Ethnic Enclaves and Human Capital Investments: Evidence from a Natural Experiment

by

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Abstract

This paper explores the impact of ethnic enclaves on labour market outcomes of refugees using a natural experiment from Canada. Results show no negative impact of enclaves on earnings consistent with other quasi-experimental evidence. The paper also provides the first quasi-experimental evidence in the literature regarding the impact of enclaves on human capital investments, one of the most discussed factors that is hypothesized to derive the net impact of enclaves. Results suggest that refugees living in ethnic enclaves invest more in both language and job related training contrary to the predictions of the earlier literature. The role of ethnic enclaves in fostering human capital investments documented in this paper may be an important channel deriving the zero or positive net effects of ethnic enclaves on earnings reported by other quasi-experimental studies.

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1. Introduction

Geographic concentration of immigrants is a well documented fact across immigrant receiving countries. This tendency receives a lot of attention as the receiving countries are concerned that ethnic concentration may impede interaction between immigrant communities and the larger society which may delay or prevent economic and social integration of immigrants to the host society.

There is a wide literature that tries to identify the impact of ethnic enclaves on immigrant outcomes. The positive role of ethnic networks in providing job information that facilitates access to employment opportunities is stressed, as well as, the role of jobs in ethnic workplaces as a shelter from potential discrimination immigrants may face in the national labor market (Borjas, 2000). The literature also points out, however, that living in enclaves or working in ethnically concentrated workplaces may impede acquisition of skills valued at the national labor market which limits labor market prospects. As a result of these opposing effects the impact of living in enclaves on labor market outcomes of immigrants is theoretically unclear.

The direction and magnitude of the estimated impacts varies depending on the techniques employed to identify these impacts. Various studies exploit the variation in ethnic concentration across cities to identify the impact of ethnic enclaves and report a negative impact of enclaves on earnings growth (Borjas (2000) for the US and Warman (2007) for Canada) and language proficiency (Chiswick and Miller (2001), Warman (2007) for Canada). A well-known concern about this identification strategy is that the findings suffer from endogeneity of immigrants' location choices. This problem is addressed by a number of studies that exploit natural experiments that dispersed refugees across cities in a host country. These studies provide a growing body of evidence that the impact of enclaves on earnings and employment is non-negative contrary to the findings of the earlier literature (see Edin et al. 2003 for Sweden, Damm (2008) for Denmark, Beaman (2008) for the US).

The literature so far focused on the direction and magnitude of the impact of ethnic enclaves on labour market outcomes but little is known about factors that bring about the resulting impacts. In particular, the current literature does not provide any direct evidence

regarding the impact of enclaves on human capital investments post migration which is the main focus of this study[1].

Previous literature argues that ethnic enclaves provide employment opportunities within the enclave which reduces incentives (benefits) to make such investments. Chiswick and Miller (2001) and Warman (2007), exploiting variation in enclave sizes across geographic regions, report lower language abilities for immigrants living in enclaves. It is important to note that language ability in these studies reflect investments in language both before and after migration, and these studies can not control for non-random selection into enclaves.

Whether an immigrant invests in host country specific skills depends on expected benefits and costs of that investment. Note that the extent of reduction in benefits for those living in enclaves depends on how widely employment opportunities are available in the enclaves and the relative wages they offer compared to the ones outside the enclave. More importantly, previous literature ignores the costs of making human capital investments and how the enclaves may affect these costs.

In order to acquire host country specific skills many immigrants register in formal training. For immigrants who choose to reside in ethnic enclaves the cost of these investments may be much lower since access to formal training, such as job or language training, targeting immigrants is easier where immigrants concentrate. Table 1 shows that bulk of the federal spending on free of charge settlement and language services in 2000-01 period in Canada were allocated to provinces where immigrants are concentrated. Spending in previous years and spending by provinces, which are not available in this table, are also likely to be higher in provinces where immigrants are densely populated. As a reflection of these spending figures, language classes are often located close to ethnic enclaves and many of the training centers provide free child care for families that register for the classes.

There are also various types of training options and immigrants need to decide in which of these to invest. In addition to providing job information enclaves may also provide information about availability, effectiveness of various types of alternative human capital investment options that enhance the labour market prospects. Since gathering this type of

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[1] In a companion paper I study the role of ethnic networks as providers of job information.

information is costly, the role of ethnic enclaves as providers of this information will be especially important to new comers. Therefore, through these reduced costs residing in ethnic enclaves may actually foster acquisition of host country specific skills.

Exploiting a refugee dispersal policy, this paper provides the first quasi-experimental evidence on the impact of ethnic enclaves in Canada. Using data covering the first four years following migration the paper also provides first quasi-experimental evidence in the literature regarding the impact of enclaves on human capital investments. Contrary to the presumptions of the earlier literature ethnic enclaves are found to have a positive impact on human capital investments. In the next section I discuss the institutional environment followed by a discussion of data issues in Section 3. Section 4 presents the results about the impact of enclaves on earnings and human capital investments and Section 5 concludes.

2. Institutional environment

This paper studies immigrants Canada selects abroad as either government assisted or privately sponsored refugees[2]. These individuals are either convention refugees or not a convention refugee but seriously and personally affected by civil war, armed conflict, or massive violations of human rights (Citizenship and Immigration Canada (CIC), 2006).

Privately sponsored refugees fall under the Joint Assistance Sponsorship Program (JAS) where private sponsoring groups and government share responsibility for refugee resettlement. Most private sponsors are relatives or friends of these refugees who determine the destination in Canada. Therefore, settlement pattern of privately-sponsored refugees reflects and reinforces the existing pattern of dispersal of refugees with the same geographic and ethnic origins (CIC, 2001).

