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## ABSTRACT

### Age at Immigration and High School Dropouts<sup>\*</sup>

We focus on high school dropout rate among male and female immigrant children. We consider the relationship between the dropout rate and age of arrival of the immigrants. Using repeated cross sectional data from the Israeli Labor Force Surveys of 1996-2011 we show that the share of high school dropouts among immigrant children who arrived from the Former Soviet Union during 1989-1994 is at least as *double* than among natives in the same age group. Further, we show that among immigrant youth there is a monotonic negative relation between age at arrival and the share of high school dropouts. To understand our results we present a theoretical framework that links between age at arrival in the host country, language proficiency, quality of education and wages.

JEL Classification: I21, J24, J61

Keywords: immigrants, age at arrival, high-school dropouts

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## **Introduction**

In this paper, we consider the relationship between age at arrival to the host country of immigrant children and the probability of dropping out from high school. We start by presenting the phenomena using data from the Israeli Labor Force Surveys of 1996-2011 and we show that the share of high school dropouts among immigrant children who arrived from the Former Soviet Union during 1989-1994 and were 6-18 years old at arrival is at least as double than among natives in the same age group. We then offer a theoretical explanation for our findings in a framework that links between wages, age of arrival and language skills.

Immigrant educational outcomes and their correlation with age at arrival have been studied extensively by anthropologists and sociologists and more recently also by economists.

In the sociological literature, Inbar and Adler (1976) were the first to empirically study the relationship between age at arrival and scholastic achievement, defined as acceptance to institutions of higher education. They used a sample that included 212 Moroccan youths who had immigrated with their families to either France or Israel. Given the small sample, age at arrival was grouped into four categories (0-5, 6-11, 12-15, 16+). They found an unexpected curvilinear (U shape) relationship, with the dip in achievement falling in the 6-11 age group. The percentage of immigrant students attaining higher education in this age group was considerably lower than that of respondents who immigrated at an older or younger age. A similar trend was later found by Inbar (1977), using the same definition of achievement, among native English speaker immigrant males to Canada. This finding led to the “Vulnerable Age Hypothesis” which states that the discrepancy between the pressure that children face and the resources at their disposal to cope with that pressure, is largest at the elementary school level (as opposed to older and younger age levels). Hence, children who immigrate at that age are particularly vulnerable, and this vulnerability is likely to be expressed by a lower level of scholastic achievement and later in their labor market performance.

From economic point of view, immigration at an early age is usually perceived to be more beneficial due to the belief that younger immigrants are more able to adjust to linguistic and cultural challenges associated with migration. Moreover, the complementarity between

destination language and other forms of human capital (schooling) also suggests that youth will accrue more benefits from undertaking any destination specific investment.

However, like in the sociological literature, the economic literature also finds some evidence that those immigrating in their late teens obtain lower schooling in comparison to those immigrating at a slightly younger or older age. Thus, the relationship between scholarly and economic outcomes and age at arrival is not monotonic all through the interval of age at arrival.

In general, the economic literature on immigrant educational attainment focuses on post-migration schooling, pre-migration schooling and total attainment of schooling which equals the sum of pre- and post- migration schooling. The key finding that emerged from the post-migration schooling literature is that age at immigration coupled with duration of residence in the host country is a primary determinant of investment in schooling.<sup>1</sup>

Education attainment of immigrants has been studied recently in several countries. In Germany, Gang and Zimmerman (1999) indicate that the gap in educational attainment between immigrants and their comparable German-born cohort is much smaller in the second generation compared to the gap in the first-generation, implying that assimilation exists in the acquisition of education. This finding is in line with Schultz (1984) and Betts and Lofstrom (2000), who found that the schooling level of children of immigrants in the US converges toward that of the children of natives.

Schaafsma and Sweetman (2001) use Canadian data and find evidence to the three channels which generate the negative correlation between age at arrival and earnings. The first source is that work experience in the source country yields no return in the host country. The second is that except for immigrants who arrive as young children who have a return to education similar to that of the Canadian born, the return to education declines with age at immigration, such that those who arrive as older adults have quite low returns. The third channel is that for visible minorities and for those whose mother tongue is not English, age at arrival has an economic impact that may be thought of as 'acculturation' effect.

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<sup>1</sup> For earlier studies, see, for example, Schultz (1984), Chiswick and Miller (1994) and Chiswick & Sullivan (1995).

