship for refugees, the study will help policy makers make informed decision on refugee integration.

An Overview of Refugee Economic Integration

It is widely acknowledged that refugees do less well in the host country labour market than those who immigrate through other streams like economic immigration (Bevelander 2016; Constant and Zimmermann 2005a, 2005b). While some of the factors contributing to the labour market disadvantage of refugees apply to other immigrants (e.g. limited host country language skills,

lack of host country work experience, non-recognition of foreign credentials), other factors are specific to refugees, such as physical and mental health issues related to their traumatic experiences of displacement and life in refugee camps, the lack of legal documents, and long-term disruptions in education and career (Bruno 2011; Hynie, Korn, and Tao 2016; Krahn et al. 2000; Neupane 2012; van Selm 2003).

In Canada, the main findings on refugee economic integration are threefold. First, refugees fare less well during the initial resettlement period than economic immigrants, who are admitted to Canada based on their human capital (e.g. education, language skills, occupations), but refugees' economic outcomes are comparable to those of family class immigrants admitted for family reunification (Aydemir 2011; Bevelander and Pendakur 2014; Hiebert 2009; Hyndman 2011; Yu and Dempsey 2004).

Second, despite their initial disadvantage, refugees quickly catch up with other immigrants. Male and female refugees achieve 7-11% and 8-12% growths in median annual earnings, respectively, within the first 10 years in Canada – the highest growth rate of all admission categories (Abbot and Beach 2011). That said, however, refugees' initial disadvantage is so large that it takes them 12-18 years to reach the median earnings of all immigrants.

Third, both female and male refugees face an uphill battle in economic mobility, but the extent of the disadvantage varies, depending on economic measures and comparison groups. In his analysis of immigrants who landed in Vancouver between 1989 and 2004, Hiebert (2009) finds the employment rate of male refugees in 2005 is comparable to that of male family class immigrants (65%) but much lower than that of skilled worker immigrants (75%). In contrast, female refugees are much more likely to earn an employment income (62%) than their family class counterparts (56%). Wilkinson and Garcea (2017) also demonstrate female refugees are

less likely to hold temporary jobs than family immigrants (23% and 29%, respectively), whereas male refugees are more likely to do so than their family class counterparts (25% and 19%, respectively).

While we analyse the IMDB data as have previous studies (e.g. Abbott and Beach 2011; Dhital 2015; Hiebert 2009; Mata and Pendakur 2017), our focus is on the heterogeneity within refugees by admission category. Rather than limiting the study to a specific entry cohort and tracking the outcomes of only the first few years in Canada, we include all cohorts who landed between 1980 and 2009 and trace their outcomes up to 2015. This allows us to estimate the economic outcomes for up to 15 years.

An Advantage of Private Sponsored Refugees?

While the relative economic disadvantage of refugees is well known, little research has explored the within-group differences in refugee economic outcomes, especially between different admission categories. This study focuses on two longstanding refugee categories in Canada, Privately Sponsored Refugees (PSRs) and Government-Assisted Refugees (GARs) and examines whether PSRs fare better than GARs, as suggested by previous research.

Although the private sponsorship of refugees had been ongoing for many years, the *Immigration Act* formally ushered in Canada's private sponsorship in 1978 (Macklin et al. 2018). This programme increased the number of refugees who could be admitted to Canada, offsetting government budgetary constraints by harnessing the private resources of citizens and groups. It allowed Canadians to get involved in the resettlement process by volunteering their financial and emotional support (Lenard 2016). Sponsors are restricted to groups of five or more people, organizations, or sponsorship agreement holders, particularly religious groups (Lanphier 2003).

The private sponsorship programme is a vital component of Canada's refugee policy, resettling over 225,000 refugees since 1979 (Labman 2016).

Although limited in scope, empirical evidence on the economic integration of PSRs suggests these refugees achieve "slightly quicker self-sufficiency" than GARs, finding employment more quickly and earning more during the first 10 years in Canada (Wilkinson and Garcea 2017, 17). PSRs' employment rates are higher during the very initial resettlement stage. An analysis of refugees admitted to Canada between 2002 and 2012 shows only 40% of GARs had employment one year after arrival, compared to 70% of PSRs (IRCC 2016). However, the PSR-GAR gap narrowed over time; by year 10, the employment rates almost converged, 58% for PSRs and 54% for GARs.

Other studies show PSRs' higher earnings/incomes over GARs for up to the first seven years in Canada (Beiser 2003; Bevelander and Pendakur 2014; DeVoretz, Pivnenko, and Beiser 2004; Mata and Pendakur 2017; Sweetman and Warman 2013; Yu and Dempsey 2004). However, whether this advantage persists in the longer term is unclear, and findings are mixed. The Immigration, Refugees and Citizenship Canada's analysis of the Longitudinal Immigration Database finds the gaps in employment earnings between the PSRs and GARs who arrived between 2002 and 2012 diminish after the 10-year mark (IRCC 2016). At this point, the mean employment earnings of PSRs and GARs are $33,000 and $32,000, respectively.
By contrast, an analysis of the IMDB data (aggregated by age, birthplace, and landing year) by Mata and Pendakur (2017) finds while both PSRs and GARs start with notably low earnings compared to economic and family class immigrants, PSRs experience steeper earnings growths than GARs. By the 19th year in Canada, PSR men and women are estimated to have annual

earnings of $62,000 and $45,000, respectively - several thousand dollars higher than their GAR counterparts.

Despite such generally positive evidence and growing international reputation of Canada's private sponsorship as a "shining example" of community-based refugee resettlement, multivariate analysis on the economic outcomes of PSRs using individual-level data is limited (Fratzke 2017, 1). Most assessments use simple descriptive statistics for a shorter period of resettlement (e.g. first 10 years after arrival). These high-level overviews do not fully consider the differences between PSRs and GARs in human capital or demographic and contextual characteristics (Jedwab 2018). While this study uses the IMDB like the aforementioned past studies (Abott and Beach; 2011; IRCC 2016; Dhital 2015; Mata and Pendakur 2017), it improves upon them by conducting multivariate analysis of the individual-level records from the IMDB. This allows us to track individual refugees' economic outcomes longitudinally while controlling for a number of measurable characteristics available in the IMDB.

In comparing the outcomes of PSRs and GARs, we adopt an emerging theoretical perspective that the migration type is a key source of inequality, contributing to divergent patterns of immigrant incorporation (Vertovec 2007). This perspective posits immigrants from different admission categories move to a new country with "different motivation for migration, pre-migration circumstances, selection process, legal status, and host country receptivity" (Hou and Bonikowska 2016) In this regard, the motivation of PSRs and GARs is similar; both are forced out of the home country by war, political persecution, or violence, seeking protection and a safe space to rebuild their lives in Canada. Moreover, GARs and PSRs have the same legal status; they are granted permanent resident status upon arrival in Canada (European Commission 2018).

However, PSRs and GARs may differ in other characteristics related to pre-migration circumstances, selection processes, and host country receptivity, which may partially account for the divergent trajectories of economic integration between the two refugee groups. Using the IMDB data, we are able to consider differences in measurable characteristics related to host country receptivity, as well as human capital and migration-related characteristic, between PSRs and GARs.

As a result of different resettlement policies, PSRs and GARs may be in different economic contexts of reception, which may influence their varied economic integration. GARs tend to settle in smaller cities which are part of the designated communities, where they are entitled to receive the Resettlement Assistant Program (RAP) services (CIC 2011). By contrast, PSRs are more likely to settle in larger cities, even though individuals or organizations across the country can volunteer to sponsor government approved refugees or refugees of their choice. Although some refugees quickly depart the initial destination of resettlement, undergoing secondary migration, variations in the geographic distributions of PSRs and GARs persist. An analysis of the 2016 Census data by Jedwab (2018) finds 60% of PSRs who arrived in Canada after 1980 lived in the three largest gateway cities, Toronto, Montreal, and Vancouver, in 2016, while only 43% of GARs did so. Relatedly, the larger cities tend to have more economic opportunities compared to smaller non-gateway cities, where local economy is often stagnant. As such, PSRs may be more likely to live in a place with lower unemployment rates than GARs.

Variations in human capital profiles of PSRs and GARs may also partially account for their varied economic integration. Studies show that among refugees from a specific entry cohort, GARs tend to have lower education than PSRs (Houle 2019; IRCC 2016;). For example, Jedwab (2018) finds that while 17% of PSRs who arrived in Canada between 2011 and 2016

have some postsecondary degrees, only nine percent of GARs do so. With higher education, PSRs may be more likely to return to school and upgrade their skills in the host country, which may also account for their economic advantage over GARs. By contrast, there is no consistent pattern in the host country language skills between these two refugee groups, which can vary depending on the entry cohort and origin country. Among the refugees who arrived in Canada between 2011 and 2016, PSRs were more likely to know English or French than their GARs counterparts at the time of arrival (38% for PSRs; 26% for GARs) (IRCC 2016). Meanwhile, a study of refugees who landed in Canada between 2015 and 2016 by Houle (2019) shows the percentages of GARs and PSRs (excluding those from Syria) with the knowledge of English or French in 2016 were comparable, 67% and 68%, respectively. The researcher contextualizes the outcomes, pointing out that many of the non-Syrian refugees who settled in Canada between 2015 and 2016 came from countries where English or French is the official or national language, such as the Democratic Republic of Congo and Eritrea.

Further, PSRs and GARs vary in their migration-related characteristics, such as origin region, age at migration, and period of migration, which may also account for their divergent economic outcomes (Picot et al., 2019; Levitz 2016). Jedwab (2018) finds that those from Africa and Americas are overrepresented among the GARs who landed in Canada between 1980 and 2016 compared to their PSR counterparts. Conversely, the proportion of PSRs from Asia and Europe is higher than that of GARs from these regions.

Admittedly, these contextual, human capital, and migration-related characteristics are far from a complete list of variables that can account for the differences in economic outcomes between PSRs and GARs. Unmeasured differences in their pre-migration circumstances (e.g. experience in refugee camps, length of dislocation), selection process (e.g. measurement of

"vulnerability" in selecting GARs), receptivity (e.g. welcoming or unwelcoming community), and other characteristics (e.g. health) are at least partially attributable to the remaining gaps in economic outcomes between the two refugee groups when their differences in socio-demographic characteristics measured in this study are taken into account. .