Government assisted refugees (GAR), on the other hand, are distributed all over Canada by a process called "Destination Matching Process" (DMP). The primary factor that determines the outcome of DMP is the annual plan for GARs prepared by the government that

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[2] There are also individuals called "inland" refugees who enter Canada (legally or illegally) and claim refugee status. These refugees are not included in the sampling frame of the data used in this study. This group may involve individuals who are not genuine refugees willing to migrate for economic reasons and try to bypass the skilled worker selection process by applying for refugee status. There is also no restriction on where these individuals settle while their refugee claims are processed by courts.

sets an annual target about the number of GARs to be landed in Canada and also indicates how many GARs to be sent from each mission abroad to listed destinations in Canada. This plan is developed through consultations with stakeholders (including federal and provincial government officials, United Nations High Commission on Refugees (UNHCR) and NGOs), takes into account the availability of settlement services by voluntary agencies, and applies to large missions. The smaller missions do not have destination targets but request destinations for their refugees from the matching centre in Ottawa (CIC, 2001).

Within the framework set by the annual plan the destination decisions for individual refugees and their families are made. In making these decisions information about the characteristics of the refugee and profile of the communities are used. Matching center has information about the refugee including age, country of last permanent residence, language(s) spoken, work experience, years of formal education, immigrant category, relatives/contact in Canada. The community profiles follow a standard format with some statistics about the climate, employment (unemployment rate, list of skills in demand, one or two sentences on language and job training, access to professions and trades), availability of housing and monthly rates, and the make-up of the community.

The refugee determination process sheds light how much of an involvement refugees have in the destination decisions. The process starts when potential refugees abroad apply to UNHCR offices. Following application to UNHCR, these refugees are interviewed by refugee admitting host countries. The primary aim of the interviews is to determine refugee status upon which the status is confirmed or denied. CIC (2006), p. 34, referring to the community profiles used during this process, reports:

> "They offer some relevant information, but one wonders how much of this is conveyed to the refugees, and whether it really enables refugees to participate in the settlement decision… Most refugees do not know Canada's official languages, and they may have difficulty using the information provided as they have little sense of what life in Canada is like".

The same report also underlines that the immigration officers play the major role in the decision, as does the matching centre for cases it handles. Similar conclusions are reached by Simich et al. (2002) based on in depth interviews with key informants (government officials,

NGOs) and GARs who moved to Ontario from another province. Their refugee sample (of 47 migrants) consists of only secondary migrants, hence, one should be careful about generalizations, but these in depth interviews provide some very useful information about the process. According to these interviews some refugees do not reveal any preference for destination as they fear this may lead to denial of their refugee claims while others do not know enough about Canada to indicate any preference. Ideally officials should ask if refugees have relatives or friends in Canada but this doesn't always happen. Refugees are usually in refugee camps and may be in life-threatening situations following civil wars, armed conflict, and natural disasters and they may not even know if they have relatives or friends in Canada[3]. As a result, GARs rarely indicate a preferred destination and the experiences of the interviewed refugees suggest that there is no negotiation possibility about preferred destinations even if the prospective refugee has some preferences. Many refugees indicate that they were made aware of the final destination only at the airport at the day of departure. Thus, destination decisions are made by government officials and refugees have little role, if any, in this process.

Given the availability of community profiles destination choices made by officials may take into consideration the characteristics of the communities. However, target numbers for refugees across regions in Canada set out by the annual plan imposes an important restriction on potential destinations. The target numbers are far less in cities that immigrants traditionally choose to reside such as Toronto, Vancouver and Montreal. As a result even those with relatives already living in Canada may end up in locations different than where relatives are residing. Simich et al. (2002), p. 601, note that "Meeting targets is driven more by bureaucratic and provincial political considerations than by considerations about the placement most likely to meet the needs of refugees".

Destinations of refugees are determined *before* they arrive in Canada. Voluntary organizations help arrange a home for refugees prior to their arrival where a lease is signed with first year of rental payments guaranteed by the government. Therefore, destination decisions not only mean determination of the city where these refugees will live but literally

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[3] Note that refugees who have relatives already in Canada and keep their contacts with them will prefer to arrive under the JAS program where the destination decisions are made by the sponsoring group. Those who arrive under the GAR program and have relatives in Canada either may have lost track of their relatives, hence, can't find sponsors in Canada or their relatives may also be very recent refugees that arrived a short period before them.

on which street they will live. These arrangements, however, do not preclude immigrants from changing their destinations once they arrive in Canada. CIC's Overseas Selection and Processing Manual (p. 148), however, indicates that officers are to counsel refugees that when a destination is provided by the officer, the refugee is to go to the final destination and remain in the community while they receive settlement services, and that refugees who stay in their community of final destination will have access to programs and services. Following arrival in the country refugees are discouraged from changing destination as this causes significant financial and operational burden. They, however, still qualify for financial support (usually up to a year) if they decide to change their predetermined destination but they need to make their own arrangements for housing and other needs at the destination of their choice in that case. The analysis of data described in the next section suggests that most refugees settle in destinations predetermined by the government.

3. Data

The data used for the analysis is the Longitudinal Survey of Immigrants to Canada (LSIC) which a sample of immigrants that arrived over the 2000-01 period. LSIC surveyed immigrants at 6-months, 2-years and 4-years after arrival and this study restricts the sample to those 18 to 61 years old at the time of the 6-month survey. These surveys report detailed demographic information, as well as, visa class information which allows identification of GARs, the group that was subject to the destination matching process. Table 2, reporting several descriptive statistics by visa category shows that refugees (which includes GARs and privately sponsored refugees) are younger and less likely to be married than other immigrants and compared to the family class they have about one year lower years of schooling.

Of crucial importance for this study is the data available in the LSIC about the destination of immigrants in Canada recorded on visas issued prior to their arrival. This information allows identification of the locations GARs were destined to. The data also reports the location of residence captured by the subsequent surveys following migration. Immigrants may sort themselves into cities bases on observable and unobservable characteristics. These types of choices may be observed as early as in the destinations recorded on visa documents issued prior to arrival. For example, immigrants under family class or privately sponsored refugees may choose cities where their relatives and friends reside. In order to assess whether such sorting takes place and to provide a comparison between visa classes, the impact of

observable characteristics on the probability of intended destination being an enclave is analyzed. Destination of immigrants at the CMA/CA geographic level is available in the LSIC based on issued visas. A CMA refers to a census metropolitan area which has an urban core population of at least 100,000 and a CA refers to a census agglomeration area which has an urban core population of at least 10,000. In 2001 there were 19 CMAs and 117 CAs in Canada. Definition of an ethnic enclave follows Edin et al. (2003):

Let j denote the country of origin and k denote a CMA/CA. Define:

$F_{j,k}$ = Fraction of immigrants from country of origin j in the population of CMA/CA k.

