Research Group on Human Capital
Working Paper Series

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Working Paper No. 23-03

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May 2023

Groupe de recherche sur le
CAPITAL HUMAIN
ESG UQÀM

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Age at Immigration and the Intergenerational Income Mobility of the 1.5 Generation*

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May 30, 2023

Abstract

In this paper, we exploit intergenerationally-linked tax files and Census data to first document the intergenerational income transmission between individuals who immigrated to Canada as children—the 1.5 generation—and their parents. We find that the correlation between parental income rank and child income rank becomes stronger the older the child is at arrival. We then try to get at the causal effect of the age at immigration by estimating a model in which child rank is explained by interactions between age at arrival and the average predicted rank of second-generation immigrants from the same region of origin, living in the same region in Canada, from the same birth cohort, given their parental income. The model gives us the rate at which children from the 1.5 generation catch up to second-generation immigrants. We find that up to age 10, the relation between age at immigration and income is flat, but starting at age 11, each year is associated with 3.3 fewer percentile ranks.

Keywords: intergenerational income mobility, immigrants, 1.5 generation, age at immigration, Canada

JEL Codes: J62, J61, J15

*The authors thank participants at seminars at UNC Charlotte and the University of St. Andrews and at the annual meeting of the Société canadienne de science économique (Québec, 2023) for their useful comments. We also acknowledge financial support from the Social Sciences and Humanities Research Council (Grant numbers 430-2018-01052 and 435-2019-1097). The analysis presented in this paper was conducted at the Quebec Interuniversity Centre for Social Statistics which is part of the Canadian Research Data Centre Network (CRDCN). The services and activities provided by the QICSS are made possible by the financial or in-kind support of the Social Sciences and Humanities Research Council (SSHRC), the Canadian Institutes of Health Research (CIHR), the Canada Foundation for Innovation (CFI), Statistics Canada, the Fonds de recherche du Québec - Société et culture (FRQSC), the Fonds de recherche du Québec - Santé (FRQS) and the Quebec universities. The views expressed in this paper are those of the authors, and not necessarily those of the CRDCN or its partners.

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1 Introduction

The integration of immigrants into a society can take many forms, such as economic, political, cultural and linguistic (Harder et al., 2018). This paper focuses on the economic aspects of integration, specifically the extent to which age at immigration affects the intergenerational mobility of immigrant children—the so-called 1.5 generation.[1] Intergenerational mobility, which is the ability of children to move up the economic ladder relative to their parents, is a key indicator of the opportunities available to immigrants within a society. In Canada, the 2021 Census showed that 23% of the population was, or had once been, landed immigrants, the highest among the G7. Furthermore, projections show that immigrants could comprise between 29.1% and 34.0% of the population by 2041. So, with an aging population and downward fertility rates, immigration will remain the main driving force for population and labour force growth. The integration of immigrants is therefore crucial to their well-being but also to the economy as a whole, with ripple effects through future generations.

Using a novel data linkage between Canadian intergenerationally-linked tax files and Census data, we present new evidence on the effect of age at immigration on the intergenerational income mobility of the 1.5 generation.[2] We begin by presenting descriptive statistics to paint a portrait of immigrants in the Canadian framework. We then review evidence of the intergenerational income transmission among immigrants before assessing the causal effect of age at immigration on the intergenerational mobility of the 1.5 generation using Chetty and Hendren's (2018) movers approach.

Our analysis is motivated by the absence of studies on the intergenerational mobility of immigrants using micro data. Previous Canadian studies on intergenerational mobility have looked at the population as a whole (Corak and Heisz, 1999; Chen et al., 2017; Connolly et al., 2019a). Studies that have focused on immigrants have had to resort to using group averages

[1] The 1.5 generation refers to immigrants who arrived in their new country before the age of 18. They are called the 1.5 generation because they are not fully part of their country of origin, nor fully integrated into their new country.

[2] This data linkage has only been used by Connolly et al. (2022) in a study focusing on the role of parental education.

due to a lack of micro data (Borjas, 1992, 1993; Card et al., 2000; Aydemir et al., 2009, 2013). They suggest that immigrants have a similar or higher upward mobility than nonimmigrants. Furthermore, studies on the effect of age at immigration on outcomes such as education and earnings show that immigrant children's age at arrival has a negative effect on said outcomes (Bleakley and Chin, 2004; Van Ours and Veenman, 2006; Böhlmark, 2008; Cobb-Clark et al., 2012; Beck et al., 2012; Åslund et al., 2015, for education and Schaafsma and Sweetman, 2001; Pendakur and Pendakur, 2016, for earnings). Additionally, all agree that a critical point exists between the ages of eight and 12; after this age, there is a sharp and continued decrease in the observed measure.

Our results show that nonimmigrants have the strongest correlation between parental and child income rank (0.258) compared to the 1.5 generation (0.191) and second-generation (0.166). Among the 1.5 generation, the correlation becomes stronger with age at arrival. Children arriving during the early stages of childhood have a higher intergenerational mobility (i.e. a lower rank-rank correlation, at 0.158) than children arriving between the ages of six and 11 (0.180) or 12 and 17 (0.206). Combined with a decreasing average parental income rank with age at immigration, this suggests that children of the 1.5 generation have an increasingly difficult time integrating society the older they are at arrival. We estimate causal effect of age at immigration using a model inspired by Chetty and Hendren (2018) in which child income rank is explained by interactions between age at immigration and the average predicted rank of second-generation children from the same region of origin, region of residence, parental income rank and birth cohort. Estimates show the rate at which the 1.5 generation children diverge from second-generation children with age at immigration. Our findings show that up until the age of 10, the relation between age at immigration and income rank is flat. Then, starting from the age of 11, each belated year of arrival is associated with a 3.3 percentile rank decrease on average.

The remainder of this paper is organized as follows. Section 2 describes the data. Section 3 presents our methodology. Section 4 presents our findings, starting with descriptive statistics in subsection 4.1, followed by intergenerational mobility differences across generation status and age at immigration in subsection 4.2, the estimates of age at immigration effects in subsection

4.3, robustness checks in subsection 4.4 and finally, the limitations in subsection 4.5. Section 5 concludes.

2 Data

We use data from Statistics Canada's Intergenerational Income Database (IID) linked to de-identified Census data (Statistics Canada, 2016b,a). The IID provides tax records spanning from 1978 to 2016 for children born between 1963 and 1985 (except for those born in 1971, 1976 and 1981) and their parents. Tax data originates from Statistics Canada's T1 Family File (T1FF), a compilation of T1 forms submitted annually to the Canada Revenue Agency. Tax filers from the same family are identified through common links such as spousal social insurance number, surname, and address.[3] Table 1 shows the number of observations (or child-parents pairs), weighted and unweighted, by birth years. Coverage rate ranges from 68.7% to 82.2% when unweighted and from 88.0% to 99.8% when weighted depending on birth years (Connolly et al., 2019a).

Table 1: Intergenerational Income Database Cohorts

Birth years	IID count	IID weighted count
1963 to 1966	1,219,470	1,591,740
1967 to 1970	1,158,900	1,576,400
1972 to 1975	1,095,160	1,484,520
1977 to 1980	1,166,440	1,558,390
1982 to 1985	1,349,190	1,649,980

Source: Connolly et al. (2019b)
Notes: Each observation represents a child-parents pair.

While tax data contain precise information on income, sociodemographic information is very limited. Statistics Canada's Social Data Linkage Environment allows linkages between existing data using keys generated from record IDs and stored in a key registry. Linking the IID to the Canadian Census of Population—resulting in a dataset called the IID+ by Connolly et al. (2022)—provides supplementary information such as immigration status and place of birth for

[3]For more information on the child-parents linkage in the IID, see Corak and Heisz (1999) and Corak (2020).

successfully linked individuals in the IID. However, since approximately one in five Canadians completes the long-form Census, we cannot find all the IID individuals in the Census data. In order to maximize matches, six Census waves, spanning from 1991 to 2016, are coupled to the IID.

Table 2: Relative Frequency of Children by Immigrant Generation

Birth cohort	Generation status			Rejected	Unlinked	IID weighted count
	1.5	2	3+			
1963 to 1966	4.5	6.6	29.7	0.9	58.3	1,591,740
1967 to 1970	4.0	7.0	27.9	1.0	60.2	1,576,400
1972 to 1975	4.1	8.3	29.4	1.2	57.0	1,484,520
1977 to 1980	4.1	7.6	26.6	1.0	60.7	1,558,390
1982 to 1985	4.0	5.9	23.6	1.0	65.5	1,649,980
All	**4.1**	**7.0**	**27.4**	**1.0**	**60.4**	**7,861,030**

Source: Authors' calculations based on the IID+.
Notes: This table presents the generation status frequencies by birth cohort. Generation status is determined using information from the linkage between the IID and the Census. Rejected children include non-permanent residents, individuals with an age at immigration above 17 years old, individuals living in Canada's territories or with unclear information. Unlinked children includes all individuals for whom the linkage between the IID and Census was unsuccessful. The last column shows the weighted counts of children within the IID as reported in table 1.

Based on Statistics Canada's definition of children with an immigrant background and Rumbaut's (1991) definition of the 1.5 generation, we define the 1.5 generation as individuals who are born outside of Canada, have at least one immigrant parent and arrive in Canada before adulthood (before 18 years of age). Second-generation children are born in Canada and have at least one immigrant parent. Third generation children and above are born in Canada and have nonimmigrant parents. Consequently, determining children's generation status requires Census data on both child and parents. Table 2 shows that our final sample includes over three million child-parents pairs for which we have the tax records of the parents and the child and the generation status of said child. Among those three million pairs of child-parents, 323,810 are 1.5 generation, 553,460 are second-generation and 2,153,760 are nonimmigrant children. More descriptive statistics will follow in Section 4.1.

3 Methodology

In this section, we start by defining our main variables and we continue with a presentation of the models we use.

3.1 Variables Definitions

1. Child Income Rank. We average child income in adulthood over five years from ages 27 to 31 to capture lifetime income (Solon, 1992). Our measures are based on Canada Revenue Agency's definition of total income which includes earnings, interest and investment income, self-employment net income, taxable capital gains, losses and dividends, and benefits measured in 2017 dollars. Rank is then determined by comparing this average income with all other children within the same birth year. For some robustness checks, child income rank is also taken from ages 30 to 34.

2. Parental Income Rank. We define parental income rank in the same way as child income rank, based on averages of total income. Family income, or the sum of both mother and father, is measured when the child is 15 to 19 years old in order to reflect parental economic resources while the child is growing up. Rank is relative to all other parents with a child born during the same birth year. We also compute parental income rank when parents are aged 40 to 49.

3. Age at immigration. Census data does not provide information on age at immigration directly. Instead, the first year an individual becomes a landed immigrant is used as a proxy for age at immigration (Corak, 2012). This can lead to an overestimation of age at immigration, particularly among refugees. Children are considered 1.5 generation immigrants if they are born outside of Canada, have at least one immigrant parent and arrive before age 18. If immigration happens during adulthood, they are considered first generation immigrants and are thus excluded from our final sample.

4. Region of Origin. From the Census, we obtain information on country of birth. Child's country of birth is used as country of origin for children of the 1.5 generation and parental country of birth is used for second-generation children. If the mother's and father's country of

birth are not identical, the mother's country of birth is recorded. Following Aydemir et al. (2009, 2013), countries are then grouped into five regions of origin: (1) North America and northern and western Europe, (2) Caribbean, Central and South America, and Oceania, (3) Southern and eastern Europe, (4) Africa and (5) Asia. Appendix Table B4 lists countries by region of origin. Children with missing or unclear information are excluded.