We also consider the possibility of interaction effects of refugee admission category and human capital, as refugees are a socioeconomically diverse group (Houle 2019; IRCC 2016; Jedwab 2018; Picot et al. 2019). On the one hand, refugees with high human capital (e.g. highly educated, proficient in English/French) may be more self-sufficient and able to achieve economic success with little sponsor support (Nakhaie 2018). On the other hand, refugees with limited human capital may benefit more from private sponsorship, as their deficit in human capital can be compensated for by the support from their sponsors. If we observe differential economic impacts of private sponsorship based on refugees' human capital, the current private sponsorship programme, which does not take refugees' human capital into account, could be revised to prioritize the sponsoring of refugees with little education and limited English/French skills.

Based on the above discussion, we derive three hypotheses and test them using the IMDB data.

> Hypothesis 1: Privately Sponsored Refugees are more likely to be employed and earn more than Government-Assisted Refugees both in the short term (less than five years) and the long term (15 years) when their demographic, socioeconomic, and contextual characteristics are controlled.

Hypothesis 2: The employment and earnings advantages of Privately Sponsored Refugees over Government-Assisted Refugees are greater for less educated refugees (e.g. less than high school) than the highly educated (e.g. bachelor's or above degrees).

Hypothesis 3: The employment and earnings advantages of Privately Sponsored Refugees over Government-Assisted Refugees are greater for those with limited host country language skills than those with higher host country language skills.

Data/Methods

Data

We analyse the Longitudinal Immigration Database (IMDB), which contains landing records and annual tax records of immigrants who arrived in Canada in 1980 and onward. Those who filed taxes at least once since 1982 are included in the data. The IMDB is virtually a 100% sample of immigrants who landed over the past 35 years and filed taxes in Canada (Hou and Bonikowska 2016).

The sample consists of individuals who landed in Canada as Privately Sponsored Refugees (PSRs) or Government-Assisted Refugees (GARs) at age 20-54 between 1980 and 2009. Other categories of refugees (e.g. in-Canada asylum seekers, refugee dependents, Blended Visa Office-Referred refugees) are not included because of small sample sizes and stark differences in characteristics which would make the comparison difficult. PSRs and GARs from the US, Northern/Western Europe, and Oceania (e.g. Australia, New Zealand) and stateless individuals are also excluded because of small sample sizes.

Measures

We use two dependent variables to study the economic integration of refugees: 1) employment; and 2) employment earnings in a specific year since landing. Employment is an indicator of "self-sufficiency or [..] steps that will lead to gainful work" (Beiser 2003, 209). Give that the direct measure of employment status is unavailable in the IMDB data, we consider earnings an annual employment income (including wages and salaries) over $1,000 in a specific tax year as being employed in that year (coded 1). In turn, those who had an employment income below $1,000 or had no employment income are coded 0. The earnings (including wages and salaries) reflect the combined effect of total hours of work in a particular year and hourly wages (Hou and Bonikowska 2016). We select this variable because better paying employment may allow refugees to participate more fully in the host society (Hynie, Korn, and Tao 2016). This is a continuous variable adjusted to the 2015 Consumer Price Index but is top coded at $300,000CDN to prevent the higher income values from skewing the distribution. For our multivariate analysis, we use logged earnings values.

The first focal independent variable is the refugee admission category, with two groups, Privately Sponsored Refugees and Government-Assisted Refugees (the reference group). The second independent variable is years since landing (YSL). The first two years are treated as dummy variables, and years three and onward are coded as a continuous variable. We do so because previous studies find notable differences in employment and earnings between GARs and PSRs in the first two years after arrival (IRCC 2016; Mata and Pendakur 2017). Our descriptive statistics (Figures 1 and 2) confirm that the differences between PSRs and GARs in employment and earnings are notably large in year 1, shrink in year 2, and remain stable or

gradually decrease at that point. Note that treating the YSL variable as a linear (and quadratic) term does not adequately fit the observed employment and earnings trajectories of refugees. We confirm this in a F-test between a model where the YSL is treated as a continuous variable from year 1 and onward and Model 1 which controls for admission categories, y1 and y2 dummies, a linear YSL term (for year 3 and onward), and its quadratic term (results are available upon request).

[Figures 1 and 2 about here]

We also control for demographic and socioeconomic characteristics at the time of landing that are expected to influence subsequent economic outcomes: the highest level of education obtained before landing (less than high school, high school diploma/trade certificate, some post-secondary education, bachelor's or higher degree); knowledge of official languages (English and/or French; neither English nor French); age at landing (20-29; 30-39; 40-49; 50-54); region of origin (South and Central America and Caribbean; Eastern Europe; Southern Europe; Africa; Middle East and West and Central Asia; Southeast Asia; other Asia); and entry cohort (landed in 1980-1984;1985-1989; 1990-1994; 1995-1999; 2000-2004; 2005-2009).[1, 2]

In addition, we control for three time-varying variables: place of residence (Montreal; Vancouver; Toronto; medium-sized Census Metropolitan Areas, other small Census Metropolitan Areas; small urban or rural areas; no place information); unemployment rates (for males aged 25-64) in the refugee's province of residence in a specific tax year; and the number of months in school during a specific year as full-time students. Note that the values of these variables can vary in each year.

Analytical Technique

We adopt Ordinary Least Square (OLS) regression models to examine whether the economic advantage of Privately Sponsored Refugees over Government-Assisted Refugees persists after controlling for the length of residence in Canada. To test Hypothesis 1 (the benefit of private sponsorship over time), we estimate the following model:

$$Y=\beta_{type}*TYPE_j + \beta_{ysl}*YSL + \beta_{ysl2}*YSL^2 + \beta_{tysl}*TYPE_j*YSL + \beta_{tysl2}*TYPE_j*YSL^2 + \beta_{tyed}*HC + \beta_{yslco}*YSL*COHORT + \beta_{ysl2co}*YSL^2*COHORT + \Sigma\beta*X + \beta_u*U_y + e \quad \text{– Model 1}$$

Y signifies the dependent variable, employment status or earnings. Since the employment status variable is dichotomous, we adopt linear probability models, treating the variable as continuous. We choose the linear probability model over the logistic regression model, as the interaction effects in logistic models cannot be easily interpreted (Picot and Hou 2011). Results from these two models are similar in their coefficients and statistical significance.

YSL indicates years since landing (including years 1 and 2 dummies and a linear term for year 3 and onward). The $TYPE_j$ variable represents the refugee admission category, and HC refers to the human capital variables of the highest level of education and knowledge of official languages. One of the control variables, period of landing in Canada (COHORT), is interacted with YSL because refugees' economic outcomes may vary by entry cohort (Picot et al. 2019). This is a common approach in regression models predicting immigrant economic outcomes. Finally, *X* represents other individual-level control variables (e.g. age at landing, region of origin, place of residence), and U_y stands for the time-varying variables of regional unemployment rates, number of months in full-time schooling, and place of residence.

To test Hypotheses 2 and 3 (economic impact of private sponsorship by level of human capital), we include a three-way interaction among refugee admission categories, YSL, and the highest level of education (for Hypothesis 2) and among admission categories, YSL, and the knowledge of official languages (for Hypothesis 3).

$$Y=\beta_{type}*TYPE_j + \beta_{ysl}*YSL + \beta_{ysl2}*YSL^2 + \beta_{tyed}*HC + \beta_{tysl}*TYPE_j*YSL + \beta_{tysl2}*TYPE_j*YSL^2 + \beta_{hcsl}*HC*YSL + \beta_{hcsl2}*HC*YSL^2 + \beta_{tyhc}*TYPE_j*HC+\beta_{hctysl}*HC*TYPE_j*YSL + \beta_{hctysl2}*HC*TYPE_j*YSL^2 + \beta_{yslco}*YSL*COHORT + \beta_{ysl2co}*YSL^2*COHORT + \Sigma\beta*X + \beta_u*U_y + e \text{ --- Model 2}$$

As the above equation shows, we add two-way interaction terms between human capital and refugee admission categories, human capital and YSL and three-way interaction terms among human capital, refugee admission categories, and YSL to Model 1.

All the models are run separately for female and male refugees. We calculate cluster-robust standard errors for the regression models to consider the clustering of data at the province (for the unemployment rate variable) and year (for refugee person-year data) levels. The use of robust standard errors allows us to correct for autocorrelation among the repeated observation of the same immigrant. The person-year data contain 3,345,239 cases (men) and 2,468,735 cases (women) for the analysis of employment. The comparable numbers for the earning analysis (limited to the employed, defined as those who had an annual employment income of $1,000 or more in a specific tax year) are 2,637,550 and 1,565,625 for men and women, respectively.

Results

A first look

We begin our analysis with the observed employment and earnings outcomes by the refugee admission category for men and women. Figure 1 displays the employment rates (mean probabilities of employment) for GAR and PSR women and men by each year since landing. We observe the notably high employment rates of PSRs (89% and 69% for men and women, respectively) in the first year after landing – 19 and 25 percentage points higher than their GAR counterparts, for men and women, respectively. PSRs' employment rates drop in the next two years but remain high. After the initial drop, men's employment rates hover around 80% throughout their first 15 years; women's employment rates slightly drop to 64%, then incrementally rise over time. This is the opposite of the general pattern of immigrants, whose employment rates tend to be low upon landing and rise over time (Chui and Tran 2005).

The considerable drop in the employment rate among PSRs may reflect several possibilities. Some jobs they found with the sponsor's help may have been short-term and terminated when the sponsor's formal commitment ended. Some PSRs may have taken up jobs just because the sponsor made them self-sufficient as quickly as possible, but they might dislike the job and quit it soon after the sponsor commitment was over. Thus, PSRs' high employment rates may reflect private sponsors' high expectation for their quick economic independence before the sponsor agreement typically ends by the end of the 12th month after their arrival. Ending the sponsorship in a year may help release sponsorship funds for the next wave of refugees, who may be the family members or relatives of the PSRs left behind in a refugee camp or home country.

Conversely, the very low employment rate of GARs in the first year is not surprising. During their first year in Canada, GARs receive income support from government, allowing them to improve their official language skills. As such, their priority may be on improving host country language, rather than finding employment. After the first two years, GARs, especially female GARs, rapidly catch up with PSRs with time in Canada. The initial PSR-GAR gap among women steadily decreases throughout the first 15 years. For men, the gap stabilises at around four to five percentage points until year 14. Overall, PSRs' higher employment rates persist for a long time.

Figure 2 shows mean annual earnings for PSRs and GARs by gender in years 1-15 after landing. The observed earnings steadily rise for both PSRs and GARs each year, a sign of upward economic mobility. The PSRs' earnings advantage quickly stabilize at around $2,000 and $1,000 for men and women, respectively. Even though their advantage fluctuates over time, PSRs earn more than GARs throughout the first 15 years.