F_j = Fraction of immigrants in Canada from country of origin j.

Then an *enclave* variable is defined for a (j,k) pair as follows:

$$enclave_{j,k} \quad = 1 \; if \; F_{j,k} > 2 * F_j$$
$$= 0 \; otherwise \qquad (1)$$

The variables $F_{j,k}$ and F_j are calculated using the 2001 Canadian Census 1 in 5 file.

Table 3 reports the results of a probit model with *enclave* variable as the dependant variable run separately for each visa type. In this table GARs are distinguished from "other refugees". Table reports the observed percentage of immigrants destined to an enclave. These percentages are widely different across visa categories. The highest percentage is observed for skilled workers with a 72.5 % followed by family class with 66.1 %. There is a large difference between the two types of refugees. With 61.5 % percent other refugees group is similar to family class while the fraction among GARs destined to an ethnic enclave is only 35.3 %.

Marginal effects calculated from the estimated coefficients are reported in Table 3. These indicate that having a close relative in Canada at the time of arrival has a positive impact on being destined to an enclave for other refugees and family class while higher years of schooling has a negative impact on this outcome for the family class and skilled worker class. Importantly neither of these variables has any impact on GARs' probability of being destined

to ethnic enclaves. In fact none of the observable characteristics have any significant impact for GARs with the exception of age that has a small negative impact. For the predetermined destinations these results show that there was no sorting of GARs across ethnic enclaves based on important observable characteristics.

Table 4 reports the fraction of immigrants destined (prior to arrival) to Toronto, Vancouver, Montreal and Calgary, four largest cities that are the most popular immigrant destinations. This table also reports the observed geographical distributions at 6-months, 2-years and 4-years after arrival. About 80 % to 90 % of family class, skilled worker class and business class immigrants are destined to these cities. Among refugees 72 % of other refugees and 49 % of GARs are destined to these cities. There is little variation in this fraction at 6-months, 2-years and 4-years after arrival for GARs with 48 % still residing in these four cities 4 years after arrival. The table also reports the fraction of immigrants destined to small-sized cities, those with a population less than 250,000 that traditionally receive few immigrants. This rate is as low as 3 % among skilled workers and, 6 % among other visa categories with the exception of GARs which has a rate of 18 %. Thus, a GAR was at least three times more likely to be destined to a small sized city compared to other visa categories. While this rate has declined somewhat for GARs as time spent in the country increased, by 4-years after arrival 14 % of GARs were still residing in these cities. This rate was twice as high as the highest rate of 7 % reported for the other visa categories.

The differences in ethnic concentrations between different visa categories are further illustrated in Figure 1. While the initial destinations can be identified at the CMA/CA level, the location of immigrants at 6-months, 2-years and 4-years after arrival can be identified at a more detailed level called an FSA. FSAs are associated with a postal facility from which mail delivery originates. The average number of households served by an FSA is approximately 7000, and as of May 2001, there were approximately 1,600 FSAs in Canada. Thus, an FSA is a much tighter geographic area that gets much closer to a neighborhood where most of the social interactions take place. The figure illustrates distribution of immigrants across FSAs with different degrees of ethnic concentration 6-months after arrival. Ethnic concentration for a given country of origin is measured as the percent of the FSA population that is born in that country. GARs were much less likely to be in neighborhoods that had high levels of ethnic concentration.

Above analysis provides strong evidence that observable characteristics of GARs had no impact on the propensity to be destined to a city that is ethnically concentrated. The analysis further shows that GARs were sent to locations that were much different than the typical choices made by other types of immigrants. Although there has been some secondary migration in the following years a large fraction of GARs were still residing in their destination cities. There is also still significant variation in the ethnic concentration of neighborhoods within this group. In the rest of the paper, this variation in ethnic concentration among the GARs will be used to identify the impact of ethnic enclaves. In particular, questions available in the LSIC about labour market outcomes, language training and work related training will be used.

4. Impact of ethnic enclaves

In the following analysis I am interested in the impact of ethnic concentration on various outcomes of GARs at 6-months, 2-years and 4-years after arrival. For a given time after arrival let the outcome of interest be Y_{ijk} that denotes the outcome for individual i from country of origin j residing in FSA k. Then the empirical specification is:

$$Y_{ijk} = \alpha X_{ijk} + \beta \ln c_{ijk} + \delta_r + \delta_c + \varepsilon_{ijk} \qquad (2)$$

The set of individual characteristics X includes age and age squared, married dummy, years of schooling, dummy for children in immigrating family, female dummy and the interaction term married*female. Age and marital status are measured at the time of each survey, while the rest of the variables refer to characteristics at arrival or 6-months after arrival[4]. The specification also includes region of birth (δ_r) and destination cma/ca (δ_c) fixed effects. Controlling for destination fixed effects is important in this context since destination matching process may take into account factors that are unobservable to the econometrician which may be correlated with the outcomes. The key independent variable is c_{ijk} which refers to the size of the ethnic group for individual i, from country of birth j, living at FSA k at the time of the survey.

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[4] Note that other quasi-experimental work on the impact of ethnic enclaves study cohorts that arrived over a number of years. Arrival dates of immigrants sampled in the LSIC are over a 12 month period between October 2000 and September 2001.

Equation (2) is estimated separately for each survey thus, allowing effects of explanatory variables to vary across time.

Since there may be sorting into neighborhoods based on unobservable characteristics resulting endogeneity problem is solved using ethnic size of the initial CMA/CA determined by the matching process as an instrument for the size of the ethnic enclave at a given survey year. With destination fixed effects the IV strategy exploits variation in the inflow refugees across FSAs within large cities. The identifying assumption is that matching process is independent of the unobserved characteristics of the refugees. The only interaction between the potential immigrants and the officers is the interview for refugee status determination. This interview allocates a few minutes -if any- to the discussion of destination and most of the time those whose refugee applications are approved find out their destination at the time of departure. Structure of the process therefore limits the role of unobserved characteristics of refugees on destination determination. Table 3 above also provides evidence that even observable characteristics did not play a role in assignment of refugees to destinations. Also, similar to Edin et al (2003) and Damm (2008) the analysis assumes that only current location has an effect on the outcomes.