Another notable finding in Schaafsma and Sweetman (2001) is that immigrants who arrive in their late teens (ages 15-18), near the high school to post-secondary transition, have lower earnings than those who arrive either slightly earlier or later. Further examination shows that this age at immigration group appears to obtain less education than surrounding groups. The authors conclude that it is plausible that entering a new society near this crucial transition induces acquisition of less schooling and that this has a life-long earnings impact.

Gonzalez (2003) finds that age at arrival is an important determinant of the educational attainment in the US among immigrants from Mexico. For Mexicans, each year of delayed entry results in about 0.25 to 0.30 less years of school. He shows that in some cases delayed entry not only results in lower total education, but also a lower percentage of US-specific (post-migration) education and consequently wages.

Chiswick and DebBurman (2004) use US data to analyze the determinants of total educational attainment, which is the sum of pre- and post migration schooling, by immigrant generation.<sup>2</sup> Using Current Population Survey (CPS) data, they analyze differences in educational attainment by immigrant generation (first, second, and higher order generations), and among the foreign born by country of birth and age at immigration. They find that second-generation American adults have the highest level of schooling, exceeding that of the foreign born and of the native born with native-born parents. Similar to the findings of Schaafsma and Sweetman (2001) for Canada, they find that teenage immigration to the US is associated with fewer years of schooling compared to those who immigrated at pre-teen or post-teen ages. Specifically, using categorical groups of age at arrival, they observe a dip at age at immigration 13–19. That is, immigrating during the secondary school years is associated with a greater disadvantage than if the immigration took place a few years earlier or later.

While most of the aforementioned studies included in their analysis also immigrants who arrived to their destination country as adults, Bleakley and Chin (2004) focus, as we do in this paper, on immigrants who immigrated as children. Specifically, they show there is a powerful association between immigrants' age at arrival and language skills in the 1990 U.S. Census. In order to control for other channels than language, through which age at arrival

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<sup>2</sup> They focus on total schooling which is the sum of pre- and post migration schooling.

affects immigrant earnings they use immigrants from English-speaking countries to control for non language effects of age at arrival. Thus, they use age at arrival interacted with a dummy for non-English-speaking country as an instrumental variable (IV) for the measurement of the impact of language skills on earnings. They find that much of the effect of English-language skills on earnings appears to be mediated by years of schooling. Better English-language skills induce immigrants who would otherwise drop out with the equivalent of junior high or some high school education to at least complete their high school degree.

In our Israeli case study, we focus on immigrant children who arrived in Israel from the Former Soviet Union (FSU). Most of these immigrants spoke Russian and were not familiar with Hebrew, which is the spoken language in Israel. While the vast majority of adult immigrants from the FSU participated in government provided Hebrew classes (Ulpan), immigrant children had to study the new language at school.<sup>3</sup> However, there is some evidence that the sheer size of this wave and enabled the immigrants to continue using the Russian language and to maintain cultural traditions, hereby lowering the incentive of immigrants to invest in acquisition of Hebrew and local skills (Cohen-Goldner, Eckstein and Weiss ,2013). In our study we follow immigrant children who arrived about 20 years ago and thus we are not able to fully observe their wages (some of them have not joined the labor force yet) and thus we focus on the education achievements and not on wages.

We start by presenting the data and statistical analysis and then turn to consider a theoretical explanation to our findings. The main result we obtain is that age at arrival plays an important role on education achievement and specifically in the decision to drop out of high-school, probably though the effect of age at arrival on language acquisition. Since it takes time to learn the local language, young immigrants who arrive in the new country around the ninth to eleventh grade may not have enough time to study the language before the completion of high-school. Moreover, our theory suggests that if age of arrival is sufficiently high such that the immigrant arrives after the completion of his education, or at least the completion of high school in his source country, then his wage is expected to be higher than that of an immigrant who dropped out of high school in the destination country. Another interesting result is that while age at arrival lowers the probability to graduate high school for both young immigrant males and females, it does not significantly affect the likelihood of

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<sup>3</sup> Immigrant children in Israel get assistance at schools and extra hours for vocational and language help.

obtaining post secondary education among males, but it lowers significantly the probability of female immigrants to obtain such education.

One important implication of our study is that when studying immigrants outcomes in the destination country using a wide range of ages, one should enable a flexible polynomial effect of age at arrival rather than restricting the impact of age at arrival on the desired outcome to be monotonic.