5. Region of Residence. Both the IID and the Census provide information on place of residence. The Census records the child's province of residence at the time the census is conducted whereas the IID records the child's province of residence when the child is matched to their parents, generally between the ages of 16 and 19. We use IID data to determine the child's province of residence. Provinces are grouped into five regions of residence: (1) British Columbia, (2) Prairies, (3) Ontario, (4) Quebec and (5) Atlantic. Individuals residing in Canada's territories are excluded due to their small number.

6. Birth Cohort. Table 1 shows that IID children are divided into five birth cohorts according to birth years. From here on, we refer to cohorts using the group's first birth year (birth years 1963 to 1966 are in birth cohort 1963, birth years 1967 to 1970 are in birth cohort 1967 and so forth). For robustness, we also redistribute children into three cohorts: (i) birth years 1963 to 1970, (ii) 1972 to 1980, and (iii) 1982 to 1985, inclusively.

3.2 Models

Our analysis is based on rank mobility, a simple model estimated using ordinary least squares in which child income rank (r_i) is explained by parental income rank (p_i) (Chetty et al., 2014). The slope coefficient of that model gives the correlation between parental income rank and child income rank. The higher the coefficient is, the stronger the intergenerational income transmission, and the lower the intergenerational socioeconomic mobility is. Equality of opportunity is a goal of society, meaning children from poor backgrounds should have the same opportunities for success as rich children. However, total equality of opportunity leads to zero correlation between parental income rank and child income rank, which is not necessarily optimal. For instance, children from wealthy backgrounds usually earn higher incomes partly because their

parents tend to have a higher education and invest more in their children's future. In this case, an absence of intergenerational mobility would mean there is no return to their investment.

In this paper, we first present some estimates of rank mobility by immigrant and generation status. Our objective is then to estimate the causal effect of age at immigration on the intergenerational income transmission between children of the 1.5 generation and their parents. We achieve this by adapting Chetty and Hendren's (2018) movers approach to immigrants, where the child's rank is explained by interactions between age at immigration and the average predicted rank of second generation children from the same region of origin, residence, parental income rank and birth cohort. The model gives us the rate at which children from the 1.5 generation diverge from second-generation children when age at arrival increases.

We start by computing $\bar{r}_{odps}$, the average predicted income rank for second-generation children originally from region of origin o, living in region of residence d, with parental income rank p and in birth cohort s obtained from the estimation of Equation 1.

$$r_i = a_{ods} + b_{ods} p_i + \mu_i \tag{1}$$

$$\bar{r}_{odps} = \hat{a}_{ods} + \hat{b}_{ods} p \tag{2}$$

We then analyze how the 1.5 children's income ranks are related to those of the average second-generation using the following:

$$r_i = \sum_{s=1963}^{1982} I(s_i = s)(\alpha_s^1 + \alpha_s^2 \bar{r}_{ops}) + \sum_{m=1}^{17} I(m_i = m)(\zeta_m^1 + \zeta_m^2 p_i) + \sum_{m=1}^{17} b_m I(m_i = m)\bar{r}_{odps} + \sum_{s=1963}^{1982} \kappa_s^d I(s_i = s)\bar{r}_{odps} + \epsilon_i \tag{3}$$

where b_m measures the correlation between the income rank of child i who arrives in Canada at age m and the average predicted income rank of second-generation children from the same region of origin o, region of residence d, parental income rank p and birth cohort s interacted with age at immigration.

Following Chetty and Hendren (2018), b_m can be further decomposed into two parts:

$$b_m = \beta_m + \delta_m \tag{4}$$

where β_m is the effect of arriving and spending year m in Canada and δ_m is a selection effect. Therefore, the effect of age at immigration (or exposure effect) at age m is defined as follows:

$$\gamma_m = \beta_m - \beta_{m+1} \tag{5}$$

Selection can arise if the decision to immigrate to Canada is not random. For instance, parents who value education might decide to immigrate when their children are young in order to maximize their educational potential. Following Chetty and Hendren (2018), we assume that there is selection (selection is non zero), but that it is not a function of age at immigration. Under this assumption, $\delta_m = \delta$, and so:

$$\gamma_m = b_m - b_{m+1} \tag{6}$$

With the selection effects cancelling out, the effect of age at immigration can be directly extracted from equation 3. This assumption's validity will be evaluated later on with a siblings comparison.

4 Findings

We now present our findings. We start with descriptive statistics, move on to intergenerational mobility estimates by immigration status and age at arrival, to then present the causal effect of age at immigration. We close the section by discussing the robustness and limits of our study.

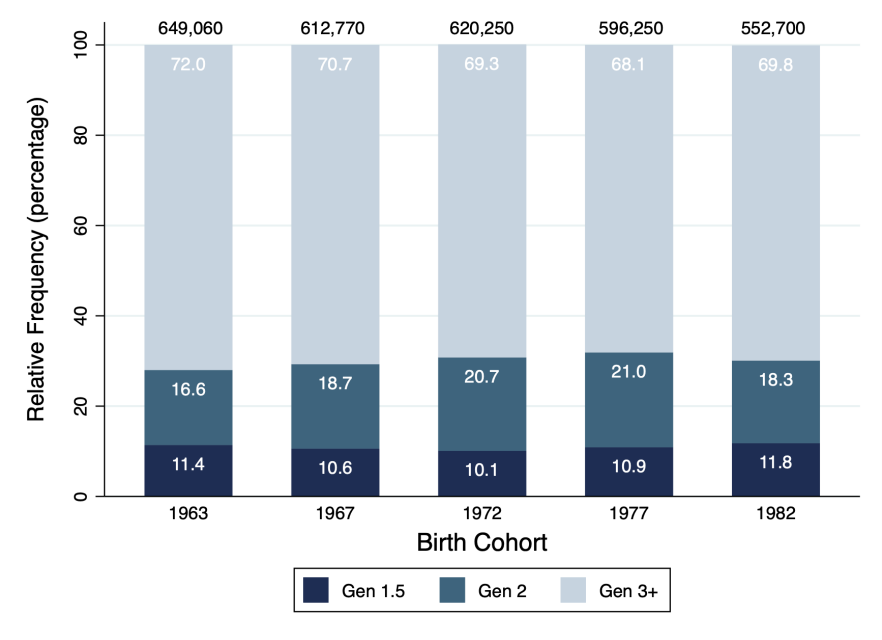
4.1 Descriptive statistics

In this subsection, we present a descriptive characterization of the children in the IID using information provided by the linkage between the IID and the Census waves of 1991 to 2016. For ease of reading, the child's generation status is also attributed to the parents, regardless of their own generation status (meaning a "second-generation parent" is actually a first-generation immigrant whose child is a second-generation immigrant).

4.1.1 Generation Status

Table 2 showed that generational status could be determined for 38.5% of the children in the IID, amounting to over three million children in total, of which 323,810 belong to the 1.5

Figure 1: Distribution of Generation Status by Birth Cohort

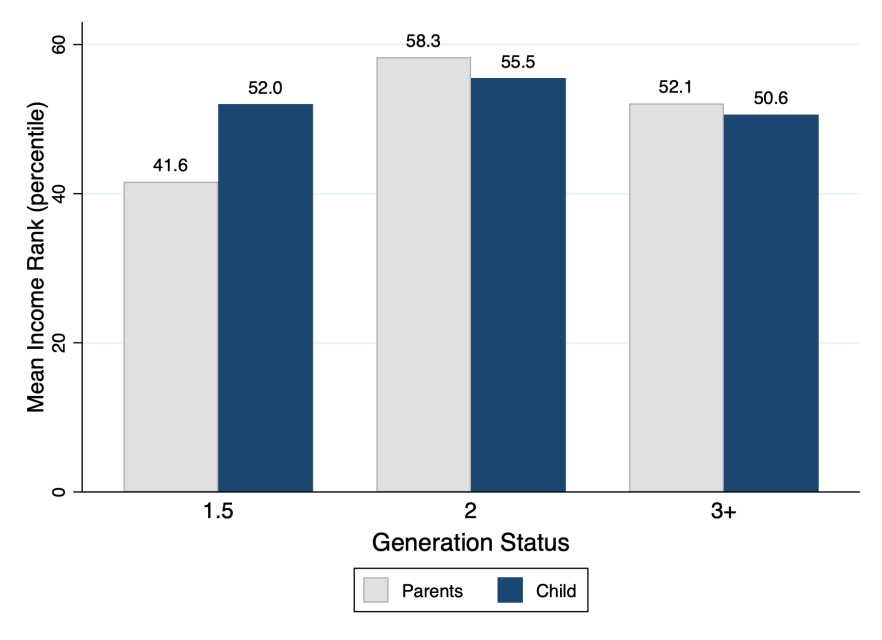


Source: Authors' calculations based on the IID+.
Notes: Percentages by category are in white on the bars; total (weighted) number of children per cohort are above the bars. The number of children belonging to the 1.5 generation varies from 60,270 to 71,150, depending on the birth cohort, while the number of children belonging to the second-generation varies from 97,800 to 122,790. The 95% confidence intervals are too narrow to be included.

generation, 553,460 to the second-generation and 2,153,760 to the third generation or higher. Figure 1 presents the relative distribution of children by generation status within a given birth cohort. The 1.5 generation represents between 10.1% and 11.8% (depending on the child's birth cohort) of the children whose generation status could be determined. Second-generation children represent 16.6% to 21.0% of those children. This figure also shows that proportions remain similar throughout birth cohorts, although, over time, the portion of immigrants coming from North America and Europe decreases, while those coming from the other three regions increases (not shown here).