The following analysis reports the values for F-statistics for IV analysis which shows that the instruments usually have high power with F values well over 10. There is one exception where F value is below 10 that are discussed in the next section. Both OLS and IV estimates of the empirical specifications are reported.

4.1. Impact of ethnic enclaves on earnings

Equation (2) is estimated using log of the hourly wage rate as the dependant variable for active jobs at the time of the interview. The results of this analysis provide a point of comparison to other quasi experimental evidence on the impact of enclaves on earnings reported in the literature. Table 5 reports the estimated coefficients for the log of the ethnic enclave size. Separate estimates are reported for the OLS and IV methods. The table also reports the results of the first-stage regressions for the IV method.

At 6-months after arrival only 38 individuals report working out of around 680 GARs. The very low number of employed is not very surprising since these immigrants spent only

six months in the country and the government provides full income support to GARs within the first year after arrival. Both the OLS and IV results show no significant affect of the enclave on hourly wages. However, given the very small sample size and very weak first stage regression results, the results of the IV method are not reliable.

Sample sizes are much larger for 2-years and 4-years after arrival. Results from both the OLS and the IV estimation show that enclaves have no significant impact on earnings. These results are in line with other quasi-experimental evidence reported by Edin et al. (2003) that reports no significant effect of enclaves on earnings of immigrants eight years after arrival in Sweden. Damm (2008), on the other hand, reports positive impacts seven years after arrival in Denmark[5].

Impact estimates of ethnic enclaves on earnings can be interpreted as a net impact of a number of underlying factors. Previous quasi-experimental studies provide no direct evidence on factors that derive the net effects[6]. Next section turns to one of the mostly discussed factors that are hypothesized to influence the resulting impact of living in enclaves: the role of human capital investments.

4.2. Impact of ethnic enclaves on human capital investments

There are two major requirements for a successful integration of immigrants to the host country labor market: language skills and transferability and relevance of skills obtained in the source countries in the host country labor market. There are large payoffs to investment in host country language skills since without language skills other human capital characteristics may have no pay off in the labor market. It is expected then language investments will be the priority for newly arrived immigrants. Once immigrants become proficient in language skills they may want to invest in other types of education and training. These latter types of

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[5] The only quasi-experimental evidence on neighborhood effects in Canada is by Oreopoulos (2003) who explores the long-run impact of being raised in public-housing projects in Toronto. Using a natural experiment the author finds that neighborhood quality plays little role on adult earnings, unemployment rates or welfare participation of children raised in these housing projects. Results of Oreopoulus (2003) are interesting since many immigrants tend to settle in low income neighborhoods.

[6] The only exception to this is Damm (2008) that investigates two potential explanations for the finding of a positive net effect: ethnic goods consumption hypothesis and spillover of information and/or norms promoting earnings among enclave members. The author explores the implications of these potential explanations on such outcomes as probability of employment, full-time work and the impact of the quality of enclaves on earnings.

investments may help recognition of source country human capital characteristics following certification of skills, as well as, result in accumulation of new host country specific skills.

4.2.1 Language Investments

Canada provides a very unique laboratory for studying language investments given there are two official languages of English and French. Some geographical regions of the Canadian labor market heavily use English at the workplace while others use French. If enclaves reduce incentives to make language skill investments as hypothesized by the earlier literature then a negative impact should be observed for both languages. On the other hand, if enclaves foster language investments a positive impact is expected to be observed especially for the dominant language used in the regional labor market.

LSIC reports whether immigrants took any language classes between the current interview date and the previous interview (or arrival date if the current interview is the 6-month interview) and this information is available separately for English and French training. In addition to the incidence of training activity, the number weeks of training and hours of training per week information are reported at the 6-month interview allowing calculation of the number of hours of training. Thus in this section both the incidence and the intensity of investments in language are analyzed.

The availability of information on investments in language in the LSIC is a crucial difference from other sources of data such as Census data. In the Census files language ability questions refer to the stock of language ability measured at the time of the Census. The stock of language ability captured by Census files is a function of the stock of language ability at the time of arrival and the investments in language ability following migration. The theoretical predictions are, however, mainly concerned with how the ethnic enclaves affect the incentives for investment in the host country post migration.

In addition to the information about new investments in language LSIC also provides information on how well individuals speak, read and write the official languages, similar to language questions measuring the stock of language ability available in the Census files. To illustrate the difference between the stocks and new investments following migration, and also to provide a point of reference to the current literature models with commonly employed

specifications are estimated with two different dependant variables: one measuring the stocks and one new investments. In this initial analysis there is no attempt to control for sorting of immigrants into enclaves - similar to earlier studies studying impact of enclaves on language ability. Dependant variables referring to the stock of language ability measure ability in each of the three dimensions of speaking, writing, and reading. These measures are available separately for both English and French. The variables take a value of 3 for "well, very well", 2 for "fairly well" and 1 for "poorly or none". Thus higher values indicate higher proficiency in that dimension. The dependant variables are regressed on the log of the ethnic enclave size, female dummy, age and age squared, married dummy, years of schooling, kids, married*female, region of birth fixed effects, CMA/CA of residence fixed effects. Estimations are carried out separately for English and French and for each dimension of ability. Following other work in the literature all immigrants regardless of visa type are included while individuals whose mother tongue is either English or French, or report one of these as most spoken language at home at the 6-month interview are dropped. These latter restrictions aim to remove those who might have been heavily exposed to one of these languages prior to arrival. Models for English are estimated by restricting the sample to those CMA/CAs where English is the dominant language (that is the fraction of residents in that CMA/CA with English mother tongue is over 70 %), and a similar restriction is adopted for French.

The first 9 columns of Table 6 report coefficients of the log ethnic enclave size from OLS estimation where the dependant variable measures the stock of language ability at 6-months, 2-years and 4-years after arrival. The last 3 columns of Table 6, on the other hand, reports results where the dependant variable is replaced with whether individuals made new investments in language ability in the host country.

