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Do Birds of a Feather Flock Together? Immigration Flows and Cultural Clustering in Host Countries

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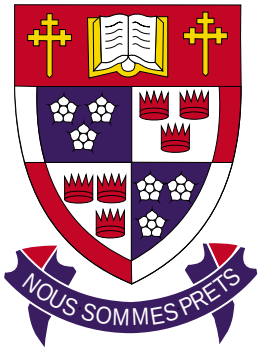

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Do birds of a feather flock together?

Immigration flows and cultural clustering in host countries*

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Abstract

This paper presents a simple theoretical framework in which immigrants have a relative incentive to cluster in host countries where cultural characteristics and imperfect information sustain the segmentation of the labor market and a higher wage in foreign communities. The hypothesis is tested on a panel of immigration flows to OECD countries. The pull effect of cultural communities is supported and it is found that the minimum size of a given cultural community is around 5% of the foreign population. It is also found that the pull effect weakens as the community grows as predicted by the theoretical framework.

JEL Classification Numbers: F22, J61, O15.
Keywords: International migrations, relative incomes, cultural clustering.

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I. Introduction

Until recently immigration to industrialized countries was skewed in favor of institutionally predetermined ethnic groups. The United States had formal rules for preferred nations of origins and Canada had similar but informal preferences in its immigration policy. As a result, from the 1920s until the 1950s, immigrants from Northwestern, Central and Eastern Europe represented more than half of all immigrants to both Canada and the United States.[1] In West European countries a very similar concentration could be observed with immigrants from Southern Europe even though the approach to immigration was different. To compensate for their chronic shortage of labor, countries like Germany and Switzerland actively recruited foreign workers in Italy, Spain and Turkey. Finally, France and the United Kingdom had preferential treatment for citizens from their former colonies (see Zimmermann, 1996). Nevertheless, in all cases the ensuing skewness in the distribution of origins for immigrant populations was clearly demand-driven. In the mid-1960s, the United States and Canada abandoned the preferred origin criterion in favor of skill characteristics and world events such as the fall of the Berlin Wall led to increased ethnic diversity in immigration flows toward Western European countries (see OECD, 1995, 1997). One of the consequences of the lifting of administrative constraints is that the representation of source

[1] See Green (1995) and Borjas (1992) for more details.

countries among foreign populations in host countries has become more diversified and more supply driven.

Although the initial triggers for these shifts clearly originate in exogenous factors such as changes in immigration laws or source-country specific events, the subsequent shaping of the distribution is likely to have been influenced by various systematic push and pull factors. In this paper we chose to focus on one particular pull factor, namely the role of the clustering of migrants by origins in receiving countries as a location determinant for the newcomers. It is suggested that the existence of a community of the same origin can make labor market options more attractive for new migrants, thereby lowering the costs of migrating. As a consequence, new migrants tend to flock to countries where nationals of their country are already established.

The effects of costs on migration decision have been investigated within various frameworks. For example, in the theoretical literature, the disutility of leaving a community for an alien culture has long been integrated in the determinants to emigrate. This non-monetary cost is introduced through a penalty factor applied to the expected wage in the receiving country (Harris and Todaro, 1970). Recently, Layard et al. (1992) have used this model in their study of East-West migrations in Europe after the fall of the Berlin Wall. In the empirical literature, gravity models applied to migrations suggest that the distance between the source and destination countries is a proxy for the financial costs as well as the cultural costs incurred by migrating to an alien country (see for examples, Feder, 1980, Foot and Milne, 1984, for regional migrations and Helliwell, 1997, for cross-border migrations).

However, most of the time, cultural costs are measured only indirectly. Furthermore, these studies do not take into account the fact that migration costs may be variable and even endogenous. This would be the case, for example, if the relative costs depend on the presence and on the size of a cultural community which is familiar to the potential immigrant. One way to integrate the role of communities of the same origin in the host country is to consider that the relative wages at home and in the destination country can be altered if a sizeable community from the same origin exists in the receiving country. Using this approach, Stark (1994) posits that it is cheaper for immigrants than for native-born individuals to identify whether other migrants are of the cooperative or of the non-cooperative type in trade relationships. Information costs among immigrants are thus lower and generate a higher proportion of the cooperative-type among immigrants than among non-immigrants (provided that each agent deals only with his/her own type only). As a result, immigrants do better than native-born individuals independently of individual characteristics. Our model generates a similar outcome but is developed from different premises. We use non-cooperative repeated interactions between employers and immigrants to show that common characteristics among immigrants help sustain a higher wage within cultural communities than in the rest of the economy. Moreover, the higher wage in immigrant communities is explained by the relative size of the communities and not by assuming lower information costs among immigrants. This allows for more straightforward empirical testing of the role of cultural communities as a determinant of immigration flows.