Average income ranks are presented in Figure 2 for both parents and children according

Figure 2: Average Income Ranks by Generation Status



Source: Authors' calculations based on the IID+.
Notes: Mean percentile ranks are shown above the bars. Parental income is calculated by averaging household total income over five years when the child is 15 to 19 years of age. Percentile rank is determined by comparing parental income relative to all other parents with a child born within the same birth year. Child income rank is determined in the same way with total individual income averaged between the ages of 27 and 31. The 95% confidence intervals are too narrow to be included in this figure.

to the child's generation status.[4] Some observations can be made from this figure. First, with a high count of nonimmigrant parents (2,131,650) and children (2,082,720), their average income rank approaches the 50^{th} percentile. Second, Figure 2 also shows that the average income rank of parents of the 1.5 generation is below that of nonimmigrants (41.6 versus 52.1). This could stem from the parents' inability to recover from the shock of immigration by the time we measure their income. By comparison, with an average income rank of 58.3, second-

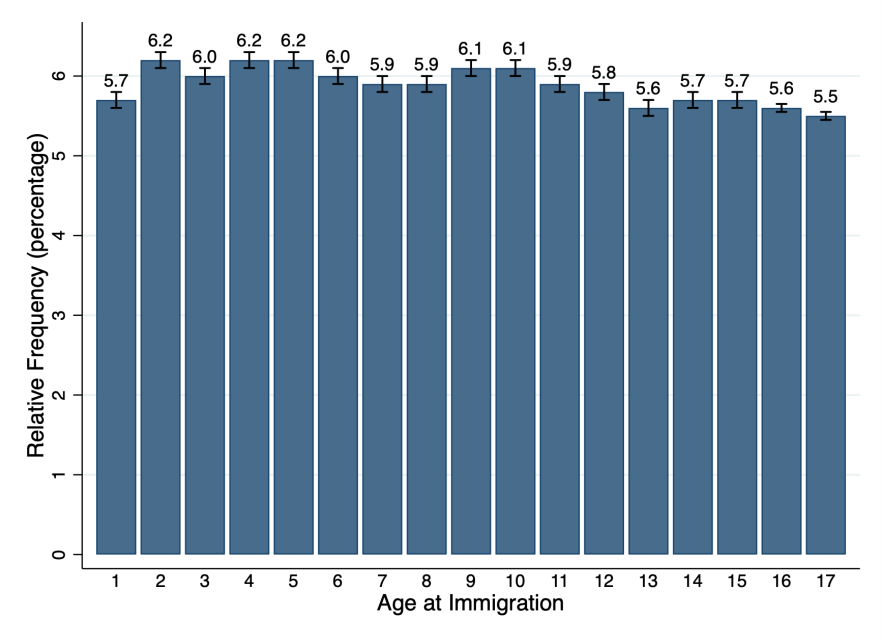
[4]We also present the distribution of parents and children by generation status and income decile in Appendix Figures A1 and A2. Note too that when parental income rank is measured at the time the parent is between 40 and 49 years of age, instead of when the child is 15 to 19 years of age, the findings are largely similar.

generation parents have on average a much higher income rank than nonimmigrant parents. Parents of second-generation children have spent more time in Canada than parents of the 1.5 generation, and thus have had more time to recover from this initial shock of immigration. This high average rank among second-generation parents could also be a direct result of the selection process individuals undergo in order to immigrate to Canada. For example, language skills, education, work experience, age, adaptability and arranged employment in Canada are all taken into account when assessing an applicant's eligibility for the Federal Skilled Worker Program, factors contributing to an individual's integration into society. The differences in income rank among immigrant parents could also lie in their places of birth. For instance, second-generation parents could come from countries whose nationals typically have higher incomes. This will be further analysed in Figures 5 and 6. Third, Figure 2 shows that immigrant children have a higher average rank than nonimmigrant children with second-generation children placing first (55.5) followed by the 1.5 generation (52.0). Children of the 1.5 generation have a much better outcome than that of their parents. This could be due to the positive effects of an early immigration, like a prolonged exposure to the local education system or an increased ability to learn a second language. This could also simply show children catching up to their parents earning potential. Lastly, and somewhat counterintuitively, Figure 2 also indicates that second-generation children have a lower rank than their parents. However, when second-generation children and 1.5 generation children are pooled together, the children (54.2) outdo their parents (52.2), highlighting the importance of disaggregating the 1.5 and second generations. These results suggest that the main difference lies at the parental level rather than that of the children.

4.1.2 The 1.5 Generation

Focusing on the 1.5 generation, Figure 3 presents the distribution of the age at arrival. Children of the 1.5 generation are more or less evenly distributed over age at immigration, with an average of approximately 18,000 individuals per age at arrival. A slight decrease is observed when children arrive during adolescence. This could reflect the inability of the IID to properly identify recent immigrants and will be further discussed in subsection 4.5.

Figure 3: Distribution of the 1.5 Generation by Age at Immigration

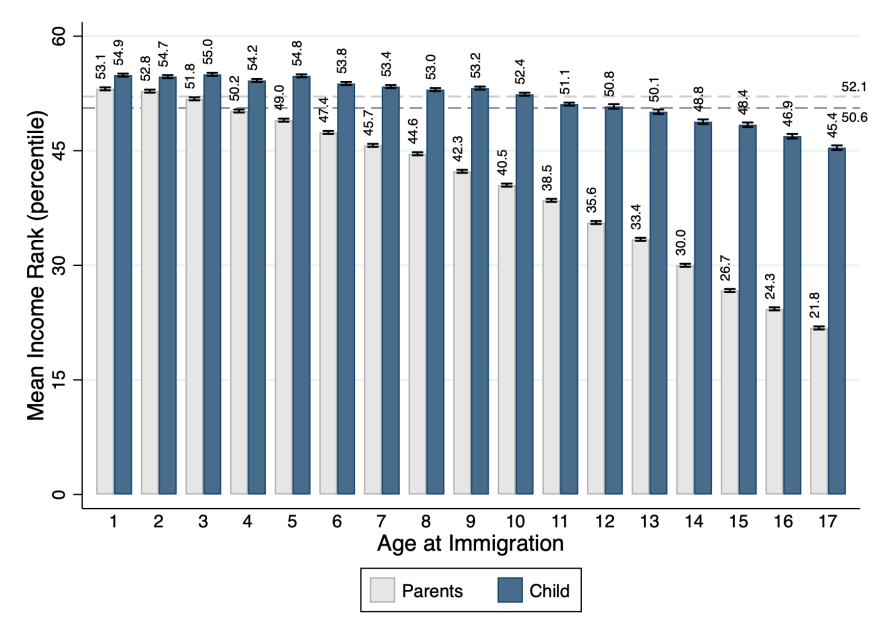


Source: Authors' calculations based on the IID+.
Notes: Relative frequencies, in percentage, are shown above each bar. The 95% confidence intervals are presented atop each bar.

Figure 4 reports the average income ranks for parents and children of the 1.5 generation by age at immigration.[5] A negative relationship can be observed between income rank and age at immigration, with a much steeper decline for parents than children. Parental average rank goes from 53.1 to 21.8, whereas children's average rank goes from 54.9 to 45.4 when age at immigration goes from 1 to 17. Figure 4 also shows that children of the 1.5 generation surpass nonimmigrant children until the age of arrival of 13, when the average income rank (50.1) drops below the average rank of nonimmigrant children (50.6). In comparison, only parents with

[5]One limitation of this study lies in the way income rank is calculated. By measuring income rank using an average over five years, the averaged income of recent immigrants, most likely averaged over a smaller number of years, is more susceptible to annual fluctuations. Moreover, parental income is measured when the child is aged 15 to 19, so the older the child is at immigration, the more recent immigration is when parental income is measured. This will be discussed in subsection 4.5. Note however that small changes are observed when parental income is measured when parents are aged 40 to 49, but the decreasing pattern with age at arrival stays the same.

Figure 4: Average Income Ranks by Age at Immigration among the 1.5 Generation



Source: Authors' calculations based on the IID+.
Notes: The dashed horizontal lines represent the average income rank for nonimmigrant parents (52.1) and children (50.6). Average ranks, in percentile ranks, are shown above each bar. The 95% confidence intervals are presented atop each bar.

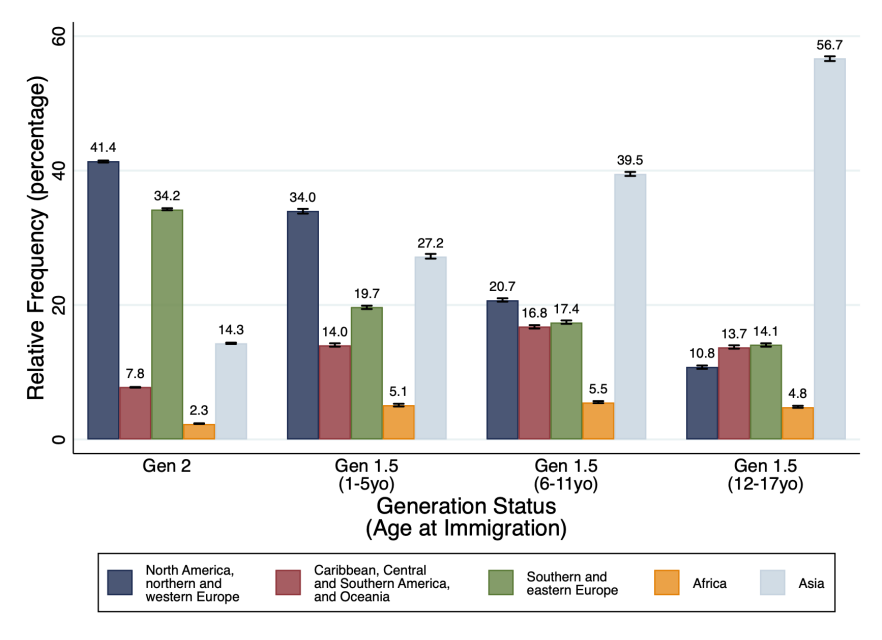
children arriving before the age of 3 do better than nonimmigrant parents. This aligns with Figure 2 in which we saw that children of the 1.5 generation have higher average ranks than their parents, whereas the reverse is true for nonimmigrants.

4.1.3 Region of Origin

Figure 5 presents the distribution of children by region of origin, generation status and age at immigration (grouped using the following intervals: 1-5, 6-11 and 12-17 years old).[6] Region of origin is determined by children's place of birth for the 1.5 generation and by parental place of birth for second-generation children.

[6]Appendix Table B2 and Figures A3 and A4 show the distribution and average income ranks of parents and children by generation status, age at immigration and region of residence (instead of origin).

Figure 5: Region of Origin by Generational Status and Age at Immigration



Source: Authors' calculations based on the IID+.
Notes: Region of origin is determined by children's place of birth for the 1.5 generation and by parental place of birth for the second generation. When parental place of birth is not the same, maternal place of birth is used. Relative frequencies, in percentage, are shown above each bar. The 95% confidence intervals are presented atop each bar.

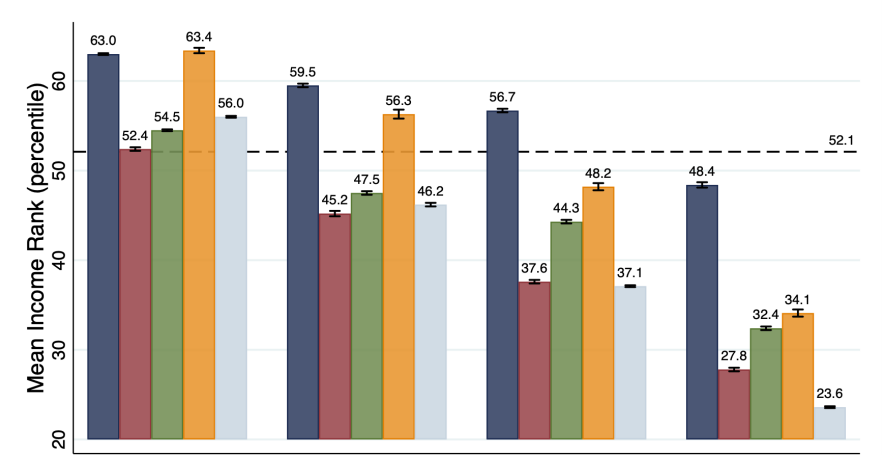
Three trends emerge from this figure. First, second-generation children mainly come from (i) North America, northern and western Europe (41.4%) and (ii) southern and eastern Europe (34.2%), while children from those regions only represent 21.5% and 16.7% of all children of the 1.5 generation, respectively (see Appendix Table B1). Additionally, the proportion of children coming from these regions decreases with age at immigration, with children from North America, northern and western Europe decreasing at a faster rate than those from southern and eastern Europe. Second, children from Asia only represent 14.3% of second-generation children, but represent 41.5% of all children of the 1.5 generation. Their share increases with age at immigration, going from 27.2% when the children arrive between the ages of one and five, to

39.5% between six and 11, and finally, 56.7% between 12 and 17. Lastly, age at arrival does not seem to be linked to the share of children coming from (i) the Caribbean, Central and Southern America, Oceania and (ii) Africa.