The results show a striking difference in the estimated impact of ethnic enclaves when the dependant variables are changed. For English language when the dependant variable measures the stock of language ability the coefficients estimates for the impact of ethnic enclave size are all negative and significant similar to the results reported in the literature. These coefficients would imply a negative correlation between living in enclaves and language ability. However, when the dependant variable measures news investments the results show no significant relationship between enclaves and language investments. Similar results are

also observed for French. These differences in results underline the importance of distinguishing between stock and flow (new investment) measures of language ability.

Sorting of immigrants into enclaves may be biasing the reported coefficients in Table 6. This issue is addressed in the following analysis that focuses on new language investments and restricts the sample to GARs who were subject to destination matching process. This allows the use of the IV strategy of the Section 4.1 to control for sorting of immigrants into enclaves. The same sample restrictions of Section 4.1 for analyzing the impacts on earnings are adopted in the following analysis.

Tables 7 and 8 report results related to the incidence of language training where the dependent variables are dummy variables indicating taking classes or training (such as ESL or FSL classes) in English and French respectively. In addition to the previous set of controls used for earnings outcome of Section 4.1 these specifications include a mother tongue English dummy, language most spoken at home English dummy and also the corresponding dummy variables for French. The tables report the mean of the dependent variables, i.e. the fraction in sample that has taken language training. These figures suggest that most of the language training takes place in the first few years and this falls as time spent in the country increases. Incidence of English training falls from 56 % within the first 6-months of arrival to 46 % in the following 18 months (until 2-years after arrival) and finally 16 % between 2- and 4-years after arrival.

Comparing the OLS and IV estimates referring to specifications (1) in Table 7 shows that OLS method underestimates the true impacts. IV estimates are positive and significant at 6-months suggesting that residing in ethnic enclaves increases the probability that an immigrant receives English training. The estimated impact is not significantly different from zero at both 2-years and 4-years after arrival. Specification (2) adds an interaction term of ethnic enclave size with a dummy variable indicating that majority of the CMA/CA has a French mother tongue. This interaction is intended to capture differential impact of the size of the ethnic enclave when the dominant language in the labor market is French. However, given that refugees may select into regions based on characteristics of regions, including language spoken, this variable is instrumented with fraction of the individuals in the destination CMA/CA whose mother tongue is French. IV coefficient estimates for the main effect of ethnic enclave size in this specification are positive and much larger in magnitude than

previous specification indicating a positive impact of enclaves on English language investment for 6-months and 2-years after arrival. The interaction terms are negative and significant indicating that immigrants in enclaves that belong to French speaking labor markets are much less likely to invest in English. IV estimates from specification (2) show no effect of enclaves on English investments 4-years after arrival – a period when language investments become much more rare. These estimated coefficients imply that for someone living in an English speaking region a one standard deviation increase in the size of the ethnic enclave leads to 12.3 percentage point (pp) increase in the incidence of English training within the first 6-months of arrival, 4.6 pp increase between 6-months and 2-years after arrival, and has no impact between 2- and 4-years after arrival.

Table 8 presents results for incidence of French training. The incidence of French training is much lower but follows a similar declining pattern as in English training: starting at 16 % within the 6-months after arrival and falling to 4 % between 2- and 4-years after arrival. Comparing OLS and IV estimates from specification (2) indicates again that OLS underestimates the impact of ethnic enclaves. IV estimates show that ethnic enclaves located in French speaking regions increase investments in French language, however, those enclaves in English speaking regions reduce such investments. For someone living in a French speaking region estimated coefficients imply that a one standard deviation increase in the size of the ethnic enclave leads to 4.8 pp increase in incidence of French training within the first 6-months of arrival, 3.0 pp increase between 6-months and 2-years after arrival, and has no impact between 2- and 4-years after arrival. These results for the two official languages also suggest a trade-off between English and French language investments. Enclaves are fostering investments in the language dominant in the regional labor market while reducing investment in the other language. Deciding to invest in a language may require commitment of time to the learning of that language and therefore lead to the decision not to make investment in a second one.

These results show that contrary to the presumptions of the earlier literature enclaves actually increase language investments in the Canadian context. Ethnic enclaves may be reducing the costs of making such investments since language training classes are often located close to ethnic enclaves. Co-ethnics can also readily provide crucial information about relevance, effectiveness of different types of language classes which may be much more

costly to obtain outside the enclave. Refugees may also be encouraged by co-ethnics to make such investments for their future labor market prospects[7].

Table 9 reports the impact estimates for the intensity of English and French training at 6-months after arrival[8]. The average number of hours of training within first 6 months after arrival was about 193 hours for English and 80 hours for French. IV results suggest that the OLS impact estimates in absolute terms are biased towards zero. Estimated coefficients by the IV method show that those in ethnic enclaves not only are more likely to take language classes but they also invest more heavily in language.

Immigrants who invest in language skills may also invest in other types of human capital to improve their labor market prospects. Next section focuses on these types of investments.

4.2.2 Investments in Education and Training (excluding language training)

Immigrants invest not only in language skills but also in other types of human capital. These types of investments are captured by "other education and training excluding language training" that include job-related courses, workshops or seminars, educational programs that leads to a degree, diploma or certificate, and the "other" category.

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[7] GARs are eligible for Resettlement Assistance Program (RAP) if they do not have a job or other financial resources to support themselves. This assistance provides a monthly allowance depending on the number and ages of people in the family up to a maximum of 12 months. After expiration of RAP refugees are eligible for the provincial social assistance, a program that supports all residents of Canada who do not have a job in the province and lack financial resources. These programs may increase propensity to make human capital investments through lower costs of investments as they reduce cost of foregone earnings. Both programs also require that recipients are either looking for work or upgrading their skills. It is unlikely, however, that receipt of social assistance forces people through these requirements to make human capital investments since those who do not want to register for skill upgrading, such as language courses, may easily claim that they are looking for jobs.