The results from Figures 1 and 2 are observed outcomes, without adjusting for the differences in the observed characteristics between PSRs and GARs. However, as Table 1 demonstrates, there are some stark differences. Those from Eastern Europe (especially Poland) are overrepresented among PSRs (43% and 39% of men and women, respectively), whereas the percentage of refugees from South and Central America and Caribbean is notably high among GARs (over 10%).[3] Moreover, those with less than high school education are overrepresented among GARs (53% and 65% for men and women, respectively). Further, PSRs are concentrated in the 1985-1994 cohort (comprising 62% and 57% of all male and female PSRs), whereas the GARs' arrival periods are evenly distributed. Finally, 40% of PSRs initially settled in Toronto, whereas comparable percentages of GARs went to smaller metropolitan areas (e.g. Ottawa,

Calgary). These group differences in demographic and socioeconomic characteristics may partially explain the higher employment probability and earnings of PSRs than GARs. In the next section, we use multivariate analysis to determine whether PSRs' higher employment probabilities and earnings than GARs' can be explained by these group differences.

[Table 1 about here]

Short- and long-term economic outcomes of GARs and PSRs

We run OLS regression models predicting employment (Appendix Table A1) and earnings (Table A2) adjusting for group differences in characteristics at the time of landing, including age at arrival, region of birth, period of landing, level of education, and knowledge of official languages, and in characteristics after arrival, including unemployment rates of the province of residence, number of months in full-time schooling, and geographic location of residence in a specific year (Model 1). The goal is to determine whether the PSR's long-term advantage over GARs in employment and earnings will remain when the differences in their observed characteristics are held constant.

[Appendix Tables A1 and A2 about here]

To report the regression results in a simple way, we estimate the probabilities of employment and earnings for PSRs and GARs from year 1 to 15, holding constant the values of control variables in Model 1 in Appendix Tables A1 and A2 (using the sample means for continuous variables and proportional distributions for categorical variables). We then calculate

the differences in the estimated outcome values (employment and logged earnings) between PSRs and GARs and plot the values. Figures 3 and 4 display the estimated differences for employment (Figure 3) and earning (Figure 4) results from year 1 to 15 for men and women.

[Figures 3-4 about here]

As Figure 3 shows, PSRs' employment advantage over GARs lasts for a long time for both male and female refugees. Although it rapidly diminishes during the initial settlement period (years 1-3), it remains statistically significant up to 15 years after landing ($p < .05$), lending support to the argument that private sponsorship has long-term benefits for refugee employment.[4]

Similar patterns hold for the estimated earnings of PSRs and GARs. As Figure 4 demonstrates, the estimated difference in logged earnings for PSRs relative to GARs is positive throughout the first 15 years since landing, meanings that PSRs consistently earn higher than GARs. By the 15th year in Canada, PSRs' estimated earnings are 0.05 and 0.04 log points higher for men and women, respectively than GARs' ($p < .05$).

Does the PSR advantage vary by refugees' initial human capital?

Next, we examine whether the economic impact of private sponsorship varies by refugees' initial human capital, measured by the level of education and knowledge of official languages. We add two-way interaction terms between admission categories and human capital, and human capital and years since landing (YSL), as well as three-way interaction terms among admission categories, human capital, and YSL to Model 1 and estimate the probability of employment

(Model 2, Table A1) and earnings (Model 2, Table A2). We report the results using the graphs of estimated advantage/disadvantage of PSRs over GARs by education level (Figures 5-8). Comparable results by the knowledge of official languages are available upon request.

[Figures 5-8 about here]

The results show male refugees with a lower level of education benefit more from private sponsorship in the long term than those with bachelor's degree or above (Figure 5). Although the employment advantage of less educated male PSRs decreases quickly during the first three years in Canada, the advantage remains throughout the first 15 years. In year 15, their estimated probability of employment is still three percentage points higher than their GAR counterparts ($p < .05$). In contrast, the employment advantage of more educated PSRs over GARs is much smaller and lasts for a shorter time. For instance, the advantage of PSRs with some postsecondary education over their GAR counterparts fall below five percentage points by year 5.

Overall, the results for refugee women are similar to men, in that the employment of women with less education benefits more from private sponsorship. However, there is less difference between women with high school diplomas/trade certificates, some postsecondary education, and bachelor's or above degrees in the long-term advantage of private sponsorship (Figure 6). Only female PSRs without high school education have higher employment rates than their GAR comparators for as long as 15 years after landing ($p < .05$). By contrast, the PSR-GAR difference in estimated employment rates becomes non-significant (at $p = .05$ level) in year 14,

13, and 11 for those with high school diplomas, some postsecondary education, and bachelor's or higher degrees, respectively.

When the earnings of refugees with different levels of initial education are estimated, the results are mostly the same as those for employment; PSRs without high school education have the greatest advantage over their GAR counterparts throughout the first 15 years in Canada, and the advantage of less educated female PSRs is far greater than that of more educated ones (Figures 7 and 8). In the earnings models, the long-term benefit of private sponsorship for the least educated female PSRs contrasts sharply with the long-term benefit for more educated PSRs; the earnings advantage of the latter over their GARs comparators is no longer statistically significant by years 3-8 ($p > .05$).

The impact of private sponsorship on refugee employment varies little by official language ability when the refugees' at-landing demographic and socioeconomic characteristics and post-migration characteristics are adjusted. PSRs are more likely to be employed than GARs, and their employment advantage persists in the long run (up to 15 years), whether or not they know English and/or French at arrival (results not shown here). Contrary to our expectations, only male PSRs without initial knowledge of English and/or French benefit from private sponsorship in the first two years in Canada. For male refugees, the advantages of PSRs for those with and without knowledge of official languages are almost the same in year 3 and onward. For female refugees, those without knowledge of English or French have a slightly greater advantage over GARs than those who know English and/or French at arrival (a 24 and 22 percentage point advantage, respectively), but the advantage reverses in year 2 and onward. PSRs who know English and/or French benefit more from private sponsorship between years 3 and 10; and after year 10, the advantage of PSRs virtually disappears for both language groups.

When the refugees' earnings are estimated, men and women follow fairly similar patterns. The earnings advantage of PSRs who know neither English nor French over their GAR counterparts is slightly greater than that of PSRs who know English and/or French at arrival over their GAR comparators (0.1 log point). However, the advantage quickly diminishes. In the long term, the earnings of refugees with initial knowledge of English and/or French benefit more from private sponsorship.

Conclusions and Discussions

In this paper, we compare the short- and long-term employment and earnings outcomes of Privately Sponsored Refugees (PSRs) and Government-Assisted Refugees (GARs) admitted to Canada between 1980 and 2009. Our use of the Longitudinal Immigration Database (IMDB) allows us to estimate these outcomes up to 15 years after landing whilst controlling for the group differences in demographic and socioeconomic characteristics at the time of landing, along with some post-migration characteristics.

Our multivariate analysis of the probability of employment and the earnings of refugees demonstrates PSRs have an initial advantage and maintain this for the first 15 years. Therefore, Hypothesis 1 is supported. Even when we hold differences in measurable characteristics between the two refugee streams constant, PSRs were more likely to be employed and earned more than their GAR counterparts. Other factors related to pre-migration characteristics, selection processes, and host country reception would account for the difference. For example, unmeasured pre-migration characteristics (e.g. health, experience of refugee camps, duration of displacement) of refugees may be associated with the selection criteria of government-assisted refugee program. Data on such pre-migration characteristics are not available in the IMDB, and

it may be that GARs are facing more challenge in resettlement, including finding paid work, due to physical/mental issues related to an extended period of displacement, as well as disrupted education and career because of prolonged time spent in refugee camps (Oda et al. 2018). Moreover, contexts of the host country community surrounding refugees may matter. PSRs may benefit from the societal and community support from the sponsors not only within the first year of required sponsor commitment but in the long run. Even though the sponsor's initial support officially ends one year after arrival, the benefits of private sponsorship may be long-lasting, with some refugees maintaining extended ties with sponsors (Woon 1987). In addition, some ethnic communities may selectively sponsor co-ethnic refugees (including their family members displaced abroad); the sponsored refugees may take advantage of the pre-existing ethnic and family networks and receive culturally sensitive resettlement support (Portes and Rumbaut 2001). Such favourable environments may help PSRs find jobs and earn an income from employment quickly.

Our analysis also supports Hypothesis 2: the long-term employment and earnings advantage of those who are privately sponsored over those receiving government assistance is greater for refugees with less education than more education. Interestingly, more educated PSR women with high school diplomas or trade certificates, some postsecondary education, or a bachelor's or above degree do not enjoy the employment advantage of female PSRs without high school education. The employment and earnings advantages of these more educated women are almost the same across different education levels and quickly lose statistical significance; the well-educated GAR women catch up to them three to eight years after landing. In other words, only the least educated women benefit from private sponsorship in the long run. Since the majority of refugees have less than high school education (51% and 61% of men and women,

respectively, in the sample), this finding has significant policy implications. Private sponsorship seems to have far-reaching, long-term benefits for a large segment of this disadvantaged group, especially women. Meanwhile, the minimal and short-term advantage of female PSRs with more education may reflect the double disadvantage faced by internationally-trained immigrant women associated with their gender (being female) and nativity (being an immigrant and internationally-trained) in the host country labour market (Creese and Wiebe 2012). It may be that the higher skills service sector jobs (e.g. health care, education) that these more educated PSR women aspire for require re-accreditation or skill upgrading, which may be beyond the reach of sponsors' short-term support. By contrast, more educated PSR men may be more likely to find high skill jobs (e.g. manufacturing) easily through sponsors' local network.

Hypothesis 3 speculates that the employment and earnings advantage of PSRs over GARs will be greater for those with limited host country language skills than those with higher host country language skills. This hypothesis is rejected for both male and female refugees in employment and earnings. PSRs without initial knowledge of English and/or French have no long-term employment and earnings advantage over those who know English and/or French at the time of landing. It may be that PSRs are acquiring official language skills quickly through interaction with their sponsors during the initial settlement period, thus overcoming the language barrier (Woon 1987). In addition to improving their host country language skills, they may also be expanding their networks with the native-born mainstream group, making them no different in employment and earnings from those who know English and/or French upon arrival. That being said, we find PSRs who know English and/or French upon arrival have a greater advantage in employment and earnings than their non-English/French speaking PSR counterparts in the long term. These linguistically advantaged refugees may be more likely to maintain contacts and

friendships with sponsors for a longer period, taking advantage of the social capital developed through these long-lasting relationships (Woon 1987).