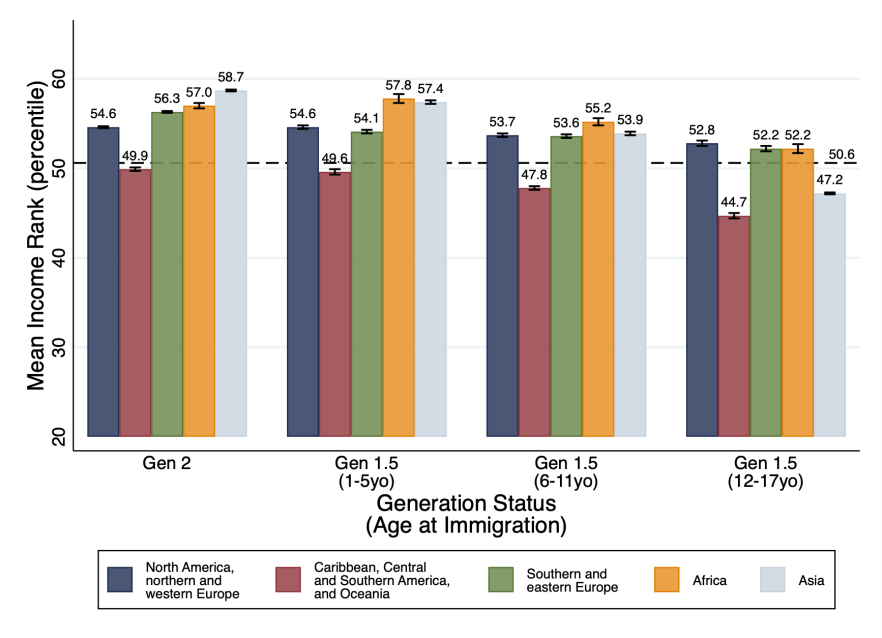
Figure 6(a) shows the average income rank of parents by region of origin, generation status and age at immigration. The dashed line represents the average income rank of nonimmigrant parents. In this figure, we can see that all second-generation parents outdo nonimmigrant parents, with parents from Africa (63.4), North America, northern and western Europe (63.0) performing the best and parents from the Caribbean, Central and Southern America, and Oceania having the lowest ranks (52.4). Parents of the 1.5 generation generally do not surpass nonimmigrant parents in terms of average income ranks. Two exceptions are evident: parents from North America, northern and western Europe with children arriving to Canada under the age of 12, and parents from Africa with children arriving under the age of 6. Figure 6(a) also shows that parental average rank decreases with age at immigration for all regions of origin, going as low as 23.6 for Asian parents with children arriving during adolescence.

Figure 6(b) reports the average income rank for children. Here, as opposed to their parents, most children do better than nonimmigrants—a success story for immigrant children. The only exceptions are children from the Caribbean, Central and South America, and Oceania whose average income rank is below that of nonimmigrant children regardless of generation status and age at immigration, and Asian children of the 1.5 generation whose age at arrival is between 12 and 17. The average income rank of those children are 49.9, 49.6, 47.8, 44.7 and 47.2, respectively. Figure 6(b) also shows that children's average rank decreases with age at immigration, although at a much slower pace than that of their parents—a pattern consistent with Figure 4.

Figure 6: Average Income Rank by Origin, Generational Status and Age at Immigration



(a) Parents



(b) Children

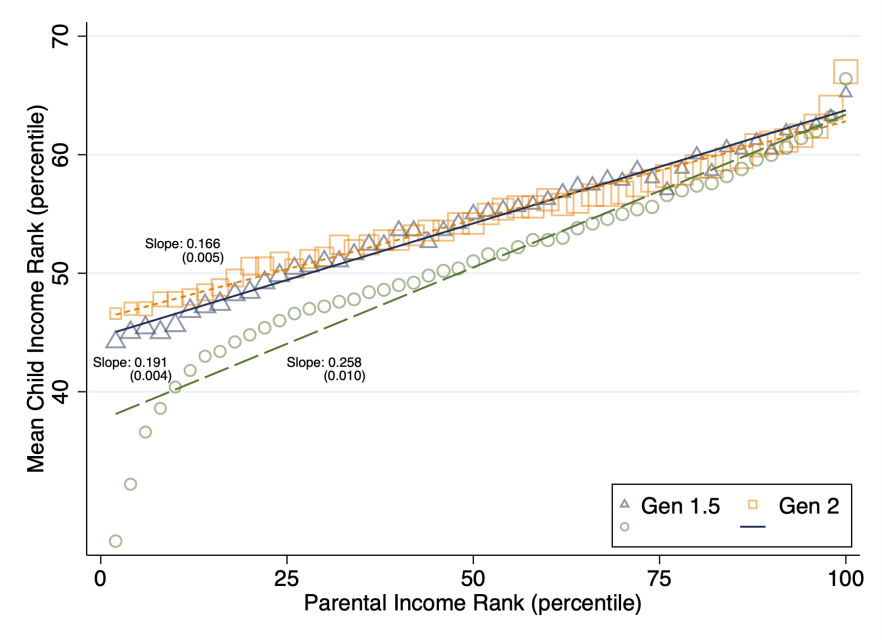
Source: Authors' calculations based on the IID+.
Notes: The dashed lines represent the average rank of nonimmigrant parents (a) and children (b). Average ranks, in percentile ranks, are shown above each bar. The 95% confidence intervals are presented atop each bar.

The difference in average income ranks is the biggest for children originating from Asia, with an average rank spanning from 57.4 when children arrive between the ages of one and five to 47.2 when children arrive between the ages of 12 and 17, a 10.2 percentile gap. Children from Africa have an income rank gap of 5.6, while children from (i) the Caribbean, Central and South America, and Oceania, (ii) eastern and southern Europe and (iii) North America, northern and western Europe have a rank gap of 4.9, 1.9 and 1.8 percentile rank, respectively, between children arriving during the early stages of childhood and adolescence. The same trend is observed at the parental level with the income rank gap ranging from 22.6, 22.2, 17.4, 15.1 and 11.1 percentile rank, respectively. This suggests that age at immigration has a greater cost for visible minorities (Schaafsma and Sweetman, 2001; Pendakur and Pendakur, 2016). Several factors can contribute to the lower income ranks experienced by these parents in the early years after their arrival, including language barriers, challenges in recognizing foreign credentials, and potential discrimination. Additionally, the income ranks can vary depending on the type of immigrant (such as economic immigrants, family-sponsored immigrants, or refugees), which in turn can vary with time and origin. In the late 1970s, a significant influx of Asian refugees arrived following the Vietnam War, possibly contributing to their low income rank.

4.2 Intergenerational Income Mobility

In this subsection, we present a visualization of the relationship between child income rank and parental income rank by generation status (Figure 7) and age at immigration for the 1.5 generation (Figure 8). These figures are binned scatterplots: each point represents a given pair of parental income rank (on the X axis), and plots the average income rank of children on the Y axis, with different series by generation status (Figure 7) or age at immigration (Figure 8). The marker size indicates the relative share of children in each bin. For ease of interpretation, parental income percentiles are grouped into pairs, hence there are 50 points per series. Intergenerational income rank mobility estimates are given by the estimated slope coefficients from Equation 1. A high rank-rank slope means that parental income rank can greatly predict child income rank, and thus that intergenerational mobility is low.

Figure 7: Intergenerational Income Rank Mobility by Generation Status

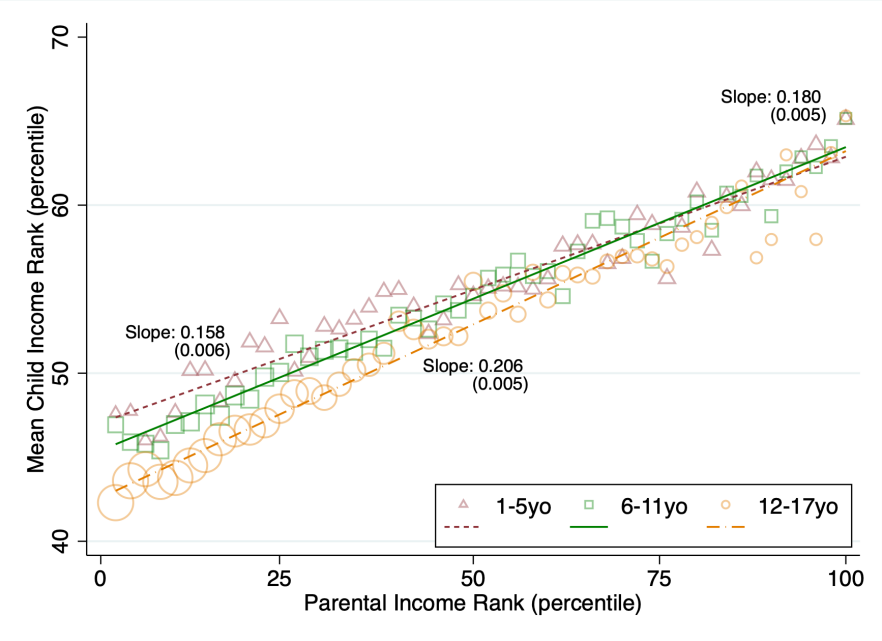


Source: Authors' calculations based on the IID+.
Notes: Children's income is measured between the ages of 27 and 31. Rank is assigned based on the child's income at adulthood relative to all other children in their same birth year. Parental income rank is assigned in the same way, with income measured when their child is between the ages of 15 and 19. Parental income ranks are grouped in pairs; each point represents two percentiles. Size of markers is relative to the number of children in each bin.

Figure 7 shows that second-generation children have a greater intergenerational mobility than children of the 1.5 generation given that their slopes are 0.166 (95% IC: [0.156;0.176]) and 0.191 (95% IC: [0.183;0.199]), respectively. Nonetheless, they both have a greater intergenerational mobility than nonimmigrant children whose slope is estimated at 0.258 (95% IC: [0.238;0.278]). Also, when parental income rank is above the 25^{th} percentile, the average income rank of second-generation children is not statistically different to that of children of the 1.5 generation. Under the 25^{th} parental income rank, second-generation children have a higher average income rank than children of the 1.5 generation, suggesting that children of the 1.5 generation from poor families have a harder time integrating than immigrant children from better economic backgrounds

when compared to second-generation children. Relative to nonimmigrant children, immigrant children, 1.5 generation or second-generation, have equal or superior average ranks. Immigrant children from poor backgrounds outdo by far nonimmigrants from similar backgrounds, and especially at the bottom of the parental income distribution. This merits further attention in subsequent studies.

Figure 8: Intergenerational Income Rank Mobility of the 1.5 Generation by Age at Immigration



Source: Authors' calculations based on the IID+.
Notes: This figure presents a binned scatter plot of the relationship between the income rank of children of the 1.5 generation and their parents by age at immigration (1-5, 6-11 and 12-17 years of age). Parental income ranks are grouped in pairs; each point represents two percentiles. Size of markers is relative to the number of children in each bin.

Figure 8 shows that the relationship between parental income rank and child income rank becomes stronger with age at immigration, increasing from 0.158, to 0.180, and to 0.206 when age at immigration goes from one to five, six to 10 and 12 to 17, respectively. The average income rank of children of the 1.5 generation arriving between the ages of one and five is not

statistically different than that of children arriving between the ages of six and 10, regardless of parental income rank. The average income rank of children with an age at arrival between 12 and 17 is statistically different than that of the other children of the 1.5 generation when parental income rank is below the 30^{th} percentile.