Estimated impacts of enclaves may be partly driven by a potential positive correlation between the size of the ethnic enclave and receipt of social benefits if those on social assistance tend to invest more. This would imply that in a different setting where refugees do not have access to these kinds of need based transfer programs estimated enclave effects would be lower. A positive correlation between the size of the ethnic enclave and receipt of social benefits could arise, for example, if immigrants "learn" how to become entitled to these benefits through ethnic enclaves. Refugees, however, are automatically entitled to RAP program so that they don't need to find out from other immigrants about these programs. Nevertheless, the models are also estimated including a control for the receipt of social assistance and reported impact estimates are very robust to the inclusion of this additional control.

[8] Hours of language training is not available for 2-years and 4-years after arrival. Hours of language training includes zero hours as well. Estimation uses log hours as the dependant variable. In order to use observations with zero hours of training in estimation everyone is assigned an extra hour of training before taking logs.

Table 10 analyzes the incidence of these types of investments. About 17 % percent of GARs registered for this type of training within the first 6 months after arrival and this rate increased to 81 % between the 6-month and 2-year interviews before falling back to 39 % between the 2-year and 4-year interviews. This suggests an interesting pattern in human capital investments for immigrants. Within the first six months of arrival 72 % of refugees invest in at least one language while only 17 % invest in education and training excluding language. Between 6-month and 2-year interviews the fraction investing in at least one language falls down to 56 % while other types of education and training jumps to 81 %. These figures show that refugees invest heavily in human capital within the first two years of arrival first concentrating on language investments then shifting to other types of education and training. Both types of investments fall between the 2-year and 4-year interviews as more refugees start participating in the labor force.

OLS estimates in Table 10 show that there is no effect of ethnic enclaves on investments in education and training at 6 months. However, the effect becomes negative at 2-years and 4-years after arrival suggesting that enclaves reduce investments in this type of human capital. IV estimates, correcting for the sorting of immigrants, imply the opposite with positive impact estimates for the incidence of investments. These estimated coefficients imply that a one standard deviation increase in the size of the ethnic enclave leads to 2.9 pp increase in incidence of other education and training within the first 6-months of arrival, 1.8 pp increase between 6-months and 2-years after arrival, and a 3.6 pp increase between 2- and 4-years after arrival. Table 11 focuses on the intensity of these investments. This table reports the average number of hours of training which increase from 59 hours of training within the first 6-months to 485 hours between the 2-year and 4-year interviews[9]. The IV estimates of the impact of ethnic enclaves on intensity of other education and training is positive and significant for both the 6-month and 4-year outcome. These results imply that ethnic enclaves not only have a positive impact on language acquisition but also increase the investments in other types of education and training such as job training.

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[9] This information is not available for the 2-year interview. Hours of training includes zero hours as well. Estimation uses log hours as the dependant variable. In order to use observations with zero hours of training in estimation everyone is assigned an extra hour of training before taking logs.

5. Conclusions

This paper explored the impact of ethnic enclaves on labour market outcomes of refugees using a natural experiment from Canada. The impact estimates suggest that living in ethnic enclaves do not have a negative impact on earnings in line with other results from the literature that used similar natural experiments from Sweden and Denmark.

Importantly, this paper studies the impact of ethnic enclaves on human capital investments and provides the first empirical evidence based on quasi-experimental methods that suggest that refugees living in ethnic enclaves make more investments in both the language and job related training. The study stresses that investment decisions depend on both the associated benefits and costs of such investments. The results regarding investments may be because immigrants are able to access immigrant focused training more easily and at a lower cost if they live in ethnic enclaves. Lower costs may arise because of geographical proximity of training facilities to the enclaves and availability of free childcare services. Ethnic enclaves may also provide crucial information about access, relevance and effectiveness of alternative language and work related training opportunities lowering the costs of search for the best training options. Also, immigrants who live in ethnic enclaves may be encouraged by co-ethnics to make human capital investments which increase the future labour market prospects. Finally, the role of enclaves in reducing the benefits of such investments may not be very large.

The effects of ethnic enclaves on earnings can be interpreted as a net effect of a number of underlying factors. Some of these factors may negatively affect earnings while others having positive impacts. Previous quasi-experimental studies show either zero or positive effect of living in enclaves. These net effects, however, imply that there must at least be some factors with positive impacts that compensate the negative ones. The role of ethnic enclaves in fostering human capital investments documented in this paper may be an important channel deriving the reported net effects.

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Table 1 – Federal Spending on Settlement and Language Services - 2000/2001

Province/Territory	Percent of Total Federal Spending in 2000-01 ($)	Percent of Total Number of Immigrants in Canada - 2001
Ontario	66.9	63.9
British Columbia	16.2	21.3
Alberta	9.0	9.2
Manitoba	2.9	2.8
Saskatchewan	1.8	1.0
Nova Scotia	2.0	0.9
New Brunswick	0.5	0.5
Newfoundland and Labrador	0.4	0.2
Prince Edward Island	0.2	0.1
Yukon Territory	0.1	0.1

Source:
Spending figures calculated by author based on "Inter-Provincial Report Card on Immigrant Settlement and Labour Market Integration Services", BC Coalition for Immigrant Integration - April 2002.

Figures for percent of immigrants calculated by author based on 2001 Canadian Census tabulations, Statistics Canada. Census defines "immigrant population" as persons who are, or have ever been, landed immigrants in Canada.

Table 2 – Descriptive Statistics by Visa Category

	Family Class	Skilled Worker	Business Class	Refugees
Age	34.98	34.44	38.53	33.87
Male	0.34	0.55	0.47	0.52
Married	0.81	0.84	0.77	0.67
Years of schooling	12.88	16.14	13.88	11.93
N	1,160	3,211	305	852

Table 3 – Impact of Individual Characteristics on Enclave Status of Destination (dF/dx)

	Government Assisted Refugees	Other Refugees	Family Class	Skilled Workers	Business Class
Age	-0.005*	0.000	0.002	-0.001	0.002
	(.002)	(.005)	(.001)	(.001)	(.004)
Years of schooling	-0.007	0.014	-0.012*	-0.012*	0.005
	(.005)	(.010)	(.004)	(.003)	(.010)
Male	0.002	-0.145	-0.042	0.029	0.009
	(.039)	(.082)	(.031)	(.016)	(.060)
Married	-0.001	-0.027	-0.099*	0.031	-0.052
	(.044)	(.116)	(.037)	(.024)	(.093)
Close relative in	0.030	0.185*	0.107*	0.032	0.101
Canada at arrival	(.049)	(.085)	(.043)	(.023)	(.084)
Observed probability of being in enclave	0.355	0.615	0.661	0.725	0.581
R2	0.01	0.04	0.03	0.01	0.01
N	689	163	1160	3211	305

Notes: * significant at 10 % level; Table reports marginal effects. Standard errors are reported in parenthesis.