Finally, our study contributes to the ongoing international policy debate on refugee resettlement strategies by illuminating the economic advantages of Privately Sponsored Refugees in the long term. Only recently, particularly in wake of the migration crisis of 2015, has private sponsorship gained prominence outside Canada. Even then, other programmes fall short of the Canadian model. For example, sponsorship programmes in France and Australia have more bureaucratic structures than in Canada, as resources are allocated through central distribution centres with specialised workers providing service in lieu of volunteers (Kumin 2015). Another key difference is that some programmes, such as those of Australia, the UK, and Portugal, are designed to supplement, rather than exceed, government refugee quotas (Fratzke 2017). Some even limit the intake of refugees to certain nationalities. For instance, Germany's programme only sponsors Syrian refugees and grants temporary residence with the possibility of renewal (Kumin 2015). Other programmes, such as in the US, are for shorter periods and depend more on welfare subsidies (Lanphier 2003). Canada's private sponsorship seems unique (Hyndman, Payne, and Jimenez 2017; Labman 2016; Lanphier 2003). Even though the main goal of refugee acceptance is not to boost the national economy but to meet humanitarian needs, the current private sponsorship programme in Canada benefits the short- and long-term economic integration of refugees.

Notes

1. We did not control for years of work experience, a variable often included in the analysis of immigrant economic outcomes. There is no direct measure of work experience in the IMDB, and its common

proxy measure (age – years of schooling – 5 or 6) is inappropriate for our study. As refugees often spend years in refugee camps, their paid work experience can be disrupted (Korn and Raphael 2016).

2. Selection criteria for GARs changed in 2002 with implementation of the Immigration and Refugee Protection Act (IRPA), putting more emphasis on the protection of vulnerable refugees. As a result, GARs who arrived in 2002 and after are considered as having greater difficulty adapting to new lives in Canada than the earlier arrivals (IRCC 2016). Considering this policy change, we conducted a sensitivity analysis on the sample of refugees excluding the post-2001 arrivals and compared the results with those of our original sample. It showed a smaller gap in employment rates and earnings between GARs and PSRs among the 1980-2001 cohort in years 1-2 than the GAR-PSR gaps in the original sample. This suggests that the employment rates and earnings of the post-IRPA GARs may be lower in the first two years in Canada. However, the GAR-PSR gaps are broadly similar for the 1980-2001 and 1980-2009 cohorts after year 2. This leads us to conclude that our analysis of the long-term economic outcomes of PSRs versus GARs would not be influenced by the choice of arrival cohorts.

3. Considering the advantageous economic standing of refugees from Poland, we conducted a sensitivity analysis on the sample of refugees excluding those from Poland and compared the results with those of our original sample which includes Polish refugees (Picot et al. 2019). Results from these two samples were virtually the same, which suggests the outcomes refugees (especially PSRs) from Poland in particular did not make a major impact on our results.

4. We conducted a statistical significance test on the differences in estimated probabilities of employment and earnings between PSRs and GARs in each YSL using STATA 15's margins function. The results are available upon request.

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Figures

Figure 1. Observed employment rates of male and female refugees, by admission category and year since landing.

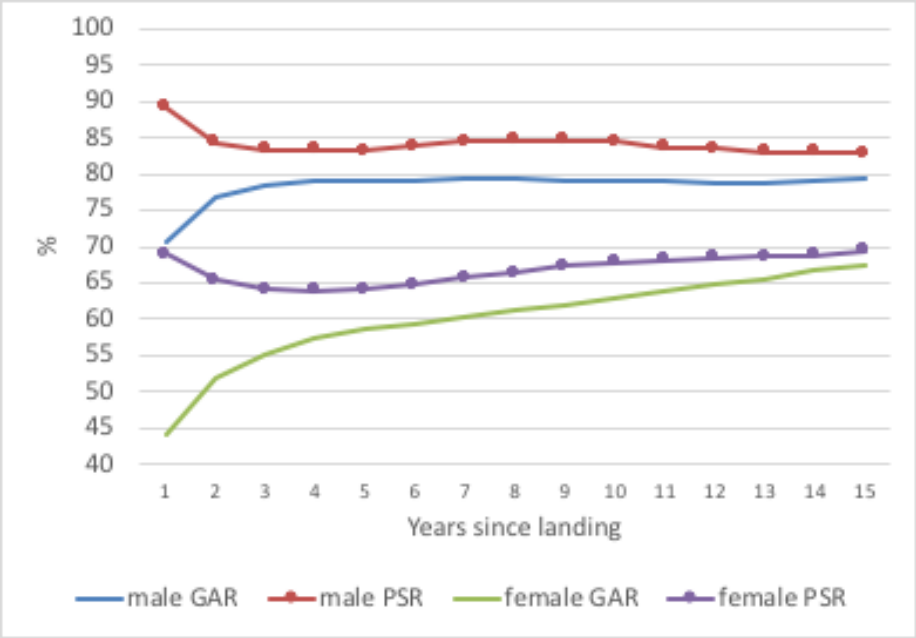


Figure 2. Observed earnings of male and female refugees by admission category and years since landing.

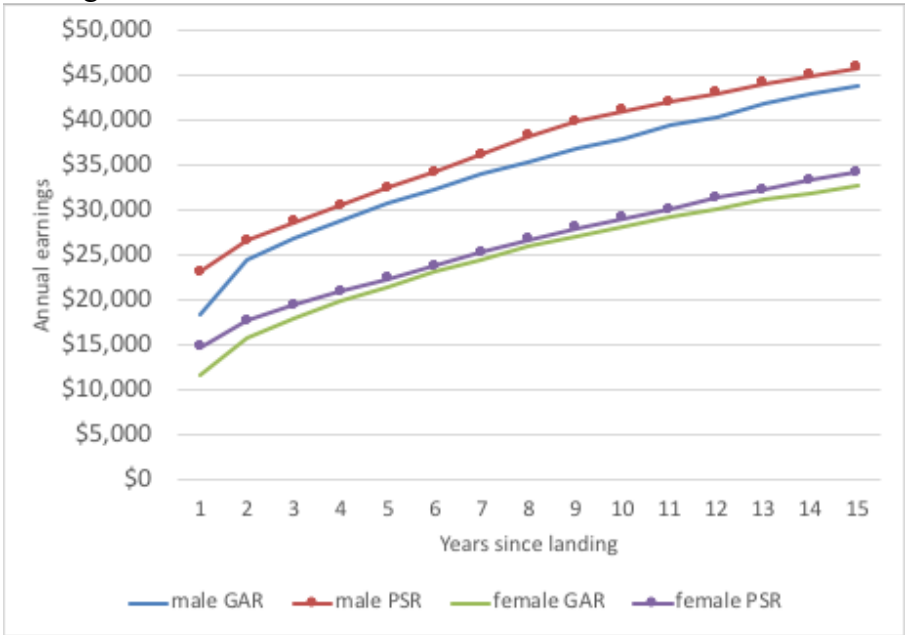


Figure 3 Estimated differences in probability of employment for Privately Sponsored Refugees relative to Government-Assisted Refugees.

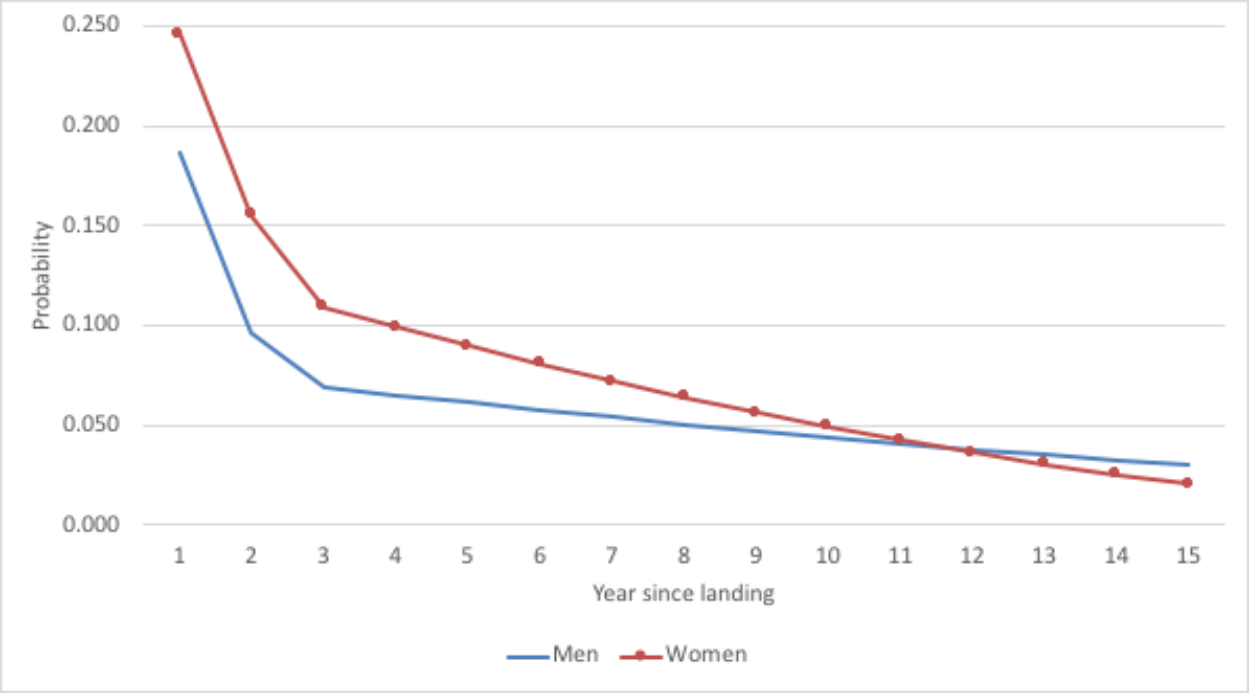


Figure 4 Estimated differences in logged earnings for Privately Sponsored Refugees relative to Government-Assisted Refugees.