Table 3: Rank Mobility by Generation Status, Age at Immigration and Region of Origin

Immigrant generation	3+	2	1.5			
Age at arrival			1-5yo	6-11yo	12-17yo	1-17yo
All	0.258	0.166	0.158	0.180	0.206	0.191
	(0.010)	(0.005)	(0.006)	(0.005)	(0.005)	(0.004)
Region of origin						
North America, northern		0.167	0.155	0.167	0.138	0.156
and western Europe		(0.006)	(0.008)	(0.008)	(0.011)	(0.006)
Caribbean, Central and		0.198	0.181	0.215	0.194	0.204
Southern America, and Oceania		(0.007)	(0.011)	(0.009)	(0.011)	(0.006)
Southern and eastern		0.183	0.164	0.181	0.190	0.173
Europe		(0.005)	(0.008)	(0.009)	(0.013)	(0.006)
Africa		0.197	0.174	0.193	0.184	0.191
		(0.014)	(0.017)	(0.016)	(0.017)	(0.010)
Asia		0.151	0.171	0.196	0.236	0.234
		(0.007)	(0.011)	(0.006)	(0.008)	(0.005)

Source: Authors' calculations based on the IID+.
Notes: Each result in this table represents the estimated coefficient from a distinct rank-rank mobility equation. For instance, the coefficient 0.151 represents the intergenerational mobility between second-generation parents and children from Asia. Robust standard errors in parentheses.

Table 3 reports the rank mobility (rank-rank slope) of children by generation status, age at immigration and region of origin.[7] The rank mobility of second-generation children is statistically different from the rank mobility of children of the 1.5 generation only for children originating from Asia. Within the 1.5 generation, only those from Asia differ in terms of rank

[7]Appendix Figures A5 and A6 present a visualization of the relationship between child income rank and parental income rank by generation status (A5) and age at immigration (A6) for Asian children.
Appendix Table B3 reports the rank mobility of children by generation status, age at immigration and region of residence (instead of origin).

mobility for all ages at immigration.

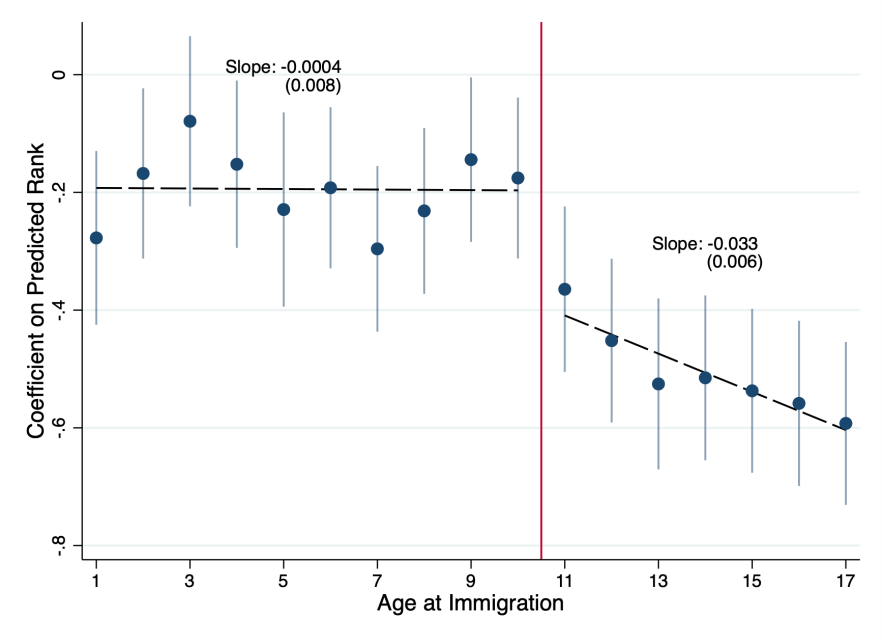
4.3 Estimates of Age at Immigration Effect

As explained in Section 3, the causal effect γ_m of age at immigration on the income rank of children of the 1.5 generation is estimated by interacting the age at arrival m with the predicted income rank of the average second generation child $\bar{r}_{odps}$ from the same region of origin o, region of residence d, parental income rank p and birth cohort s. This predicted income rank is based on rank mobility (Equation 1). Under the assumption that selection is not a function of age at immigration, exposure effects can be directly extracted from the series of coefficients b_m from Equation 3 where $\gamma_m = b_m - b_{m+1}$. This gives us the rate at which children of the 1.5 generation diverge from second-generation children the older they are at arrival.

Figure 9 plots our baseline estimates of b_m. These estimates display two key patterns. First, $\hat{b}_m < 0$ and $\hat{\gamma} \approx 0$ for $m \leq 10$–we get the estimate of γ by fitting a linear model through the points up to 10 years of age. This shows that, although the 1.5 generation is at a disadvantage relative to second-generation children, age at immigration is not a factor when immigration happens before 10 years old inclusively. Second, the estimates of b_m decline at a constant rate with age at immigration m for $m > 10$. By fitting a linear model to the points above 10 years of age, we estimate an exposure effect of $\hat{\gamma} = -0.033$ (std. err.=0.006). That is, the income rank in adulthood of children who immigrate to Canada diverge from the predicted average income rank of second generation children at a rate of 3.3 percentile per year of exposure lost when age at immigration is between ages 11 and 17. These results align with previous literature on the effects of age at immigration on outcomes such as earnings, education and language proficiency. Past research showed that a turning point exists between the ages of eight and 12. Age at arrival has a pronounced detrimental impact on these outcomes when arrival occurs beyond this critical point. However, before reaching this pivotal stage, age at arrival demonstrates minimal influence on the observed outcome.

Chetty and Hendren (2018) introduced this methodology to demonstrate the impact of neighborhoods on outcomes such as earnings and college attendance rates for American children.

Figure 9: Age at Immigration Effects on Income Ranks in Adulthood



Source: Authors' calculations based on the IID+.
Notes: This figure plots the coefficients b_m for each age at immigration m using the baseline specification in equation 3. The sample includes all children of the 1.5 generation in the primary analysis sample whose age at immigration is between 1 and 17, inclusively. Child income ranks are measured at ages 27 to 31. Parental income ranks are measured when the child is 15 to 19 years old. Age at immigration effects are estimated by the interactions between the predicted income ranks of second generation children $\bar{r}_{odps}$ and age at immigration m. The magnitudes of the slopes represent estimates of annual age at immigration effects.

Through their research, they unveil the influence of childhood exposure to neighborhoods on these outcomes. Notably, they find that when families relocate to more favorable neighborhoods, the outcomes of the children improve progressively and consistently. This linear improvement is proportional to the duration of time the children spend growing up in the new area, with an approximate rate of 4% per year of exposure. These findings emphasize the role of neighborhoods in shaping the long-term prospects and opportunities for children in the United States. Deutscher (2020) successfully replicates the findings of Chetty and Hendren (2018) in Australia, a country

characterized by lower inequality, greater social mobility, and distinct institutional factors when compared to the United States. The study reveals that the location where an Australian child grows up exerts a significant causal influence on their adult outcomes, with particular emphasis on the teenage years. Notably, the expected ranks of children who relocate converge to those of permanent residents in their destination neighborhood at a rate of approximately 1.1% per year for each year spent in the neighborhood prior to the age of 11. However, after the age of 11, this rate of convergence increases substantially to approximately 4.2% per year. These findings are consistent with our own research. We observe that, up until the age of 10, age at arrival does not have a significant impact on income rank. However, beyond this threshold, we observe a linear relationship between exposure to Canada and children's outcomes. Specifically, for each year lived outside of Canada after the age of 10, there is an deterioration in income rank of approximately 3.3 percentiles. These results shed light on the role of place, particularly during adolescence, in shaping the economic prospects of immigrant children.

These findings highlight two potential approaches to enhance the economic integration of immigrant children. First, additional support should be provided to adolescents who arrive as immigrants. It is observed that the income rank of children, when measured between the ages of 27 and 31, declines as their age at arrival increases. Notably, children from Asia, the Caribbean, Central and South America, and Oceania tend to have lower earnings compared to their counterparts who arrived prior to adolescence. Therefore, targeted assistance and resources should be directed towards these specific groups to improve their economic outcomes. Second, the economic integration of parents into society has repercussions on their children. The degree of influence exerted by parental integration on children's outcomes is partly linked to the strength of intergenerational mobility. When there is a strong correlation between the income rank of parents and their children, the influence of parental integration becomes more pronounced. Consequently, improving parental outcomes, particularly for those facing low intergenerational mobility, enhances the outcomes of their children. By focusing on enhancing the outcomes of parents, particularly immigrants from Asia, the overall well-being and prospects of their children can also be positively affected (see Table 3 and Appendix Figures A5 and A6). Alternatively,

implementing incentives for families with young children to immigrate to Canada can be a viable approach. By encouraging more families with young children to choose immigration, the aim is, in the long term, to end up with children whose outcomes and opportunities are better.

4.4 Robustness checks

Table 4 shows that estimates of annual childhood exposure effects γ are robust to alternative specifications and sample definitions. In column (2), we report estimates from equation 3 using child income ranks measured at ages 30 to 34. In column (3), we show exposure effect estimates using family income ranks measured when parents are between the ages of 40 and 49. In column (4), we define children with an immigrant background as children whose parents are both immigrants whereas our baseline model defines children with an immigrant background as children with at least one immigrant parent. In column (5), we redistribute the five birth cohorts into three: (i) 1963 and 1967, (ii) 1972 and 1977, and (iii) 1982. In column (6), we exclude children of the 1.5 generation with predicted ranks based on less than 50 second generation children. By and large, the estimates of γ in columns (2) through (7) to not differ much from the baseline seen in column (1): up to age 10, the slopes are not statistically different from zero, whereas after age 10, the slopes range from -0.038 to -0.031, and with one estimate at -0.022. Our robustness checks show that these specifications and sample definitions do not affect significantly the estimates of γ.[8]

In column (7), we add family fixed effects to the baseline specification in column (1). Our data is not particularly well suited for this exercise (we will get back to this in the next subsection), so we prefer our baseline estimates, but we still find the estimates informative. If parents with better unobservable characteristics immigrate to Canada when their children are younger, the assumption that selection is not a function of age at immigration is violated. Adding family fixed effects when estimating Equation 3 allows us to control for family-level differences. Figure 10 plots the resulting estimates of b_m. The linear decline in the estimated values of b_m from ages 11 to 17 are similar to that in the baseline specification. The 1.5 generation children diverge

[8] Appendix Figure A7 plots the resulting estimates.