## **1. Data**

We use repeated cross sectional data from the Israeli Labor Force Surveys of 1996-2011. In order to study the impact of age at arrival on total schooling outcomes of immigrant children, we restrict the analysis to FSU immigrants who arrived at ages 6-18.<sup>4</sup> The comparable native sample includes Jews who were born in Israel or migrated to Israel prior to 1970 and were 6-18 years old between 1989-1994 (i.e. born during 1971-1985). Since we are interested in completed years of schooling, we include only those who were 25 years old or older at the year they were surveyed and stated they were not currently studying.<sup>5</sup> We restrict the sample to FSU immigrants who arrived in Israel during 1989-1994 and exclude Israeli Arabs and other non-Jewish individuals. .

Tables 1a and 1b present selected summary statistics of our sample for males and females, respectively. The average age of native males in our sample is 30 (Table 1a). Immigrants are slightly younger and their average age at arrival is around 14. Of those who arrived between 1989 and 1992 less than 12% were 6-9 years old at arrival, 28% were 10-13 years old at arrival, 21% were aged 14-15 at arrival and nearly 39% were 16-18 years old at arrival. Immigrant boys who arrived during 1992-1994 were slightly older at arrival, on average, than those who arrived in 1989-1991 and almost half of them were 16-18 years at

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<sup>4</sup> We omitted immigrant children who arrived at ages 0-5 due to their low number of observations.

<sup>5</sup> One should note that in Israel it is quite rare for a high school dropout over 25 to complete high school and there are almost no formal programs, like the GED in the US, for example. Thus, people over 25 may further acquire post secondary education, but if at the age of 25 they are classified as high school dropouts, the likelihood they would become high school graduates in the future is negligible.

arrival. The average length of residence in Israel is 16.7 years for those who arrived during 1989-1992 and 15.3 years for those who arrived during 1992-1994.

The average years of schooling of the two cohorts of male immigrants (13-13.4) is remarkably similar to that of male natives (13.66). However, this resemblance masks significant differences in the distribution of schooling between native and immigrant males. Among native males, less than 10% are high school dropouts (0-11 years of schooling), more than 38% are high school graduates (12 years of schooling) and 51.7% have at least 13 years of education. In contrast, almost 20% of the immigrants who arrived during 1989-1991 and nearly 30% of those who arrived in 1992-1994 are high school dropouts.

The summary statistics for females (Table 1b) tell the same story as for males. The difference in the average years of schooling between natives and immigrants is minor but the differences in the distribution of schooling between native and immigrant are huge. The share of high school dropouts is less than 5% among female natives, 12.5% among female immigrants who arrived in 1989-1991 and more than 20% among females who arrived in 1992-1994. These differences are further illustrated in Figures 1a (males) and 1b (females) which present the distribution of *continuous* years of schooling for natives and for the two cohorts of immigrants.

In addition to the differences between the schooling distribution of natives and immigrants, there is a substantial disparity in the schooling distribution of immigrants by age at arrival. This disparity is illustrated in Figure 2a for males and in Figure 2b for females. The figures present the cumulative distribution of completed years of schooling of immigrant children by cohort (1989-1991, 1992-1994) and four groups of age at arrival: 6-9, 10-13, 14-15 and 16-18. Both figures clearly illustrate that within cohort, there is a monotonic negative relation between age at arrival and the share of high school dropouts (0-11 years of schooling), such that immigrants who arrived in their late teens (16-18) have the highest dropout rate. In addition, conditional on age at arrival, the later cohort (1992-1994) has a higher probability to drop out of high school than the earlier cohort. For example, according to Figure 2a 24.9% (36.3%) of the boys who arrived during 1989-1991 (1992-1994) and were 16-18 years old at arrival, possess at most 11 years of education. The corresponding percentages for boys who were 6-9 years old at arrival are 10.5% for the 1989-1991 cohort

and 12.7% for the 1992-1994 cohort. The share of high school dropouts among female is lower for girls and follow the same pattern as for boys (Figure 2b). While 21.6% (28.3%) of the girls who arrived during 1989-1991 (1992-1994) and were 16-18 years old at arrival, possess at most 11 years of education, the corresponding percentages for girls who were 6-9 years old at arrival are 3.7% for the 1989-1991 cohort and 9.2% for the 1992-1994 cohort.<sup>6</sup>

In order to measure the impact of age at arrival on educational attainment of children immigrants, we run multinomial logit regressions for the three education outcomes: 0-11 (HSD), 12 (HSG) and 13+ (ACD) years of schooling with age at arrival categorical dummies as well as with continuous age at arrival high-order polynomial. The results are presented in Table 2a for males and 2b for females. In the first specification, we find that boys who arrived at age group of 16-18 have a lower probability to graduate high school in comparison to all the other categories of age at arrival. However, there is no significant difference in the likelihood to obtain 13+ years of schooling between the four categories of age at arrival. The specification of continuous age at arrival polynomial also suggests that age at arrival affects the probability of young males to obtain 12 years of schooling in comparison to 0-11 years of schooling, but it has no significant effect on the likelihood to obtain 13+ years of schooling.