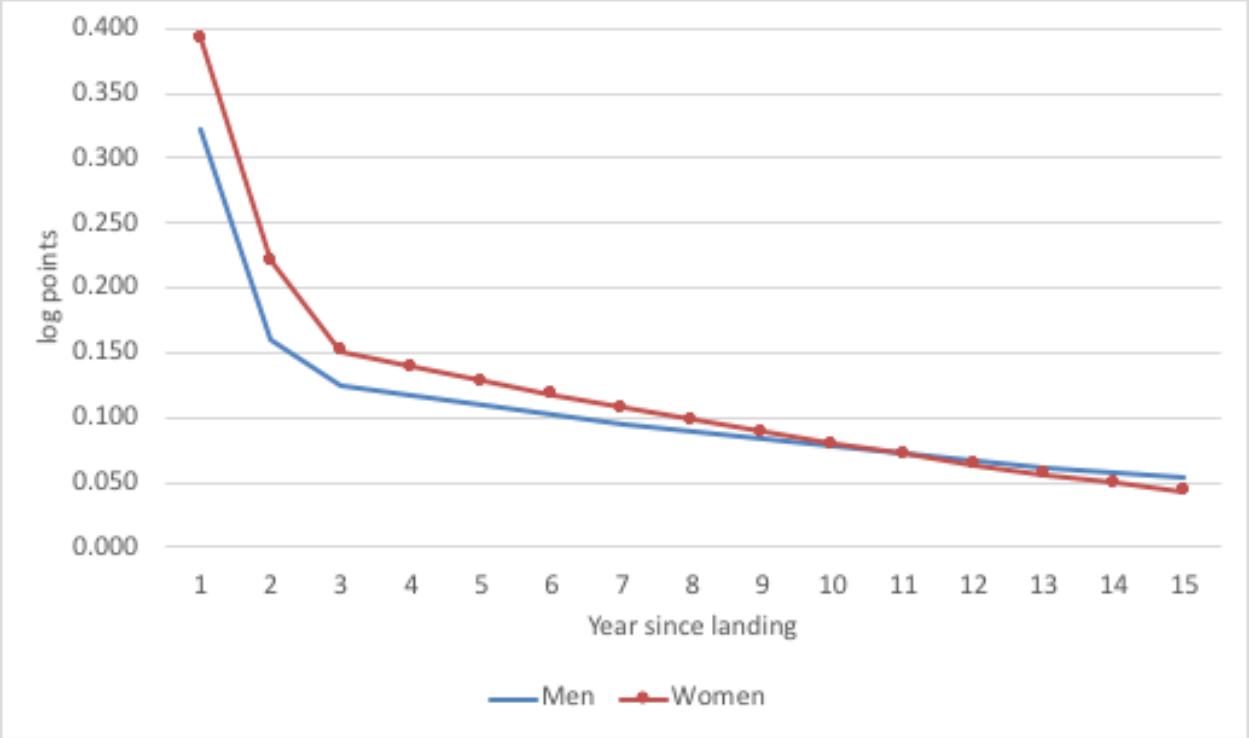


Figure 5 Estimated difference in probability of employment for Privately Sponsored Refugees relative to Government-Assisted Refugees by initial level of education, men.

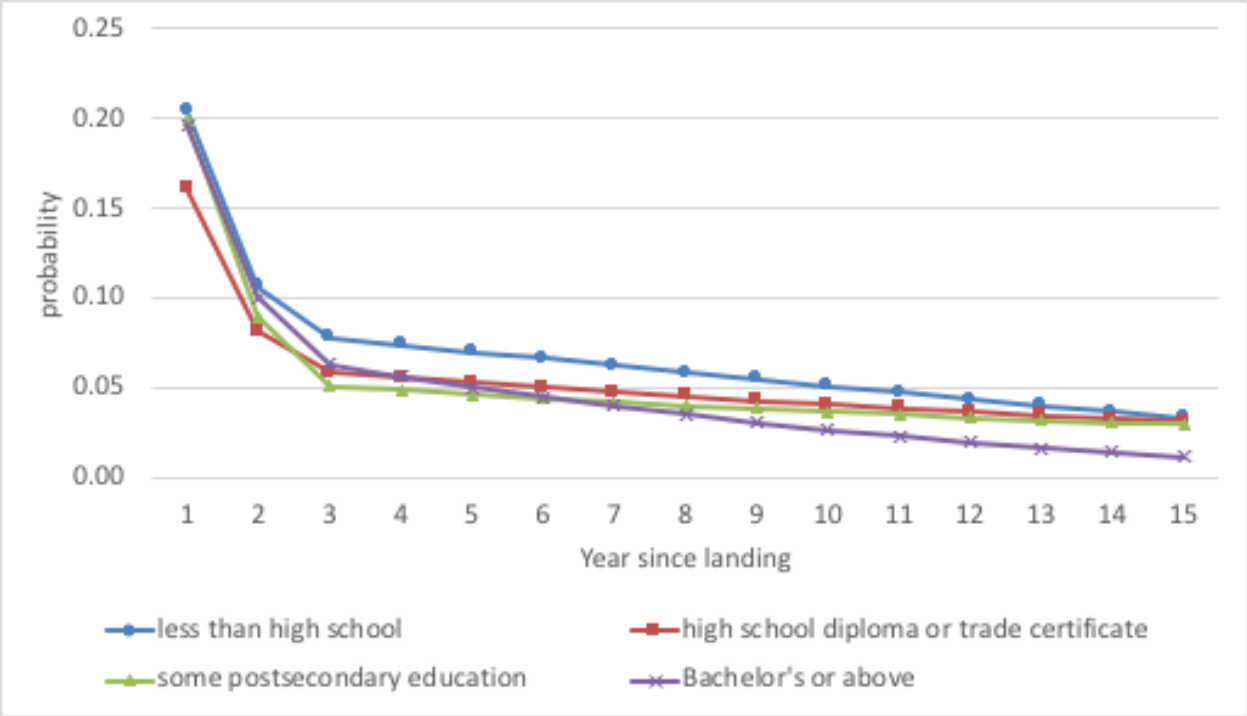


Figure 6 Estimated difference in probability of earning positive employment income for Privately Sponsored Refugees relative to Government-Assisted Refugees by initial level of education, women.

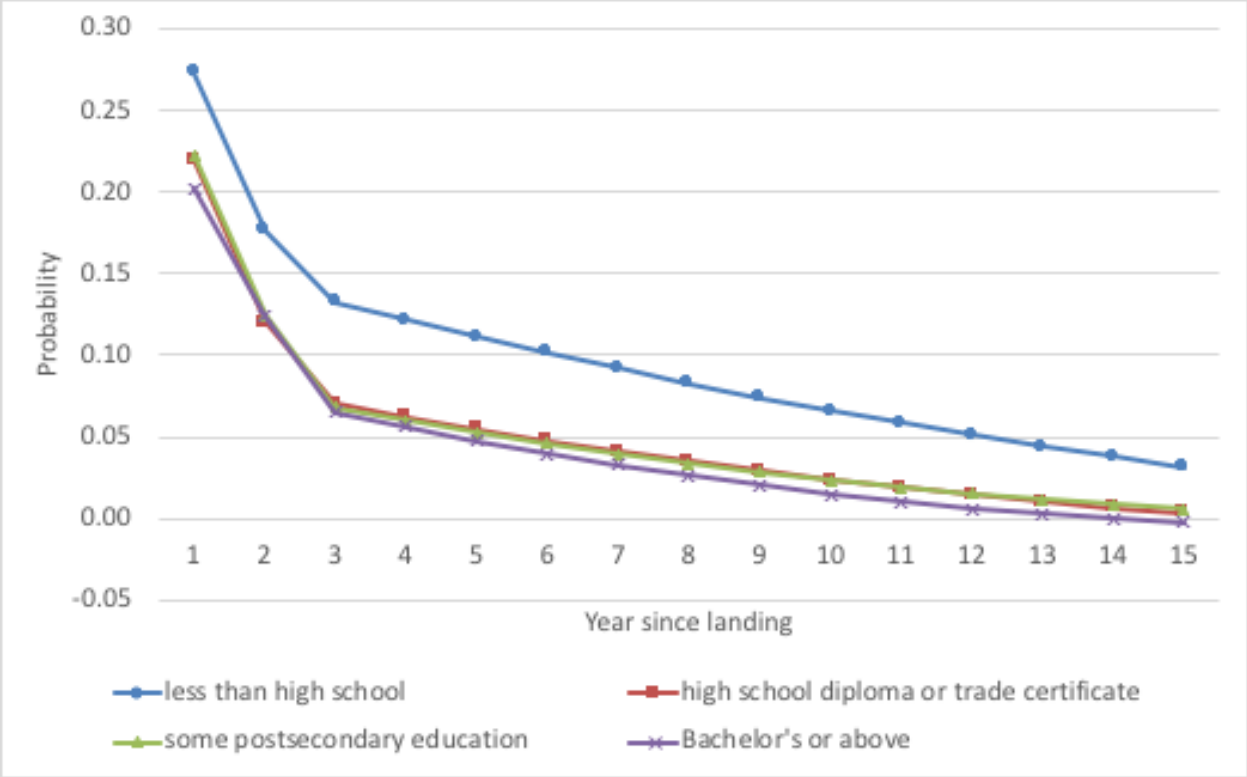


Figure 7. Estimated differences in logged earnings for Privately Sponsored Refugees relative to Government-Assisted Refugees by initial level of education, men.