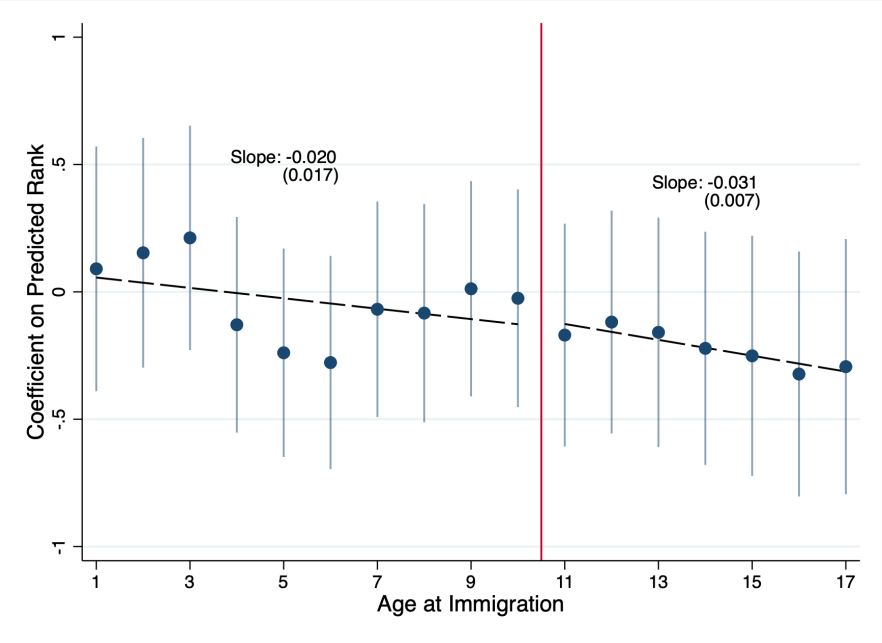
Table 4: Exposure Effect Estimates by Specification and Sample Definition

Specification	Baseline	Child income	Parental income	Generation Status	Birth cohort	n≥50	Family fixed effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age at immigration							
1 to 10	0.000	-0.006	-0.001	-0.008	-0.001	0.000	-0.020
	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.017)
11 to 17	-0.033	-0.038	-0.031	-0.022	-0.035	-0.035	-0.031
	(0.006)	(0.007)	(0.011)	(0.014)	(0.003)	(0.005)	(0.007)
Num. of obs.	236,300	232,230	225,280	138,830	236,300	235,690	58,400

Source: Authors' calculations based on the IID+.
Note: This table reports estimates of annual childhood exposure effects γ on children's income ranks when age at immigration is between ages 1 to 10 and 11 to 17. These estimates can be interpreted as the impact of spending an additional year of childhood in Canada on a child's income rank in adulthood. Column (1) reports the estimates of γ from equation 3 when child income rank is measured at ages 27 to 31 and family income rank is measured when children are aged 15 to 19. Column (2) shows estimates when child income ranks are measured at ages 30 to 34. Column (3) reports estimates when family income ranks are measured when parents are aged 40 to 49. Column (4) excludes immigrant children with only one immigrant parent. Column (5) redistributes the five birth cohorts into three: (i) 1963 to 1970, (ii) 1972 to 1980, and (iii) 1982 to 1985. Column (6) excludes 1.5 children with predicted ranks based on less than 50 second-generation children. Lastly, column (7) adds family fixed effects to the specification in column (1). The 95% confidence intervals are shown in parentheses.

from the second generation children at a yearly rate of 3.1 percentile ranks (std. err.=0.007). Under the age of 11, unlike the other specifications and sample definitions, the annual exposure effect estimate of $\gamma = 0.020$ (std. err.=0.017) is statistically different from zero. The income rank of children of the 1.5 generation in adulthood diverges from the average income rank of second generation children by 2.0 percentile ranks with each belated year of immigration between the ages of one and 10, although, this result is not significantly different from the baseline specification. Furthermore, the estimates are not statistically different from zero when age at arrival is below 10 years old. This difference with our baseline estimates could be attributed to selection.

Figure 10: Age at Immigration Effects on Income Ranks in Adulthood with Family Fixed Effects



Source: Authors' calculations based on the IID+.
Note: This figure includes family fixed effects when estimating equation 3. The sample excludes all 1.5 generation only children from the primary analysis sample.

4.5 Limitations

Future research could address several important limitations observed in this study. First, immigrants are underrepresented in the data. Children must be between 16 and 19 years of age during the matching period, have a social insurance number and live with their parents for at least one of those years. Otherwise, the link cannot be established, excluding both children and parents from the IID. Immigrants, especially recent immigrants, are more likely to fall short on at least one of these criteria. Additionally, in cases where either the child or the parents have not completed the (long form) Census between 1991 and 2016, generational status of the child cannot be ascertained, reducing the sample size of immigrants. Linking the IID with more

complete data on immigrants, such as landing files, would help identify generational status for a larger share of the IID.

Second, given the construction criteria of the IID, the data used are not well suited for siblings comparisons. The IID contains administrative tax data of children born between 1963 and 1985, excluding those born in 1971, 1976, and 1981, and their parents. If an individual has siblings born outside the IID target birth years, those siblings are not acknowledged by the IID. For example, an individual with one sibling born in 1976 will be considered an only child in the IID. Therefore, several families are excluded from our sample of siblings, resulting in a sample of children of the 1.5 generation approximately four times smaller than our baseline sample (see Table 4) and in a misclassification of sibling status.

Third, the first year an individual becomes a landed immigrant may not correspond to the actual year of arrival in Canada, resulting in a possible overestimation of the age at arrival. For example, a refugee does not have an immigrant status. Therefore, if a child entered Canada as a refugee and later obtained their immigrant status, their age at arrival will be overestimated. This overestimating would lead to an underestimation of the effect of age at arrival. However, according to Corak (2012), it is not clear that individuals answer the Census question in this way. It is possible that individuals record the year they arrived in Canada rather than the year they obtained their immigrant status, although, there is no way to validate this hypothesis with the data at hand.

Lastly, the method chosen to calculate the income rank of individuals might not be optimal for immigrant parents, especially those with children who arrive during the IID's matching period (between the ages of 16 and 19). Indeed, parental income rank is calculated using an average of their income over five years, when the child is between the ages of 15 and 19. Averaging income over five years reflects an individual's permanent income. However, if a child arrives during the IID's matching period, their parents' income rank cannot be calculated over five years, leaving parental income more vulnerable to annual fluctuations. This is an important caveat since families who have just arrived in Canada are much more likely to experience a bad year than families who have been established in Canada for several years or nonimmigrants,

leading to an overestimation of the effect of age at immigration We note however that, as seen in column 3 of Table 4, our estimates of the age at immigration effects do not vary significantly when we define parental income as measured when the parents are aged 40 to 49.

5 Conclusion

The integration of immigrants into society is a crucial concern, particularly in Canada, where immigrants make up a significant portion of the population, surpassing many other countries. Evaluating integration can be done through various measures, such as earnings and equality of opportunity. It is important that children from disadvantaged backgrounds and children from privileged backgrounds are provided with equal opportunities for success, to a certain degree. To assess equality of opportunity, one can examine intergenerational income transmission or an individual's ability to move up or down the economic ladder relative to their parents. This research paper focuses on analyzing the intergenerational mobility of the 1.5 generation, shedding light on the extent to which age at immigration influences their economic prospects.

The main objectives of this paper were twofold. First, present descriptive evidence on the intergenerational income transmission among Canadian immigrants. Second, assess the effect of age at immigration on the intergenerational income transmission of the 1.5 generation. We achieved this by exploiting a novel linkage: intergenerational tax files linked to Census data. The IID contains administrative tax data for children born between 1963 and 1985. Its strength lies in its ability to link children to parents. Canadian censuses, spanning from 1991 to 2016, were linked to the IID to determine, for instance, immigration status, country of origin and age at arrival of individuals in the IID. Generational status could be identified for approximately 38.5% of all children in the IID, with 323,810 of those children being of the 1.5 generation, 553,460 of the second-generation and 2,153,760 of the third-generation or higher, otherwise known as nonimmigrants.

This article has shown that, on average, immigrant children have higher earnings than non-immigrant children. Children of the 1.5 generation (52.0) and second-generation children (55.5)

have higher income percentile ranks than nonimmigrant children (50.6). Second-generation parents (58.3) outdo nonimmigrant parents (52.1), but parents of the 1.5 generation do not (41.6). Income rank also tends to fall with age at immigration for both parents and children of the 1.5 generation, although not at the same rate. Parental income rank falls from 53.1 to 21.8 when children's arrival goes from one to 17 years old, while children's income rank only falls from 54.9 to 45.4. Intergenerational income transmission varies with generational status and age at immigration. Transmission is strongest among nonimmigrant children (0.258), while the correlation between parental income rank and child income rank is stronger for children of the 1.5 generation (0.191) than for second-generation children (0.166). The difference in rank mobility is especially large for children of Asian origin (0.234 and 0.151 for children of the 1.5 generation and second-generation, respectively). Among the 1.5 generation, rank mobility decreases with age at immigration, but remain above nonimmigrants. Using a methodology based on Chetty and Hendren's (2018) movers approach, we were able to estimate the causal effect of age at immigration—the exposure effect. Until the age of 10, the relationship between age at arrival and income rank is flat. Afterwards, it decreases by 3.3 percentile ranks per belated year of arrival.

This leads us to conclude that policies targeted at families with older children can have enduring effects on the equality of opportunities for immigrants' children. It is evident that both parents and children who arrive at later ages demonstrate comparatively lower performance when compared to their peers who arrived at younger ages. Furthermore, the potential for upward mobility in income rank diminishes as the age at arrival increases. To address these issues, one possible approach could involve creating incentives for families to immigrate while their children are still young. By encouraging a higher proportion of families to arrive with younger children, the aim would be to enhance opportunities and outcomes for immigrant children in the long term.

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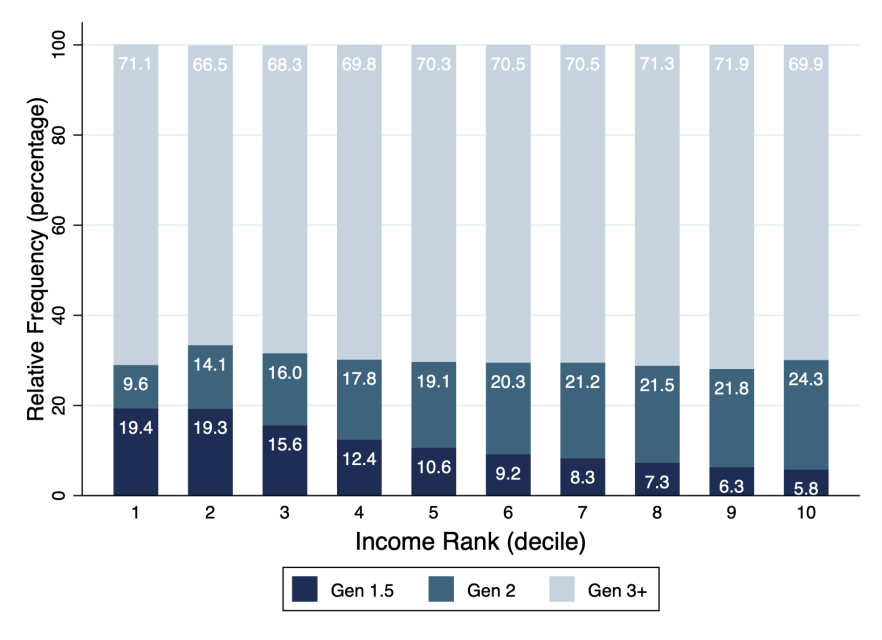
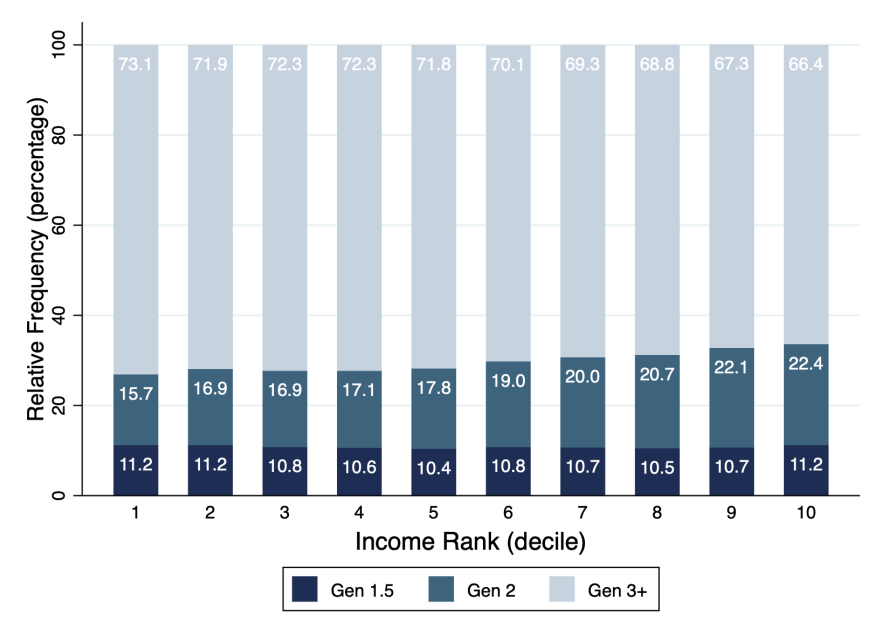
A Appendix Figures