For girls, both specifications suggest that age at arrival adversely affects both the propensity to obtain 12 years of schooling as well as 13+ years of schooling, in comparison to 0-11 years of schooling. That is, girls who were 16-18 years old at arrival to Israel have a lower probability to graduate from high school or to obtain higher education in comparison to those who were younger at arrival.

The predictions of multinomial regressions for males are illustrated in Figure 3 for an immigrant who lives in the Center and arrived in Israel 20 years ago (Years since migration=20). Figure 3a presents the prediction from the specification with age at arrival categories, while Figure 3b presents the prediction from the specification with continuous age polynomials. Both specifications have similar predictions. Conditional on cohort of arrival to Israel, the predicted probability of immigrant boys who arrived in their late teens to drop out of high school is about double the probability of those who arrived in early childhood (ages 6-

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<sup>6</sup> For comparison, among natives 9.9% of the boys and 4.7% of the girls possess 0-11 years of schooling.

9). After 20 years in Israel, the predicted probability of boys who arrived at ages 16-18 during 1989-1991 to drop out of high-school is 17% in both specifications while this probability for boys who arrived at ages 6-9 is 10% in both specifications. The corresponding predicted probabilities to be a high school drop out for the 1992-1994 cohort are 26% for those who were 16-18 years old at arrival vs. 12-13% for those who were 6-9 years old at arrival (Figure 3 a and b).

The predictions for girls are presented in Figures 3c and 3d. For girls the impact of age at arrival on dropout rates is even stronger such that after 20 years in Israel the predicted probability of a girl who was 6-9 years at arrival is about 4%-6% depending on the specification and cohort while this probability for girls who were 16-18 years at arrival is 20%-26% (Figure 3 c and d).

The higher dropout rate among immigrant girls who arrived in their late teens in comparison to immigrant boys at the same age group may result from the fact that immigrant females tend to get married earlier than immigrant males thus making the investment of females to acquire education less attractive for female teenagers who are close to marriage ages.<sup>7</sup>

## **2. A possible theoretical explanation**

Age on arrival may affect immigrants' wages in the destination country through several channels, as it affects both the human capital the immigrant acquired in the destination country and the ability of the immigrant to acquire local capital in the destination country. For example, for immigrants who migrated as adults after the completion of their education, age at arrival can serve as a proxy for work experience in the home country.<sup>8</sup> Nonetheless, the ability and profitability of immigrants who were older at arrival to learn the new language and other new skills might be limited. For younger immigrants who have not yet completed their

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<sup>7</sup> The average age of male and female immigrants in our sample is virtually the same (Tables 1a and 1b). Yet, 70% (65%) of the female immigrants who arrived in 1989-1991 (1992-1994) are married in comparison to 55% (49%) of the males, respectively. In addition, almost 8% of the female immigrants are divorced in comparison to less than 3% of the male immigrants. Thus, the share of single (never married) female immigrants is almost half of the share of single males.

<sup>8</sup> Note that due to different structure and technology of the Israeli and Russian economies many papers found that the return to imported experience is virtually zero. See for example Cohen Goldner et al. (2012).

schooling prior to immigration, age at arrival can affect the acquisition of local human capital as language and schooling attainment, which in turn, affect wages.

In this section, we consider the impact of age at arrival on wages through its effect on language proficiency and the level of education.

Assume that wage is an increasing function of two main components: 1) language proficiency (Chiswick and Miller, 1995); and 2) the level (years of schooling) and/or the quality of education. However, the language proficiency is a function of the age at arrival. As an immigrant arrives at a younger age, especially at the ages of childhood, his ability and profitability to learn the local language are higher and thus his proficiency in the local language is higher (Bleakley and Chin, 2004). Other things being equal, immigrant's ability (and profitability) to obtain a higher level of education increases with the proficiency of the local language. Thus, those who have better language proficiency will be able to obtain a better quality and more years of education. A better quality of education means that given the same set of classes and all other things given, those with the higher language proficiency will do better at their studies and will benefit more from their education.