Table 4 – Distribution of Immigrants Destination across Cities and Population Size

Fraction	GARs	Other Refugees	Family Class	Skilled Workers	Business Class
Four Largest Cities					
Destination	.49	.72	.79	.87	.89
6-months	.45	.73	.77	.85	.87
2-years	.47	.70	.77	.83	.84
4-years	.48	.69	.75	.81	.84
Cities<250K					
Destination	.18	.06	.06	.03	.06
6-months	.16	.05	.07	.03	.05
2-years	.14	.06	.08	.03	.06
4-years	.14	.06	.07	.04	.06

Table 5 - Impact of Ethnic Enclaves on ln(Hourly Wage)

	6-months after arr.		2-years after arr.		4-years after arr.	
	OLS	IV	OLS	IV	OLS	IV
ln(ethnic group)	.015	-.174	-.007	-.047	.013	.009
	(.052)	(.144)	(.012)	(.032)	(.010)	(.032)
R2	.32	-	.22	.18	.26	.26
N	38	38	251	251	345	345
Mean hourly wage	7.75		9.19		10.58	
Destination CMA/CA	First-stage regression F-statistics					
ln(ethnic group)						31.2
	--	2.0	--	32.9	--	

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
Other controls: Female dummy, age and age squared, married dummy, years of schooling, kids, married*female, region of birth fixed effects, destination fixed effects (at cma level); earnings refer to jobs active as of the time of interview

Table 6 – Stock of Language Ability and Investments in Language: OLS estimates by Official Language

	Stock of Language Ability									Investment in Language Ability		
	Speaking Ability			Reading ability			Writing Ability					
	6-months after arr.	2-years after arr.	4-years after arr.	6-months after arr.	2-years after arr.	4-years after arr.	6-months after arr.	2-years after arr.	4-years after arr.	6-months after arr.	2-years after arr.	4-years after arr.
English												
Ln(ethnic group)	-.018*	-.032*	-.028*	-.024*	-.024*	-.020*	-.017*	-.028*	-.020*	-.008	.001	.004
	(.007)	(.006)	(.006)	(.006)	(.005)	(.006)	(.007)	(.006)	(.006)	(.005)	(.005)	(.003)
R2	.31	.32	.32	.33	.34	.33	.31	.31	.32	.18	.09	.05
N	3584	3586	3540	3584	3586	3540	3584	3586	3540	3584	3584	3584
French												
Ln(ethnic group)	.002	-.035	-.066*	-.051	-.033	-.059*	-.001	-.040	-.062*	.016	-.001	-.018
	(.032)	(.035)	(.022)	(.032)	(.037)	(.022)	(.031)	(.038)	(.022)	(.020)	(.015)	(.012)
R2	.59	.66	.63	.63	.65	.60	.61	.62	.58	.44	.45	.35
N	163	164	206	163	164	206	163	164	206	163	163	206

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
Other controls: Female dummy, age and age squared, married dummy, years of schooling, kids, married*female, region of birth fixed effects, CMA/CA of residence fixed effects

Table 7 - Impact of Ethnic Enclaves on
  Incidence of English Language Training

	6-months after arr.				2-years after arr.				4-years after arr.			
	OLS		IV		OLS		IV		OLS		IV	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Ln(ethnic group)	.004	.022*	.064*	.232*	.026*	.042*	.037	.084*	.008	.015*	-.036	-.032
	(.010)	(.011)	(.038)	(.059)	(.011)	(.012)	(.040)	(.047)	(.008)	(.009)	(.032)	(.036)
Ln(ethnic group)* (French speaking CMA/CA)	-	-.071*	-	-.453*	-	-.069*	-	-.206*	-	-.031*	-	.011
		(.018)		(.110)		(.018)		(.088)		(.013)		(.076)
R2	.32	.33	.28	-	.14	.16	.14	.09	.09	.10	.06	.06
N	685	685	685	658	687	687	687	659	687	687	687	659
Mean of Dep. var.	.56				.46				.16			
Destination CMA/CA	First-stage regression F-statistics											
ln(ethnic group)	--	--	50.5	25.5	--	--	52.5	27.2	--	--	47.9	27.8
Fraction speaking French	--	--	--	18.2	--	--	--	16.1	--	--	--	11.2

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
LPMs in all specifications, Other controls as in Table 5 plus mother tongue English (French) dummy, language most spoken at home English (French) dummy and destination fixed effects.

Table 8 - Impact of Ethnic Enclaves on
       Incidence of French Language Training

	6-months after arr.				2-years after arr.				4-years after arr.			
	OLS		IV		OLS		IV		OLS		IV	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
ln(ethnic group)	-.018*	-.033*	-.029	-.120*	-.010	-.018*	-.058*	-.068*	-.004	-.007	-.034*	-.039*
	(.007)	(.007)	(.024)	(.032)	(.007)	(.007)	(.025)	(.029)	(.005)	(.005)	(.017)	(.020)
ln(ethnic group)* (French speaking CMA/CA)	-	.065*	-	.210*	-	.033*	-	.123*	-	.016*	-	.039
		(.011)		(.060)		(.010)		(.051)		(.007)		(.042)
R2	.48	.51	.48	.36	.37	.38	.32	.30	.11	.12	.05	.05
N	680	680	680	652	682	682	682	653	683	683	683	654
Mean of Dep. var.	0.16				0.13				0.04			
Destination CMA/CA	First-stage regression F-statistics											
ln(ethnic group)	--	--	51.1	25.4	--	--	47.9	25.3	--	--	50.1	26.9
Fraction speaking French	--	--	--	18.6	--	--	--	16.0	--	--	--	11.1

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
LPMs in all specifications, Other controls as in Table 5 plus mother tongue English (French) dummy, language most spoken at home English (French) dummy and destination fixed effects.