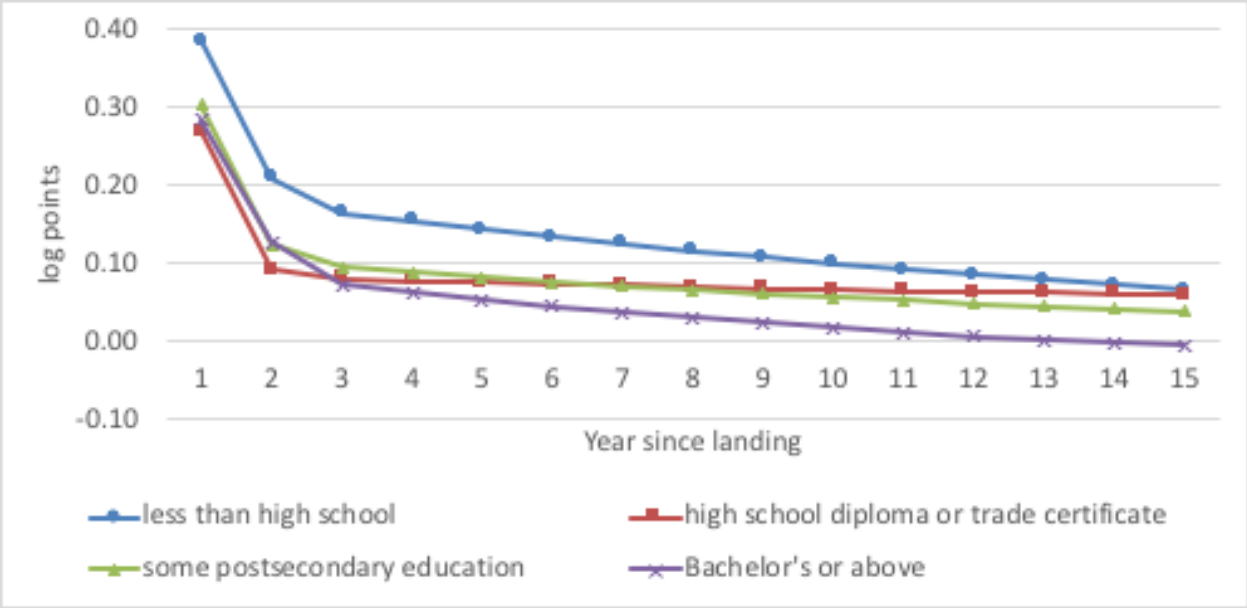
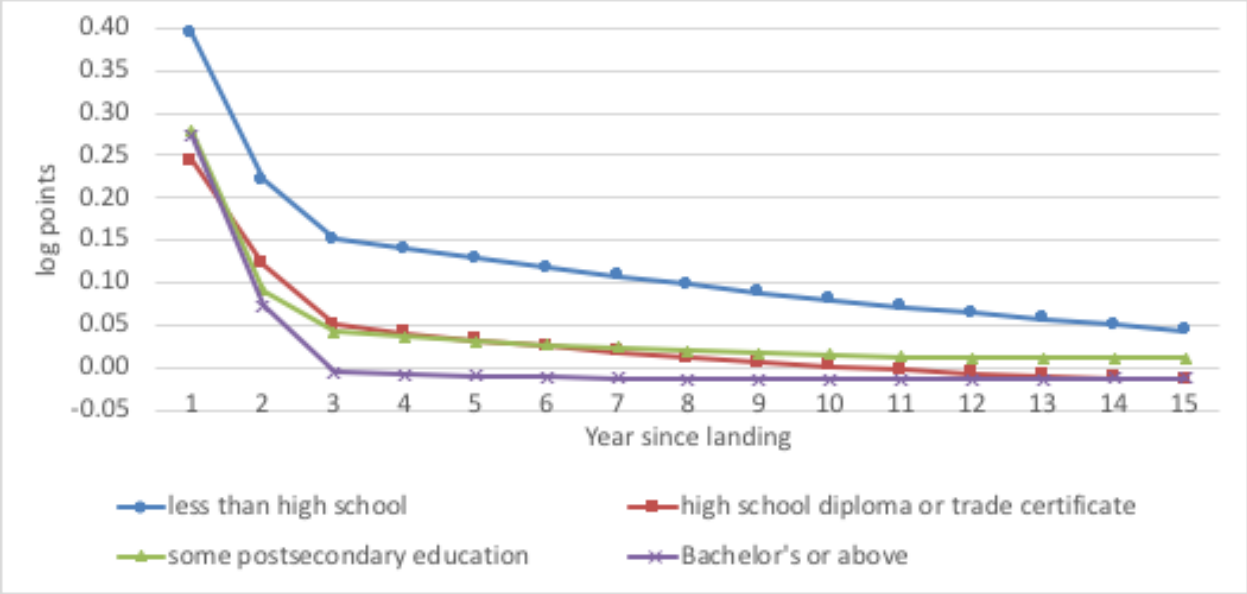


Figure 8. Estimated difference in logged employment income of Privately Sponsored Refugees relative to Government-Assisted Refugees by level of education at landing, women.



Tables

Table 1. Descriptive statistics of Government-Assisted Refugees and Privately Sponsored Refugees in year 1 by Sex

	Males			Females		
	GAR	PSR	Total	GAR	PSR	Total
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Ns	98,360	66,520	164,880	69,952	49,002	118,954
World region	%	%	%	%	%	%
South and Central America, Caribbean	13.7	1.8	8.9	16.9	2.6	11.0
Eastern Europe	23.7	43.1	31.5	23.5	38.9	29.8
Southern Europe	6.1	1.7	4.3	8.2	2.3	5.8
Africa	14.9	15.0	14.9	13.5	13.9	13.6
Middle East, West Central Asia	17.2	15.0	16.3	16.8	17.5	17.1
Southeast Asia	22.5	22.1	22.4	19.7	23.8	21.4
Other Asia	1.9	1.2	1.6	1.4	1.1	1.3
Highest level of education at landing						
Less than high school	53.0	48.3	51.1	63.3	58.3	61.3
High school competion or trade	26.8	29.7	28.0	19.4	22.4	20.7
Some post-secondary	6.8	8.6	7.5	7.0	8.2	7.5
Bachelor's degree or higher	13.4	13.4	13.4	10.2	11.1	10.6
Knowledge of official language						
English and/or French	30.9	29.9	30.5	22.0	23.5	22.6
Neither English nor French	69.1	70.1	69.5	78.0	76.5	77.4
Age at arrival						
20-29	50.3	49.8	50.1	49.1	50.7	49.7
30-39	34.7	35.3	34.9	34.9	33.0	34.1
40-49	12.8	12.3	12.6	13.3	12.9	13.2
50-54	2.2	2.6	2.4	2.7	3.4	3.0
Year of landing						
1980-84	23.2	16.1	20.3	19.9	17.2	18.8
1985-89	28.3	29.1	28.6	22.8	26.3	24.3
1990-94	15.6	33.1	22.7	15.3	30.5	21.6
1995-99	12.9	5.9	10.1	14.6	7.3	11.6
2000-2004	11.2	7.1	9.6	14.3	8.6	12.0
2005-2009	8.8	8.7	8.8	12.9	10.1	11.7
Place of residence at tax filing time, Year 1						
Montreal	8.5	6.9	7.9	8.6	7.5	8.1
Toronto	26.6	41.2	32.5	24.0	39.1	30.2
Vancouver	9.7	6.4	8.4	10.3	6.7	8.8
Ottawa, Calgary, Edmonton, Hamilton, Winnipeg, Quebec C	28.1	23.6	26.3	28.9	24.1	26.9
Other small Census Metropoliran Areas	15.8	12.5	14.5	17.3	12.8	15.4
Small urban or rural areas	8.6	8.0	8.4	8.7	7.8	8.3
No CMA information	2.6	1.3	2.1	2.2	2.1	2.2
Mean unemployment rates of males 25-54 of the province in year 1	7.0	7.3	7.1	7.1	7.3	7.1
Mean # of months in full-time school in year 1	0.3	0.3	0.3	0.2	0.3	0.2

Note:The percetages may not add up to 100 due to rounding errors.
Source: Statistics Canada, Longitudinal Immigrant Database.

Appendices

Table A1. Linear probability models predicting the probability of employment for refugees who landed at age 20-54 in 1980-2009, for females and males, 1982-2015

	Men						Women					
	Model 1			Model 2			Model 1			Model 2		
	coeff	SE		coeff	SE		coeff	SE		coeff	SE	
Privately sponsored refugee (PSR)	0.082	0.003	***	0.079	0.008	***	0.142	0.004	***	0.125	0.012	***
Government Assisted Refugee (GAR)	(rg)			(rg)			(rg)			(rg)		
Year 1	-0.012	0.003	***	0.007	0.006	(ns)	-0.046	0.005	***	-0.066	0.010	***
Year 2	-0.004	0.002	(ns)	0.012	0.005	*	-0.005	0.004	(ns)	-0.021	0.008	*
Years since landing (Year 3+)	-0.005	0.000	***	0.003	0.001	**	0.001	0.001	**	0.007	0.001	***
Squared years since landing (Year 3+)	0.000	0.000	***	0.000	0.000	***	0.000	0.000	***	-0.001	0.000	***
Highest level of education at landing												
Less than high school	-0.061	0.002	***	-0.024	0.005	***	-0.113	0.003	***	-0.118	0.008	***
High school competion or trade	-0.031	0.002	***	-0.010	0.005	(ns)	-0.044	0.003	***	-0.016	0.009	(ns)
Some post-secondary	-0.028	0.003	***	0.000	0.008	(ns)	-0.026	0.004	***	-0.017	0.011	(ns)
Bachelor's or higher degree	(rg)			(rg)			(rg)			(rg)		
Knowledge of official language												
English and/or French	(rg)			(rg)			-0.062	0.002	***	-0.064	0.006	***
Neither English nor French	-0.026	0.001	***	-0.030	0.004	***	(rg)			(rg)		
PSR interacted with Year 1	0.105	0.003	***	0.082	0.008	***	0.104	0.004	***	0.061	0.013	***
PSR interacted with Year 2	0.014	0.003	***	0.009	0.008	(ns)	0.014	0.004	***	0.001	0.012	(ns)
PSR interacted with YSL	-0.004	0.000	***	-0.007	0.001	***	-0.012	0.001	***	-0.015	0.002	***
PSR interacted with squared YSL	0.000	0.000	***	0.000	0.000	***	0.000	0.000	***	0.000	0.000	***
Less than HS interacted with Year 1				0.019	0.006	**				0.081	0.009	***
High school competion or trade interacted with Year 1				0.035	0.006	***				0.027	0.010	**
Some post-secondary interacted with Year 1				0.003	0.009	(ns)				0.035	0.012	**
Less than HS interacted with Year 2				-0.001	0.005	(ns)				0.048	0.008	***
High school competion or trade interacted with Year 2				0.008	0.006	(ns)				0.021	0.009	*
Some post-secondary interacted with Year 2				-0.005	0.008	(ns)				0.026	0.011	*
Less than HS interacted with YSL				-0.011	0.001	***				-0.007	0.001	***
High school competion or trade interacted with YSL				-0.007	0.001	***				-0.008	0.001	***
Some post-secondary interacted with YSL				-0.006	0.001	***				-0.003	0.002	*
Less than HS interacted with squared YSL				0.000	0.000	***				0.000	0.000	***
High school competion or trade interacted with squared YSL				0.000	0.000	***				0.000	0.000	***
Some post-secondary interacted with squared YSL				0.000	0.000	***				0.000	0.000	*
PSR interacted with less than high school				0.007	0.008	(ns)				0.072	0.012	***
PSR interacted with HS completion/ trade				-0.017	0.009	(ns)				0.001	0.014	(ns)
PSR interacted with some post-secondary				-0.025	0.012	*				-0.002	0.017	(ns)
Neither English nor French interacted with Year 1				-0.049	0.004	***				-0.042	0.006	***
Neither English nor French interacted with Year 2				-0.022	0.004	***				-0.024	0.006	***
Neither English nor French interacted with YSL				0.001	0.001	*				0.001	0.001	(ns)
Neither English nor French interacted with squared YSL				0.000	0.000	*				0.000	0.000	(ns)
PSR interacted with Neither English nor French				0.008	0.006	(ns)				-0.036	0.009	***
PSR interacted with less than high school interacted with Year 1				0.002	0.009	(ns)				0.000	0.013	(ns)
PSR interacted with HS completion/ trade interacted with Year 1				-0.018	0.010	(ns)				0.016	0.015	(ns)
PSR interacted with some post-secondary interacted with Year 1				0.028	0.013	*				0.023	0.019	(ns)
PSR interacted with less than high school interacted with Year 2				-0.001	0.008	(ns)				-0.019	0.012	(ns)
PSR interacted with HS completion/ trade interacted with Year 2				-0.002	0.009	(ns)				-0.005	0.013	(ns)
PSR interacted with some post-secondary interacted with Year 2				0.014	0.012	(ns)				0.003	0.017	(ns)
PSR interacted with less than high school interacted with YSL				0.003	0.001	*				-0.001	0.002	(ns)
PSR interacted with HS completion/ trade interacted with YSL				0.004	0.001	**				0.002	0.002	(ns)
PSR interacted with some post-secondary interacted with YSL				0.005	0.002	**				0.002	0.003	(ns)
PSR interacted with less than high school interacted with squared YSL				0.000	0.000	***				0.000	0.000	(ns)
PSR interacted with HS completion/ trade interacted with squared YSL				0.000	0.000	**				0.000	0.000	(ns)
PSR interacted with some post-secondary interacted with squared YSL				0.000	0.000	*				0.000	0.000	(ns)
PSR interacted with Neither English nor French interacted with Year 1				0.041	0.006	***				0.056	0.010	***
PSR interacted with Neither English nor French interacted with Year 2				0.011	0.006	(ns)				0.034	0.009	***
PSR interacted with Neither English nor French interacted with YSL				-0.001	0.001	(ns)				0.005	0.001	**
PSR interacted with Neither English nor French interacted with squared YSL				0.000	0.000	(ns)				0.000	0.000	**
Unemployment rate of province of residence	-0.019	0.000	***	-0.019	0.000	***	-0.022	0.000	***	-0.022	0.000	***
Months of full-time attending school	-0.011	0.000	***	-0.011	0.000	***	0.000	0.000	(ns)	0.000	0.000	(ns)
Age at arrival												
20-29	(rg)			(rg)			(rg)			(rg)		
30-39	-0.076	0.001	***	-0.076	0.001	***	-0.064	0.002	***	-0.065	0.002	***
40-49	-0.242	0.002	***	-0.242	0.002	***	-0.251	0.003	***	-0.252	0.003	***
50-54	-0.494	0.005	***	-0.494	0.005	***	-0.477	0.004	***	-0.477	0.004	***