Figure A1: Parental Distribution by Income Decile and Generation Status



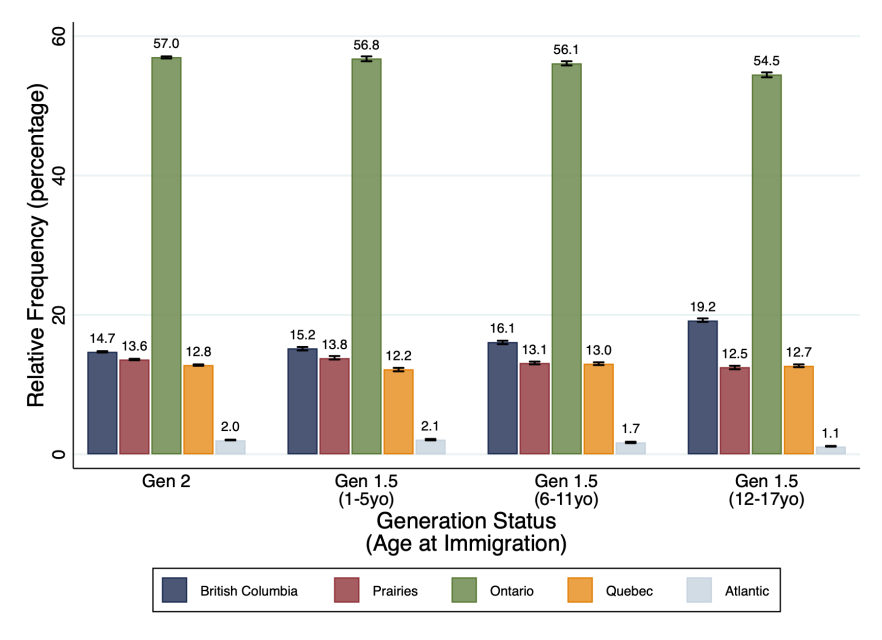
Source: Authors' calculations based on the IID+.
Notes: This figure shows that the proportion of parents of the 1.5 generation is increasingly smaller with income decile. They represent 19.4% of parents in the first decile, the poorest parents, while they only represent 5.8% of parents in the tenth decile, the richest parents. In contrast, second-generation parents occupy an increasingly important place, representing 24.1% of parents in the tenth decile. The 95% confidence intervals are too narrow to be included.

Figure A2: Child Distribution by Income Decile and Generation Status



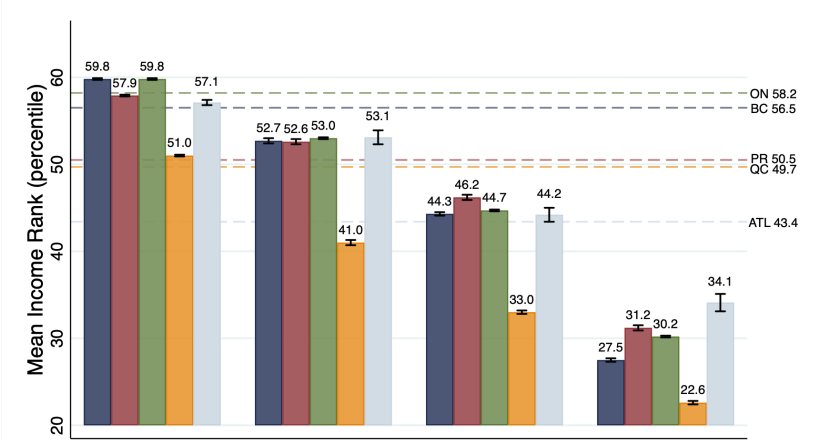
Source: Authors' calculations based on the IID+.
Notes: This figure shows that, on average, the 1.5 generation children represent a relatively stable proportion of children in each income rank decile (around 10%). Second-generation children, like their parents, represent an increasingly important share of children, rising from 15.7% in the first decile to 22.4% in the tenth decile. The 95% confidence intervals are too narrow to be included.

Figure A3: Region of Residence by Generational Status and Age at Immigration

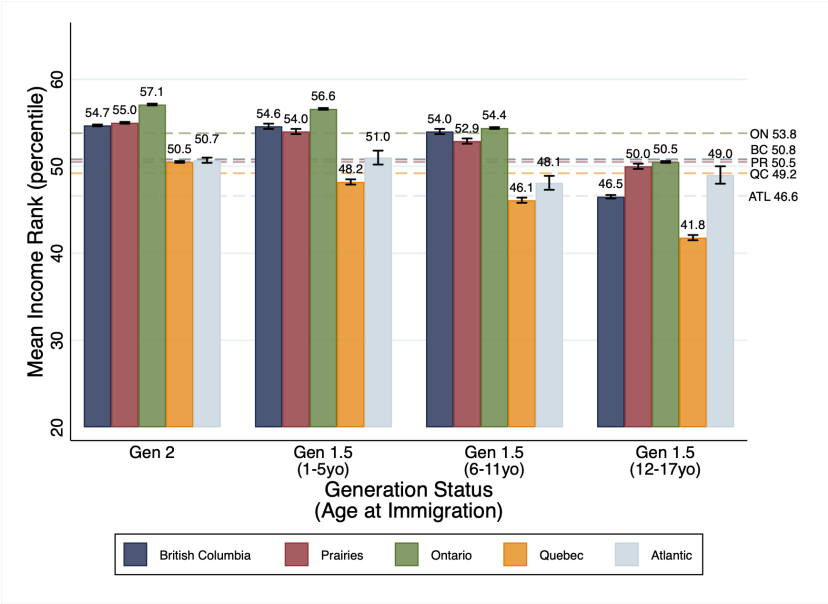


Source: Authors' calculations based on the IID+.
Notes: This figure shows that the majority of immigrants reside in Ontario, regardless of generation status or age at immigration. Their share decreases slightly from 57.0% for second-generation children, to 54.5% for children of the 1.5 generation with an age at arrival between 12 and 17. This figure also shows that the share of children of the 1.5 generation residing in the Prairies and the Atlantic provinces decreases slightly with age at immigration, while that of children residing in British Columbia increases with age at immigration. Lastly, age at arrival and generation status does not seem to be linked to the share of immigrant children residing in Quebec. The 95% confidence intervals are presented at the top of each bar.

Figure A4: Average Income Rank by Residence, Generational Status and Age at Immigration



(a) Parents

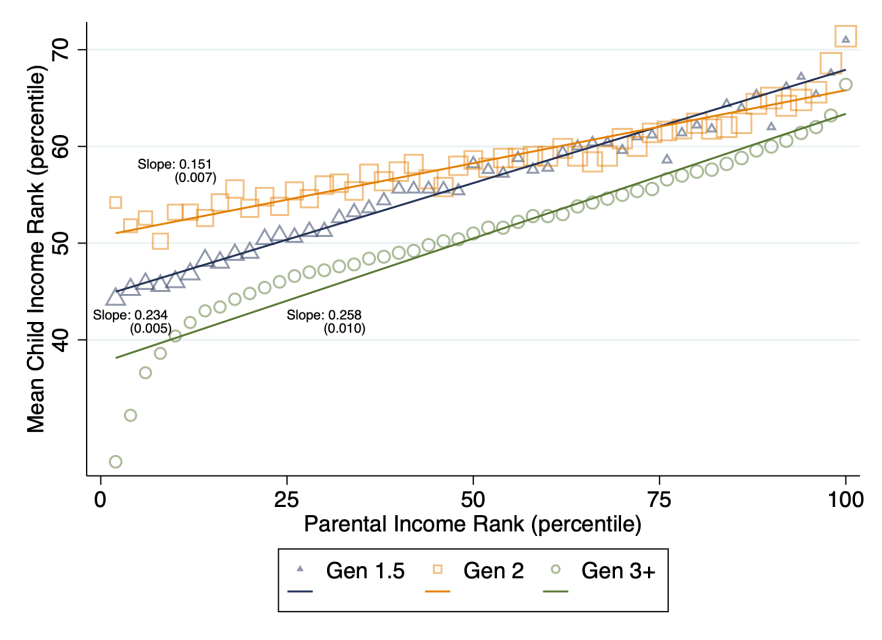


(b) Children

Source: Authors' calculations based on the IID+.
Notes: This figure shows the average income rank of parents (a) and children (b) by region of residence, generation status and age at immigration. The dashed lines represent the average ranks of nonimmigrant parents (a) and children (b). Average ranks, in percentile ranks, are shown above each bar. The 95% confidence intervals are presented atop each bar.