For simplification, we assume that all immigrants can obtain higher education at the same age. An immigrant can obtain his higher education either in the host country, if he arrived at a young age or at his home country if he arrived at an older age. Immigrants who arrived in the age interval of 6 to 18 have started acquiring their education in their home country and may continue and complete their education in the destination country. If an immigrant completed his education at the home country, then language proficiency will have only a direct effect on wages and will not affect the level of (imported) education.

Formally, denote by  $w_i$  the wage of an immigrant  $i$ . Wage is an increasing function of language proficiency, denoted by  $L_i$  and the number of years of education, denoted by  $E_i$ , implying  $\frac{\partial w_i(L_i, E_i)}{\partial L_i} > 0$  and  $\frac{\partial w_i(L_i, E_i)}{\partial E_i} > 0$ . Up to a certain age at arrival,  $\bar{A}$ , the level of education is a function of language proficiency and language proficiency is a function of age at arrival. Thus, the wage of an immigrant  $i$  whose age at arrival satisfies  $Age_i \leq \bar{A}$  can be

written as:  $w_i(L_i(Age_i), E_i(L_i(Age_i)))$  such that  $\frac{\partial L_i(Age_i)}{\partial Age_i} < 0$  and  $\frac{\partial E_i(L_i, Age_i)}{\partial L_i} > 0$ . In addition, as long as  $Age_i \leq \bar{A}$ , increasing the age at arrival decreases level of education, implying  $\frac{\partial E_i(L_i)}{\partial L_i} \frac{\partial L_i}{\partial Age_i} < 0$ .

However, if the age of arrival is sufficiently high,  $Age_i > \bar{A}$ , such that the immigrant has completed his education at the home country, it holds that the level of education  $E_i$  is independent of the language proficiency and is constant at a level obtained in the host country,  $E_f$ .

For a given wage level, an iso-wage locus (indifference curve) is described by the following:

$$dw_i(L_i, E_i) = \frac{\partial w_i(L_i, E_i)}{\partial L_i} dL_i + \frac{\partial w_i(L_i, E_i)}{\partial E_i} dE_i = 0 \quad (1)$$

which has a negative slope as there is a trade-off between the language proficiency and the level/quality of education:

$$\frac{dL_i}{dE_i} = - \frac{\frac{\partial w_i(L_i, E_i)}{\partial E_i}}{\frac{\partial w_i(L_i, E_i)}{\partial L_i}} < 0 \quad (2)$$

In other words, the iso-wage is downward sloping. Moreover, as we increase the language proficiency we can decrease years of education to obtain the same wage level.

Now let's consider the affect of a change in the age at arrival on the wage:

$$\frac{\partial w_i(L_i(Age_i), E_i(L_i(Age_i)))}{\partial Age_i} = \frac{\partial w_i(L_i, E_i)}{\partial L_i} \frac{\partial L_i}{\partial Age_i} + \frac{\partial w_i(L_i, E_i)}{\partial E_i} \frac{\partial E_i}{\partial L_i} \frac{\partial L_i}{\partial Age_i} \quad (3)$$

Given that  $\frac{\partial w_i(L_i, E_i)}{\partial L_i} > 0$ ,  $\frac{\partial L_i}{\partial Age_i} < 0$ ,  $\frac{\partial w_i(L_i, E_i)}{\partial E_i} > 0$  and  $\frac{\partial E_i}{\partial L_i} \frac{\partial L_i}{\partial Age_i} < 0$  and

$Age_i \leq \bar{A}$  we obtain that if

$$\left. \frac{\partial w_i(L_i(Age_i), E_i(L_i(Age_i)))}{\partial Age_i} \right|_{Age_i \leq \bar{A}} < 0 \quad (4)$$