Table A1. Continued.

Region of birth												
South and Central America, Caribbean	-0.012	0.002	***	-0.012	0.002	***	-0.043	0.003	***	-0.045	0.003	***
Eastern Europe	(rg)			(rg)			(rg)			(rg)		
Southern Europe	0.013	0.003	***	0.012	0.003	***	0.054	0.004	***	0.050	0.004	***
Africa	-0.051	0.002	***	-0.053	0.002	***	-0.086	0.004	***	-0.089	0.004	***
Middle East, West Central Asia	-0.140	0.002	***	-0.140	0.002	***	-0.216	0.003	***	-0.218	0.003	***
Southeast Asia	-0.044	0.002	***	-0.046	0.002	***	-0.094	0.003	***	-0.097	0.003	***
Other Asia	-0.052	0.005	***	-0.053	0.005	***	-0.106	0.008	***	-0.108	0.008	***
Place of residence at tax filing time												
Montreal	-0.025	0.003	***	-0.025	0.003	***	-0.047	0.004	***	-0.048	0.004	***
Toronto	(rg)			(rg)			(rg)			(rg)		
Vancouver	0.001	0.002	(ns)	0.001	0.002	(ns)	0.010	0.003	**	0.010	0.003	**
Ottawa, Calgary, Edmonton, Hamilton, Winnipeg, Quebec City	0.014	0.001	***	0.014	0.001	***	0.033	0.002	***	0.033	0.002	***
Other small CMAs	0.006	0.002	**	0.006	0.002	**	0.017	0.003	***	0.016	0.003	***
Small urban or rural areas	0.048	0.002	***	0.048	0.002	***	0.061	0.003	***	0.061	0.003	***
No CMA information	-0.737	0.002	***	-0.737	0.002	***	-0.498	0.003	***	-0.498	0.003	***
Year of landing												
1980-84	(rg)			(rg)			(rg)			(rg)		
1985-89	-0.129	0.003	***	-0.127	0.003	***	-0.189	0.005	***	-0.186	0.005	***
1990-94	-0.232	0.004	***	-0.227	0.004	***	-0.391	0.006	***	-0.385	0.006	***
1995-99	-0.158	0.005	***	-0.154	0.005	***	-0.265	0.007	***	-0.264	0.007	***
2000-2004	-0.161	0.007	***	-0.161	0.007	***	-0.290	0.009	***	-0.287	0.009	***
2005-2009	-0.189	0.011	***	-0.192	0.011	***	-0.304	0.013	***	-0.305	0.013	***
Landed in 1985-89 interacted with Year 1	0.049	0.004	***	0.044	0.004	***	0.096	0.006	***	0.090	0.006	***
Landed in 1990-94 interacted with Year 1	-0.019	0.004	***	-0.026	0.004	***	0.098	0.006	***	0.092	0.006	***
Landed in 1995-99 interacted with Year 1	-0.164	0.006	***	-0.168	0.006	***	-0.127	0.008	***	-0.127	0.008	***
Landed in 2000-2004 interacted with Year 1	-0.093	0.007	***	-0.101	0.007	***	-0.033	0.009	***	-0.046	0.009	***
Landed in 2005-2009 interacted with Year 1	-0.058	0.010	***	-0.064	0.010	***	-0.024	0.013	(ns)	-0.038	0.013	**
Landed in 1985-89 interacted with Year 2	0.053	0.003	***	0.050	0.003	***	0.070	0.005	***	0.070	0.005	***
Landed in 1990-94 interacted with Year 2	0.012	0.004	**	0.008	0.004	*	0.090	0.005	***	0.090	0.005	***
Landed in 1995-99 interacted with Year 2	-0.032	0.005	***	-0.034	0.005	***	-0.025	0.007	***	-0.023	0.007	**
Landed in 2000-2004 interacted with Year 2	-0.004	0.006	(ns)	-0.008	0.006	(ns)	0.031	0.008	***	0.026	0.008	**
Landed in 2005-2009 interacted with Year 2	0.028	0.010	**	0.025	0.010	*	0.023	0.012	(ns)	0.019	0.012	(ns)
Landed in 1985-89 interacted with YSL	0.009	0.000	***	0.009	0.000	***	0.010	0.001	***	0.010	0.001	***
Landed in 1990-94 interacted with YSL	0.021	0.001	***	0.021	0.001	***	0.032	0.001	***	0.032	0.001	***
Landed in 1995-99 interacted with YSL	0.019	0.001	***	0.018	0.001	***	0.032	0.001	***	0.031	0.001	***
Landed in 2000-2004 interacted with YSL	0.021	0.002	***	0.022	0.002	***	0.034	0.002	***	0.034	0.002	***
Landed in 2005-2009 interacted with YSL	0.033	0.004	***	0.034	0.004	***	0.026	0.004	***	0.027	0.004	***
Landed in 1985-89 interacted with squared YSL	0.000	0.000	***	0.000	0.000	***	0.000	0.000	(ns)	0.000	0.000	(ns)
Landed in 1990-94 interacted with squared YSL	0.000	0.000	***	0.000	0.000	***	-0.001	0.000	***	-0.001	0.000	***
Landed in 1995-99 interacted with squared YSL	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***
Landed in 2000-2004 interacted with squared YSL	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***
Landed in 2005-2009 interacted with squared YSL	-0.002	0.000	***	-0.002	0.000	***	-0.001	0.000	(ns)	-0.001	0.000	(ns)
Intercept	1.205	0.004	***	1.179	0.006	***	1.133	0.006	***	1.131	0.009	***
Number of obs	3345239			3345239			2468735			2468735		
R-squared	0.1701			0.171			0.156			0.157		
* p<.05; ** p<0.01; *** p<.001; (ns) not significant at p=.05 level; (rg) reference group												
Source: Statistics Canada, Longitudinal Immigration Database.												

Table A2. OLS models predicting logged earnings for refugees who landed at age 20-54 in 1980-2009 for tax years, for males and females, 1982-2015