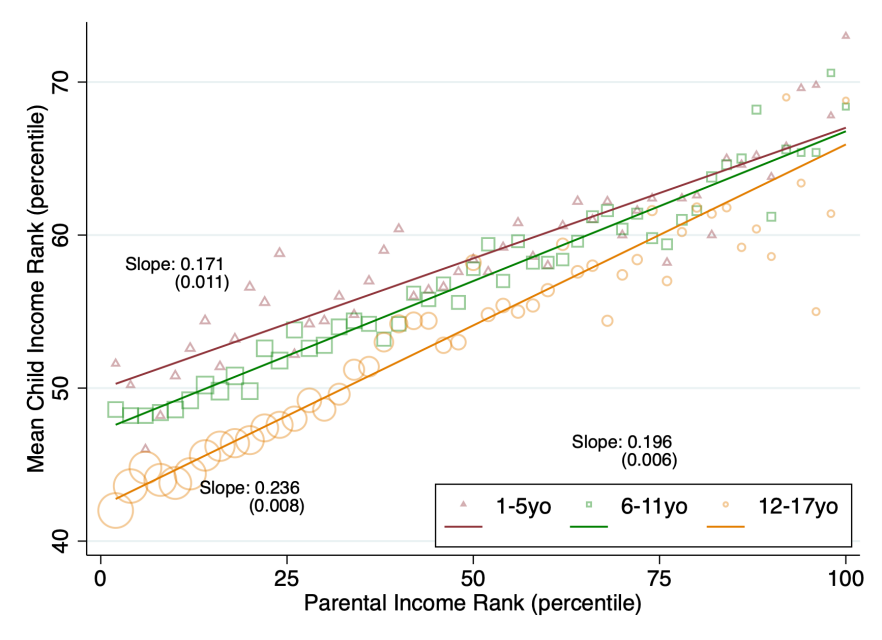
Figure (a) shows that only second-generation parents residing in British Columbia, Ontario and Quebec surpass their nonimmigrant peers (dashed lines). Parents of the 1.5 generation with a child between the ages of one and five in the Prairies and one and 11 in the Atlantic at arrival also surpass nonimmigrant parents from the same region. Figure (b) shows that all immigrant children residing in the Atlantic have higher average ranks than nonimmigrant children from the same region. In British Columbia, the Prairies and Ontario, children of the 1.5 generation with an age at immigration or 11 years old or less also surpass nonimmigrant children. In Quebec, only second-generation children outdo their nonimmigrant peers. These figures also show that immigrants, parents and children, residing in Quebec have the lowest average rank within each category. Immigrant children residing in Ontario also have the highest average income rank, spanning from 57.1 for second-generation children, to 56.6, 54.4 and 50.5 for children of the 1.5 generation with an age at immigration between one and five, six and 10, and 12 and 17, respectively. The differences between regions of residence can be influenced by the region of origin of immigrants. For instance, British Columbia has the highest proportion of Asian immigrants, whereas the Atlantic region predominantly receives immigrants from North America, northern and western Europe.

Figure A5: Intergenerational Income Rank Mobility by Generation Status (Asia)



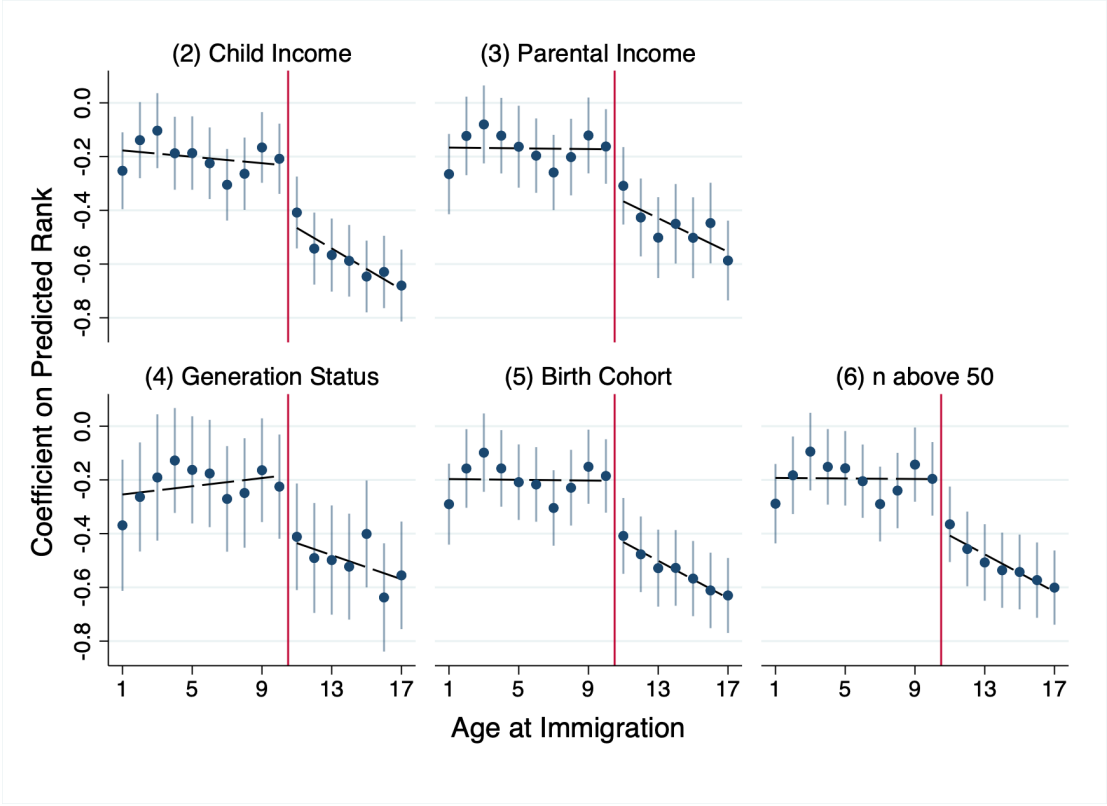
Source: Authors' calculations based on the IID+.
Notes: Children's income is measured between the ages of 27 and 31. Rank is assigned based on the child's income at adulthood relative to all other children in their same birth year. Parental income rank is assigned in the same way, with income measured when their child is between the ages of 15 and 19. Parental income ranks are grouped in pairs; each point represents two percentiles. Size of marker is relative to the number of children in each bin. This figure shows that second-generation children from Asia have a greater intergenerational mobility than children of the 1.5 generation given that their slopes are 0.151 (95% IC: [0.144;0.158]) and 0.234 (95% IC: [0.229;0.239], respectively. When parental income rank is above the 45^{th} percentile, the average income rank of second-generation children is not statistically different to that of children of the 1.5 generation.

Figure A6: Intergenerational Income Rank Mobility by Age at Immigration (Asia)



Source: Authors' calculations based on the IID+.
Notes: This figure presents a binned scatter plot of the relationship between the income rank of Asian children of the 1.5 generation and their parents by age at immigration (1-5, 6-11 and 12-17 years of age). Parental income ranks are grouped in pairs; each point represents two percentiles. Size of markers is relative to the number of children in each bin. This figure shows that the relationship between parental income rank and child income rank becomes stronger with age at immigration, increasing from 0.171, to 0.196, and to 0.236 when age at immigration goes from one to five, six to 10 and 12 to 17, respectively. Up the 25^{th} parental income rank, the average income rank of Asian children of the 1.5 generation arriving between the ages of one and five is generally statistically different than that of children arriving between the ages of six and 10. The average income rank of Asian children with an age at arrival between 12 and 17 is statistically different than that of the other children of the 1.5 generation when parental income rank is below the 35^{th} percentile.

Figure A7: Age at Immigration Effects on Income Ranks in Adulthood by Specification and Sample Definition



Source: Authors' calculations based on the IID+.
Notes: This figure plots the estimates of b_m for the remaining specifications in Table 4. Up to the age of 10, the slopes (shown in Table 4) are not statistically different from zero, meaning the relationship between age at arrival and income is flat. After 10, the estimates of γ, whose values are (2) -0.038, (3) -0.031, (4) -0.022 and (5-6) -0.035, show that each year of arrival is associated with 2.2 to 3.8 fewer percentile ranks.

B Appendix Tables

Table B1: Relative Distribution by Region of Origin

Region of origin	Gen 2	Gen 1.5			
		1-5	6-11	12-17	1-17
North America, northern and western Europe	41.4	34.0	20.7	10.8	21.5
Caribbean, Central and South America, and Oceania	7.8	14.0	16.8	13.7	15.2
Eastern and southern Europe	34.2	19.7	17.4	14.1	16.7
Africa	2.3	5.1	5.5	4.8	5.2
Asia	14.3	27.2	39.5	56.7	41.5
N	553,470	92,230	109,840	104,550	306,620

Source: Authors' calculations based on the IID+.
Notes: This table shows the relative distribution of immigrant children by region of origin, generation status and age at arrival. Second-generation children mainly come from North America, northern and western Europe (41.4%), while children of the 1.5 generation mainly come from Asia (41.5%). Among the 1.5 generation, 21.5% come from North America, northern and western Europe, 15.2% come from the Caribbean, Central and South America, and Oceania, 16.7% come from eastern and southern Europe and 5.2% come from Africa.

Table B2: Relative Distribution by Region of Residence

Region of residence	Gen 2	Gen 1.5			
		1-5	6-11	12-17	1-17
British Columbia	14.1	15.2	16.1	19.2	17.0
Prairies	13.6	13.8	13.1	12.5	13.1
Ontario	57	56.8	56.1	54.5	55.8
Quebec	12.8	12.2	13	12.7	12.7
Atlantic	2	2.1	1.7	1.1	1.7
N	553,470	92,230	109,840	104,560	306,630

Source: Authors' calculations based on the IID+.
Notes: This table shows the relative distribution of immigrant children by region of residence, generation status and age at arrival. Most immigrants reside in Ontario (57% for second-generation children and 55.8% for children of the 1.5 generation). Among the 1.5 generation, 17.0% reside in British Columbia, 13.1% in the Prairies, 12.7% in Quebec and 1.7% in the Atlantic provinces.

Table B3: Rank Mobility by Generation Status, Age at Immigration and Region of Residence

Immigrant generation	3+	2	1.5			
Age at arrival			1-5yo	6-11yo	12-17yo	1-17yo
All	0.258	0.166	0.158	0.180	0.206	0.191
	(0.010)	(0.005)	(0.006)	(0.005)	(0.005)	(0.004)
Region of residence						
British Columbia	0.256	0.148	0.133	0.163	0.216	0.192
	(0.014)	(0.008)	(0.011)	(0.009)	(0.011)	(0.007)
Prairies	0.294	0.159	0.120	0.132	0.153	0.138
	(0.022)	(0.007)	(0.013)	(0.010)	(0.011)	(0.007)
Ontario	0.224	0.154	0.157	0.177	0.194	0.185
	(0.008)	(0.005)	(0.006)	(0.005)	(0.006)	(0.004)
Quebec	0.242	0.193	0.151	0.186	0.224	0.197
	(0.007)	(0.007)	(0.012)	(0.010)	(0.012)	(0.007)
Atlantic	0.260	0.207	0.231	0.204	0.205	0.208
	(0.006)	(0.012)	(0.027)	(0.031)	(0.035)	(0.018)

Source: Authors' calculations based on the IID+.
Notes: The table presented here reports the rank mobility of children based on their generation status, age at immigration, and region of residence (rather than origin). In comparison to non-immigrants, immigrant children exhibit greater intergenerational mobility. The rank mobility of second-generation children is statistically different from the rank mobility of children of the 1.5 generation for children residing in British Columbia, the Prairies or Ontario. Within children of the 1.5 generation, only those residing in British Columbia, Ontario or Quebec differ in terms of rank mobility for all ages at immigration.

Table B4: Countries by Region of Origin

North America, northern and western Europe Austria, Belgium, Denmark, Finland, France, Germany, Greenland, Iceland, Ireland, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States
Caribbean, Central and South America, and Oceania Antigua and Barbuda, Argentina, Australia, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Fiji, French Guiana, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Kiribati, Marshall Islands, Mexico, Micronesia, Nauru, New Zealand, Nicaragua, Palau, Panama, Papua New Guinea, Paraguay, Peru, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Solomon Islands, Suriname, Tonga, Trinity and Tobago, Tuvalu, Uruguay, Vanuatu, Venezuela
Southern and eastern Europe Albania, Andorra, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Italy, Kosovo, Latvia, Lithuania, Macedonia, Malta, Moldova, Montenegro, Poland, Portugal, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Ukraine, Vatican City
Africa Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe
Asia Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, Cambodia, China, Cyprus, East Timor, Georgia, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Nepal, North Korea, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, South Korea, Sri Lanka, Syria, Taiwan, Tajikistan, Thailand, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen

Source: Authors' classifications based on the IID+.