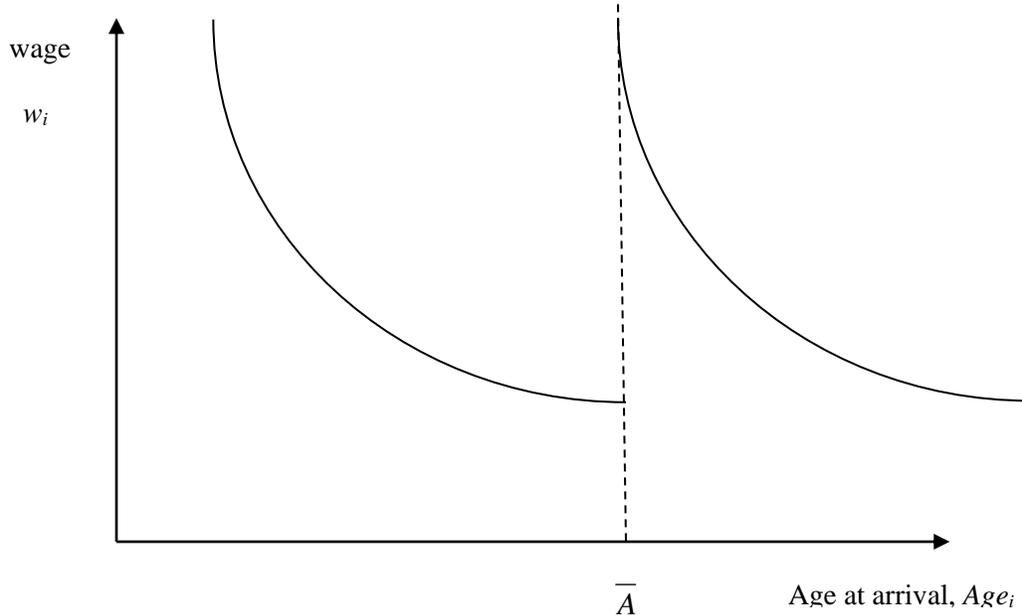
If the migrant arrived at an older age such that he obtained his education in the home

country,  $Age_i > \bar{A}$ , we also obtain  $\left. \frac{\partial w_i(L_i(Age_i), E_f)}{\partial Age_i} \right|_{Age_i > \bar{A}} < 0$ .

However,

$$w_i(L_i(Age_i), E_i(L_i(Age_i))) \Big|_{Age_i = \bar{A}} < w_i(L_i(Age_i), E_f) \Big|_{Age_i = \bar{A}} \quad (5)$$

The reason for this is that a migrant who arrives older to the home country, would have difficulties obtaining the language and thus, would not obtain a good education. On the other hand, a migrant that came at a similar age with a high education does not need the acquisition of local language to obtain this level of education and thus, language would only affect his wage directly. Thus, we obtain the following relationship between age at arrival and the migrant's wages:



Since there is a direct relationship between wages and education for those arriving at age below  $\bar{A}$ , one could also write on the vertical axes education achievements for these immigrants. Thus, till an age of arrival of  $\bar{A}$  as age of arrival increases education achievements will decrease and an increase in dropouts. This is what we see in the data presented in the paper. At age at arrival  $\bar{A}$ , we have a non continuous jump in the wages since migrants' have already established a solid education achievement in the home country before arriving at the destination.

### **3. Conclusion**

Both our theoretical and empirical analysis suggest that age at arrival is critical for education achievement of immigrant children. Since education affects a variety of important outcomes, such as wages, parents should be cognizant of this when making their immigration choices. Policymakers should also be aware of the negative association between age at arrival and the likelihood to drop out of high-school at late-teens ages. If this negative correlation results from difficulties to acquire the local language especially among immigrants who arrived in their late teens, as was found in Canada and the US among immigrants from non English speaking countries, then special language programs aimed at youth should be considered. Unfortunately, the current Israeli data we use does not include data on language skills and other data sources should be used to investigate the link between age at arrival, language and education. Future work should also explore the impact of family background on the incident of dropping out of high-school.

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**Table 1a: Summary Statistics - Young Males\*, 1996-2011**

Variable	Natives**	1989-91 Immigrants	1992-94 Immigrants
Age	30.2 (3.89)	29.64 (3.52)	28.97 (3.07)
Age at Arrival		13.9 (3.2)	14.65 (2.82)
6-9		11.64%	5.38%
10-13		28.37%	27.47%
14-15		21.28%	20.39%
16-18		38.72%	46.76%
Time in Israel		16.74 (3.65)	15.32 (2.97)
Years of Schooling	13.66 (2.64)	13.4 (2.66)	12.58 (2.44)
HSD (0-11 years)	9.88%	19.75%	29.52%
HSG (12 years)	38.42%	23.04%	28.75%
ACD (13+ years)	51.70%	57.21%	41.72%
Labor Market Status:			
Employed	76.57%	82.86%	82.68%
Unemployed	6.94%	5.80%	6.66%
Out of the Labor Force	16.49%	11.33%	10.67%
Residence:			
Tel Aviv	9.64%	6.38%	4.27%
Haifa	3.40%	5.50%	6.14%
Jerusalem	6.24%	4.04%	3.50%
North	17.02%	22.09%	19.20%
Center	46.52%	38.14%	40.53%
South	12.54%	21.38%	23.89%
Judea, Samaria and Gaza	4.64%	2.48%	2.47%
Father's Birthplace:			
Israel	39.96%		
FSU	3.26%		
Europe/America/Oceania	14.42%		
Asia/Africa	41.86%		
Unknown	0.52%		
Number of Observations	51,650	2,947	1,172

\* Ages at arrival 6-18 for immigrants, ages 6-18 in 1989-91 for natives (cohorts 1971-85). Aged 25+ in the survey year. Conditional on not studying at the time of the survey.