	Men						Women					
	Model 1			Model 2			Model 1			Model 2		
	coeff	SE		coeff	SE		coeff	SE		coeff	SE	
Privately sponsored refugee (PSR)	0.150	0.006	***	0.101	0.020	***	0.130	0.008	***	-0.035	0.028	(ns)
Government Assisted Refugee (GAR)	(rg)			(rg)			(rg)			(rg)		
Year 1	-0.398	0.007	***	-0.333	0.016	***	-0.441	0.011	***	-0.462	0.025	***
Year 2	-0.061	0.006	***	-0.030	0.014	*	-0.048	0.009	***	-0.053	0.022	*
Years since landing (Year 3+)	0.040	0.001	***	0.064	0.002	***	0.054	0.001	***	0.083	0.003	***
Squared years since landing (Year 3+)	-0.001	0.000	***	-0.002	0.000	***	-0.001	0.000	***	-0.002	0.000	***
Highest level of education at landing												
Less than high school	-0.307	0.006	***	-0.188	0.013	***	-0.370	0.008	***	-0.147	0.018	***
High school competion or trade	-0.228	0.006	***	-0.133	0.014	***	-0.263	0.008	***	-0.144	0.020	***
Some post-secondary	-0.212	0.008	***	-0.125	0.019	***	-0.198	0.010	***	-0.110	0.025	***
Bachelor's or higher degree	(rg)			(rg)			(rg)			(rg)		
Knowledge of official language												
English and/or French	(rg)			(rg)			(rg)			(rg)		
Neither English nor French	-0.133	0.004	***	-0.071	0.009	***	-0.180	0.005	***	-0.163	0.014	***
PSR interacted with Year 1	0.172	0.007	***	0.123	0.022	***	0.193	0.010	***	0.257	0.033	***
PSR interacted with Year 2	0.011	0.006	(ns)	0.029	0.020	(ns)	0.043	0.009	***	0.082	0.030	**
PSR interacted with YSL	-0.009	0.001	***	-0.009	0.003	**	-0.011	0.001	***	0.004	0.004	(ns)
PSR interacted with squared YSL	0.000	0.000	***	0.000	0.000	*	0.000	0.000	***	0.000	0.000	(ns)
Less than HS interacted with Year 1				0.051	0.016	**				0.126	0.024	***
High school competion or trade interacted with Year 1				0.078	0.017	***				0.136	0.026	***
Some post-secondary interacted with Year 1				0.042	0.023	(ns)				0.087	0.032	**
Less than HS interacted with Year 2				-0.007	0.014	(ns)				0.007	0.021	(ns)
High school competion or trade interacted with Year 2				0.021	0.015	(ns)				0.023	0.023	(ns)
Some post-secondary interacted with Year 2				0.023	0.021	(ns)				0.048	0.028	(ns)
Less than HS interacted with YSL				-0.025	0.002	***				-0.040	0.003	***
High school competion or trade interacted with YSL				-0.018	0.002	***				-0.020	0.003	***
Some post-secondary interacted with YSL				-0.014	0.003	***				-0.016	0.004	***
Less than HS interacted with squared YSL				0.001	0.000	***				0.001	0.000	***
High school competion or trade interacted with squared YSL				0.000	0.000	***				0.001	0.000	***
Some post-secondary interacted with squared YSL				0.000	0.000	**				0.000	0.000	***
PSR interacted with less than high school				0.095	0.021	***				0.187	0.029	***
PSR interacted with HS completion/ trade				-0.016	0.022	(ns)				0.079	0.031	*
PSR interacted with some post-secondary				0.012	0.029	(ns)				0.059	0.038	(ns)
Neither English nor French interacted with Year 1				-0.144	0.010	***				-0.086	0.017	***
Neither English nor French interacted with Year 2				-0.042	0.010	***				-0.009	0.015	(ns)
Neither English nor French interacted with YSL				-0.006	0.001	***				0.002	0.002	(ns)
Neither English nor French interacted with squared YSL				0.000	0.000	*				0.000	0.000	*
PSR interacted with Neither English nor French				0.004	0.014	(ns)				0.046	0.020	*
PSR interacted with less than high school interacted with Year 1				0.007	0.023	(ns)				-0.067	0.034	(ns)
PSR interacted with HS completion/ trade interacted with Year 1				0.001	0.025	(ns)				-0.108	0.037	**
PSR interacted with some post-secondary interacted with Year 1				0.008	0.033	(ns)				-0.053	0.046	(ns)
PSR interacted with less than high school interacted with Year 2				-0.013	0.022	(ns)				-0.039	0.031	(ns)
PSR interacted with HS completion/ trade interacted with Year 2				-0.019	0.023	(ns)				-0.031	0.034	(ns)
PSR interacted with some post-secondary interacted with Year 2				-0.015	0.031	(ns)				-0.041	0.042	(ns)
PSR interacted with less than high school interacted with YSL				-0.001	0.003	(ns)				-0.010	0.005	*
PSR interacted with HS completion/ trade interacted with YSL				0.009	0.004	*				-0.008	0.005	(ns)
PSR interacted with some post-secondary interacted with YSL				0.004	0.005	(ns)				-0.004	0.006	(ns)
PSR interacted with less than high school interacted with squared YSL				0.000	0.000	(ns)				0.000	0.000	(ns)
PSR interacted with HS completion/ trade interacted with squared YSL				0.000	0.000	(ns)				0.000	0.000	(ns)
PSR interacted with some post-secondary interacted with squared YSL				0.000	0.000	(ns)				0.000	0.000	(ns)
PSR interacted with Neither English nor French interacted with Year 1				0.081	0.016	***				0.018	0.024	(ns)
PSR interacted with Neither English nor French interacted with Year 2				-0.007	0.015	(ns)				-0.013	0.022	(ns)
PSR interacted with Neither English nor French interacted with YSL				-0.003	0.002	(ns)				-0.009	0.003	**
PSR interacted with Neither English nor French interacted with squared YSL				0.000	0.000	(ns)				0.000	0.000	*
Unemployment rate of province of residence	-0.043	0.001	***	-0.043	0.001	***	-0.022	0.001	***	-0.022	0.001	***
Months of full-time attending school	-0.070	0.001	***	-0.069	0.001	***	-0.059	0.001	***	-0.057	0.001	***
Age at arrival												
20-29	(rg)			(rg)			(rg)			(rg)		
30-39	-0.063	0.004	***	-0.063	0.004	***	-0.023	0.004	***	-0.025	0.004	***
40-49	-0.181	0.005	***	-0.182	0.005	***	-0.119	0.007	***	-0.122	0.007	***
50-54	-0.324	0.014	***	-0.323	0.014	***	-0.217	0.021	***	-0.222	0.021	***

Table A2. Continued.

Region of birth												
South and Central America, Caribbean	-0.166	0.006	***	-0.166	0.006	***	-0.171	0.007	***	-0.169	0.007	***
Eastern Europe	(rg)			(rg)			(rg)			(rg)		
Southern Europe	0.094	0.009	***	0.088	0.009	***	0.125	0.009	***	0.118	0.009	***
Africa	-0.352	0.006	***	-0.355	0.006	***	-0.116	0.007	***	-0.119	0.007	***
Middle East, West Central Asia	-0.437	0.006	***	-0.439	0.006	***	-0.314	0.008	***	-0.312	0.008	***
Southeast Asia	-0.154	0.005	***	-0.153	0.005	***	-0.118	0.006	***	-0.114	0.006	***
Other Asia	-0.253	0.014	***	-0.255	0.014	***	-0.174	0.020	***	-0.178	0.020	***
Place of residence at tax filing time												
Montreal	-0.139	0.007	***	-0.140	0.007	***	-0.179	0.008	***	-0.182	0.008	***
Toronto	(rg)			(rg)			(rg)			(rg)		
Vancouver	-0.139	0.006	***	-0.139	0.006	***	-0.116	0.007	***	-0.115	0.007	***
Ottawa, Calgary, Edmonton, Hamilton, Winnipeg, Quebec City	-0.026	0.004	***	-0.026	0.004	***	-0.051	0.005	***	-0.052	0.005	***
Other small CMAs	0.026	0.005	***	0.026	0.005	***	-0.064	0.006	***	-0.064	0.006	***
Small urban or rural areas	0.065	0.006	***	0.064	0.006	***	-0.049	0.008	***	-0.051	0.008	***
No CMA information	-0.125	0.021	***	-0.128	0.021	***	-0.185	0.028	***	-0.186	0.028	***
Year of landing												
1980-84	(rg)			(rg)			(rg)			(rg)		
1985-89	-0.134	0.008	***	-0.123	0.008	***	-0.077	0.011	***	-0.053	0.011	***
1990-94	-0.356	0.009	***	-0.329	0.009	***	-0.408	0.013	***	-0.358	0.013	***
1995-99	-0.304	0.013	***	-0.285	0.013	***	-0.373	0.016	***	-0.337	0.016	***
2000-2004	-0.410	0.017	***	-0.400	0.017	***	-0.462	0.022	***	-0.464	0.022	***
2005-2009	-0.218	0.027	***	-0.211	0.027	***	-0.296	0.037	***	-0.302	0.037	***
Landed in 1985-89 interacted with Year 1	0.160	0.009	***	0.139	0.009	***	0.130	0.014	***	0.096	0.014	***
Landed in 1990-94 interacted with Year 1	0.103	0.011	***	0.074	0.011	***	0.199	0.015	***	0.165	0.015	***
Landed in 1995-99 interacted with Year 1	0.026	0.015	(ns)	0.005	0.015	(ns)	0.050	0.020	*	0.026	0.020	(ns)
Landed in 2000-2004 interacted with Year 1	0.250	0.018	***	0.216	0.018	***	0.294	0.024	***	0.252	0.024	***
Landed in 2005-2009 interacted with Year 1	0.219	0.027	***	0.184	0.027	***	0.265	0.038	***	0.214	0.038	***
Landed in 1985-89 interacted with Year 2	0.056	0.008	***	0.051	0.008	***	0.026	0.012	*	0.023	0.012	*
Landed in 1990-94 interacted with Year 2	0.082	0.009	***	0.074	0.010	***	0.119	0.013	***	0.117	0.014	***
Landed in 1995-99 interacted with Year 2	0.092	0.013	***	0.084	0.013	***	0.069	0.017	***	0.069	0.017	***
Landed in 2000-2004 interacted with Year 2	0.234	0.016	***	0.227	0.016	***	0.226	0.021	***	0.228	0.021	***
Landed in 2005-2009 interacted with Year 2	0.196	0.026	***	0.186	0.026	***	0.185	0.037	***	0.187	0.037	***
Landed in 1985-89 interacted with YSL	0.003	0.001	**	0.002	0.001	(ns)	0.000	0.002	(ns)	-0.002	0.002	(ns)
Landed in 1990-94 interacted with YSL	0.022	0.001	***	0.019	0.001	***	0.034	0.002	***	0.029	0.002	***
Landed in 1995-99 interacted with YSL	0.029	0.002	***	0.026	0.002	***	0.050	0.003	***	0.046	0.003	***
Landed in 2000-2004 interacted with YSL	0.071	0.004	***	0.070	0.004	***	0.075	0.005	***	0.078	0.005	***
Landed in 2005-2009 interacted with YSL	0.053	0.009	***	0.053	0.009	***	0.048	0.013	***	0.051	0.013	***
Landed in 1985-89 interacted with squared YSL	0.000	0.000	(ns)	0.000	0.000	(ns)	0.000	0.000	**	0.000	0.000	***
Landed in 1990-94 interacted with squared YSL	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***	-0.001	0.000	***
Landed in 1995-99 interacted with squared YSL	-0.001	0.000	***	-0.001	0.000	***	-0.002	0.000	***	-0.001	0.000	***
Landed in 2000-2004 interacted with squared YSL	-0.003	0.000	***	-0.003	0.000	***	-0.003	0.000	***	-0.003	0.000	***
Landed in 2005-2009 interacted with squared YSL	-0.003	0.001	***	-0.003	0.001	***	-0.002	0.001	*	-0.003	0.001	*
Intercept	10.856	0.009	***	10.709	0.015	***	10.289	0.012	***	10.098	0.021	***
Number of obs	2637550			2637550			1565625			1565625		
R-squared	0.135			0.137			0.151			0.154		
* p<.05; ** p<0.01; *** p<.001; (ns) not significant at p=.05 level; (rg) reference group												
Source: Statistics Canada, Longitudinal Immigration Database.												