Table 9 – Impact of Ethnic Enclaves on
   Intensity of Language Training – 6 months after arrival

Dependant var.:	ln(Hrs of Eng.Training)				ln(Hrs of Fr.Training)			
	OLS		IV		OLS		IV	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
ln(ethnic group)	-.061	.067	.044	.949*	-.102*	-.199*	-.202	-.611*
	(.058)	(.063)	(.200)	(.326)	(.036)	(.038)	(.124)	(.164)
ln(ethnic group)* (French speaking CMA/CA)	-	-.507*	-	-2.690*	-	.386*	-	1.053*
		(.101)		(.598)		(.061)		(.304)
R2	.32	.35	.32	-	.59	.61	.58	.53
N	689	689	689	659	689	689	689	659
Mean no of hours – training	192.7				79.5			
Destination CMA/CA	First-stage regression F-statistics							
ln(ethnic group)	--	--	57.4	27.3	--	--	55.6	27.2
Fraction speaking French	--	--	--	19.9	--	--	--	19.6

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
Intensity is defined as the total no of hours of training between arrival and the 6-month interview.
Other controls as in Table 5 plus mother tongue English (French) dummy, mother tongue English (French) dummy, language most spoken at home English (French) dummy and destination fixed effects.
The roster of education/training includes language training in the 6-month interview but not reported at 2- and 4- year interviews.

Table 10 - Impact of Ethnic Enclaves on
  Incidence of Education and Training (excl. lang. training)

|	6-months after arr.		2-years after arr.		4-years after arr.	
	OLS	IV	OLS	IV	OLS	IV
ln(ethnic group)	.011 (.008)	.055* (.027)	-.028* (.009)	.033 (.031)	-.018* (.010)	.063* (.038)
R2	.29	.26	.12	.05	.22	.14
N	689	689	689	689	689	689
Mean of Dep. var.	.17		.81		.39	
Destination CMA/CA	First-stage regression F-statistics					
ln(ethnic group)	--	57.5	--	58.0		51.1

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
LPMs in all specifications, Other controls as in Table 5 plus destination fixed effects.

Table 11 - Impact of Ethnic Enclaves on
   Intensity of Education and Training - ln(Hours of training)

	6-months after arr.		4-years after arr.	
	OLS	IV	OLS	IV
ln(ethnic group)	.085* (.043)	.350* (.151)	-.073 (.068)	.573* (.262)
R2	.29	.25	.23	.12
N	689	689	689	689
Destination fixed effects				
Mean No of Hours –Training	59.2		485.1	
Destination CMA/CA	First-stage regression F-statistics			
ln(ethnic group)	--	57.5	--	51.1

Notes: * significant at 10 %, Standard errors are reported in parenthesis.
Other controls as in Table 5 plus destination fixed effects.

Figure 1 – Densities of ethnic concentration rate, By Visa Class
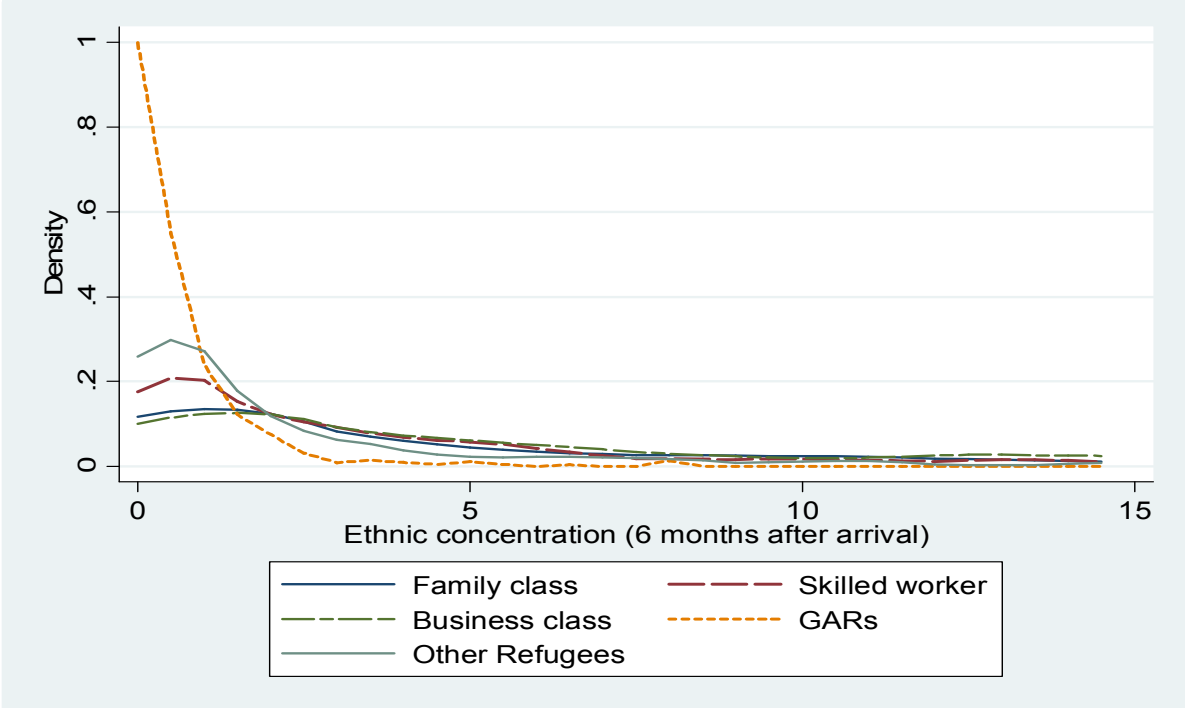
Notes: Ethnic concentration for a given country of origin is measured as the percent of the FSA population that is born in that country of origin. Density estimate using Epanechnikov kernel with halfwidth of 0.5. Among all immigrants median ethnic concentration was 2.02 %, 10th percentile was 0.06 % and 90th percentile was 12.82 %. The scale on y-axis is not a probability scale.