\*\* Born in Israel or immigrated prior to 1970, excluding Arabs and non-Jews.

Dropped observations: Institutions and Bedouins, people with schooling over 30 or with missing schooling.

Source: CBS Labor Force Surveys 1996-2011.

**Table 1b: Summary Statistics - Young Females\*, 1996-2011**

Variable	Natives**	1989-91 Immigrants	1992-94 Immigrants
Age	30.2 (3.86)	29.7 (3.56)	28.85 (2.92)
Age at Arrival		13.84 (3.27)	14.61 (2.83)
6-9		12.39%	5.80%
10-13		29.19%	27.02%
14-15		20.16%	21.30%
16-18		38.25%	45.88%
Time in Israel		16.86 (3.58)	15.24 (3.16)
Years of Schooling	14.05 (2.45)	13.95 (2.54)	13.22 (2.74)
HSD (0-11 years)	4.73%	12.49%	20.69%
HSG (12 years)	36.39%	24.09%	29.24%
ACD (13+ years)	58.88%	63.43%	50.08%
Labor Market Status:			
Employed	73.89%	80.16%	81.37%
Unemployed	7.22%	6.13%	5.88%
Out of the Labor Force	18.89%	13.71%	12.75%
Residence:			
Tel Aviv	8.73%	5.60%	4.81%
Haifa	3.49%	5.73%	4.05%
Jerusalem	7.36%	4.09%	3.28%
North	16.22%	23.16%	21.98%
Center	46.31%	37.92%	40.31%
South	12.71%	20.23%	22.67%
Judea, Samaria and Gaza	5.19%	3.26%	2.90%
Father's Birthplace:			
Israel	39.68%		
FSU	3.64%		
Europe/America/Oceania	14.60%		
Asia/Africa	41.68%		
Unknown	0.40%		
Number of Observations	56,478	3,035	1,310

\* Ages at arrival 6-18 for immigrants, ages 6-18 in 1989-91 for natives (cohorts 1971-85). Aged 25+ in the survey year. Conditional on not studying at the time of the survey.

\*\* Born in Israel or immigrated prior to 1970, excluding Arabs and non-Jews.

Dropped observations: Institutions and Bedouins, people with schooling over 30 or with missing schooling.

Source: CBS Labor Force Surveys 1996-2011.

**Table 2a: Multinomial Logit Regression for Schooling, Young Males\***

Variable	FSU Immigrants 1989-1994		FSU Immigrants 1989-1994	
	HSG (12 years)	ACD (13+ years)	HSG (12 years)	ACD (13+ years)
Age				
Tel Aviv	-0.7002* (0.2104)	-0.4763* (0.1752)	-0.676* (0.211)	-0.4611* (0.1754)
Haifa	0.6331* (0.2787)	1.4085* (0.2412)	0.6361* (0.2792)	1.4237* (0.2416)
Jerusalem	0.5754* (0.2907)	0.9559* (0.2529)	0.5698* (0.2913)	0.965* (0.253)
North	0.0566 (0.1365)	0.0429 (0.121)	0.0816 (0.137)	0.0521 (0.1212)
Center	0.0059 (0.122)	0.2982* (0.1065)	0.0277 (0.1222)	0.3074* (0.1065)
Judea, Samaria and Gaza	0.6756* (0.3272)	0.5769** (0.3053)	0.6771* (0.3275)	0.5947** (0.3052)
Time in Israel	0.0939 (0.0721)	0.0894 (0.0631)	0.0839 (0.0724)	0.0902 (0.0633)
1992-94 Immigrant	-0.5848 (0.5516)	-0.9639* (0.4915)	-0.5298 (0.5556)	-0.9541** (0.4937)
Time in Israel for 1992-94 Immigrants	0.0444 (0.0324)	0.0205 (0.0293)	0.0405 (0.0327)	0.0195 (0.0294)
Ages at arrival 6-9	1.6642* (0.2029)	0.3005 (0.1917)		
Ages at arrival 10-13	0.7697* (0.1276)	0.1217 (0.1097)		
Ages at arrival 14-15	0.3873* (0.132)	0.1091 (0.1103)		
Age at arrival			5.9602** (3.2104)	1.0652 (2.9774)
Age at arrival <sup>2</sup>			-0.7415** (0.4121)	-0.0917 (0.3791)
Age at arrival <sup>3</sup>			0.038** (0.0227)	0.0026 (0.0207)
Age at arrival <sup>4</sup>			-0.0007 (0.0005)	0 (0.0004)
Constant	-2.2874 (1.5528)	-0.84 (1.3609)	-17.2312** (9.1753)	-4.538 (8.5432)
Year Fixed Effect	Yes	Yes	Yes	Yes
Number of Observations	4,119		4,119	
Log Likelihood	-3970.7007		-3960.8456	
Pseudo R <sup>2</sup>	0.0533		0.0556	

\* Ages at arrival 6-18. Aged 25+ in the survey year. Conditional on not studying at the time of the survey.

Omitted categories: South, Year 2011, Ages at arrival 16-18. Comparison group: HSD (0-11 years).

Standard errors appear in parentheses. \*Significant at 5% level. \*\*Significant at 10% level.

Source: CBS Labor Force Surveys 1996-2011.

**Table 2b: Multinomial Logit Regression for Schooling, Young Females\***

Variable	FSU Immigrants 1989-1994		FSU Immigrants 1989-1994	
	HSG (12 years)	ACD (13+ years)	HSG (12 years)	ACD (13+ years)
Age				
Tel Aviv	0.0957 (0.2292)	0.0676 (0.2057)	0.0617 (0.2295)	0.0686 (0.2057)
Haifa	0.8171* (0.3321)	1.5462* (0.2987)	0.7712* (0.3322)	1.5254* (0.2989)
Jerusalem	0.1527 (0.32)	0.9726* (0.2639)	0.0895 (0.3201)	0.9594* (0.2638)
North	0.2904* (0.1454)	0.3037* (0.1305)	0.278** (0.1453)	0.306* (0.1304)
Center	0.389* (0.1336)	0.6262* (0.1191)	0.3689* (0.1338)	0.6265* (0.1192)
Judea, Samaria and Gaza	1.1891* (0.3489)	1.0399* (0.3314)	1.1521* (0.3485)	1.0312* (0.3313)
Time in Israel	0.024 (0.0786)	0.0446 (0.0707)	0.0278 (0.0784)	0.0497 (0.0705)
1992-94 Immigrant	-0.0752 (0.5824)	-0.3221 (0.5135)	-0.2095 (0.5846)	-0.3851 (0.5171)
Time in Israel for 1992-94 Immigrants	-0.0079 (0.0341)	-0.0222 (0.0303)	0.0019 (0.0343)	-0.0169 (0.0306)
Ages at arrival 6-9	2.0452* (0.2598)	1.3203* (0.2472)		
Ages at arrival 10-13	1.4919* (0.1488)	1.1115* (0.1352)		
Ages at arrival 14-15	0.8313* (0.1396)	0.617* (0.1232)		
Age at arrival			-6.2381 (4.802)	-9.5815* (4.5781)
Age at arrival <sup>2</sup>			0.8597 (0.5909)	1.2479* (0.5606)
Age at arrival <sup>3</sup>			-0.0515** (0.0314)	-0.07* (0.0296)
Age at arrival <sup>4</sup>			0.0011** (0.0006)	0.0014* (0.0006)
Constant	-0.5088 (1.6849)	0.2236 (1.5174)	18.2017 (14.2412)	28.1641* (13.6281)
Year Fixed Effect	Yes	Yes	Yes	Yes
Number of Observations	4,345		4,345	
Log Likelihood	-3873.1296		-3868.7642	
Pseudo R <sup>2</sup>	0.0543		0.0553	

\* Ages at arrival 6-18. Aged 25+ in the survey year. Conditional on not studying at the time of the survey.

Dropped observations: Institutions and Bedouins, people with schooling over 30 or with missing schooling.

Omitted categories: South, Year 2011, Ages at arrival 16-18. Comparison group: HSD (0-11 years).

Standard errors appear in parentheses. \*Significant at 5% level. \*\*Significant at 10% level.

Source: CBS Labor Force Surveys 1996-2011..