To justify a higher reward in the ethnic community than outside it, the model is set up within the framework of the efficiency-wage model. If the quality of information about

workers= non-observable characteristics is endogenous to the size of the market, and thus the incentive to shirk is endogenous, a higher wage than the market-clearing wage is sustainable in a small community while it is not in a large market. Within a given country (i.e. in the absence of formal borders) such a segmentation of the labor market can hold provided informal barriers like cultural characteristics matter. As a consequence, everything else being equal, and without constraints on settlement locations within the receiving country, migrants will have an incentive to cluster. Moreover, the incentive is stronger in countries where these communities are within some size range, i.e., in countries where labor markets are effectively segmented. This result is broadly supported by a panel of migration flows to major OECD countries from the mid-1980s to the mid-1990s. In effect, the size of the cultural communities matters for the size of migration flows and, moreover, the impact is shown to weaken when the resident community grows. Interestingly, the pulling role of cultural communities is significantly weaker in the case of migrations within the OECD. That result is consistent with the premises of the model that a match between job-specific and immigrant-specific characteristics and the resulting effective segmentation of markets are necessary to generate a premium.

The paper is organized in the following way: The next section presents the theoretical framework. Section 3 develops an empirical strategy and the results of the estimations are analyzed in section 4. Section 5 offers concluding comments and suggestions for further research.

II. A simple theoretical framework

The theoretical framework is based on a dynamic version of the efficiency-wage model[2] constrained by the quality of information available within labor sub-markets. More specifically, consider a new migrant facing two labor sub-markets in the host country. One sub-market is a small and homogeneous market for migrants of close ethnic background and the other sub-market is a large and anonymous one. We want to make two points. First, the equilibrium wage on the small market for migrants may be higher than in the large anonymous market. Second, this wage differential between the two sub-markets occurs when the size of the migrant community is within a certain range. In the presence of several host countries, migrants will thus, everything else being equal, cluster relatively in those countries where the labor segmentation is effective in producing a higher wage in the small and homogeneous market for migrants.

A difference between the equilibrium wage is sustainable because of two elements: job characteristics, which naturally segment the two markets (for instance, language requirements, contacts with home country), and the higher quality of the information on the smaller sub-market, which makes it worthwhile to offer a higher wage in order to elicit higher productivity despite the risk of shirking by workers. For this to occur, the migrant community cannot be too small because, if it is, the market is unable to sustain specific businesses aimed at the migrant community and there is no market value for culturally

[2] See Akerlof and Yellen (1986) for various versions of the efficiency-wage model.

specific characteristics. This makes job characteristics identical in both markets. It cannot be too large either as the quality of the information within this sub-market deteriorates with size which, in turn, results in a lower efficiency-wage in this market.

To see this more formally, consider the following model with two labor markets for migrants in the host country. Migrants take the wages as given and choose only the level of effort. We denote the one-period payoff of a new migrant as

$$U(w_j, e_i) = w_j e_i, \qquad i = H,L;\ j = h,l,$$

where e_i is the level of effort by the migrant which can be high ($i=H$) or low (i=L), and w_j is the wage earned in sub-market j which can be high ($j=h$) or low ($j=l$). We assume that

$$U(w_h, e_L) > U(w_h, e_H) \geq U(w_l, e_L) > U(w_l, e_H).$$

$w_h - e_L > w_h - e_H > w_l - e_L > w_l - e_H$ [3] so that,

[3] Note that this assumption implies that the individual labor supply exhibits increasing returns with respect to effort. As a result, the aggregate supply of labor is not linear in wage but increasing and convex.

Migrants are risk neutral and they have different rates of time preference. The migrants= discount factor, δ, is assumed to be distributed uniformly over the support [0,1].

Potential employers in the host country can be divided in two groups corresponding to the two sub-markets. One group is composed of *n* employers with the same cultural background as the new migrant and the other group is composed of a large number of employers without defined cultural attributes. Suppose furthermore that $w_h \exists w_l$ is offered by the first group of employers and that w_l is the wage offered by this second group of employers. Moreover, this second wage is independent of effort and it is simply the competitive wage in a large, anonymous labor market which acts as the migrant=s reservation wage in the host country.

The potential high wage in the small labor market comes from an infinitely repeated game interaction between migrants and employers of this group in the presence of private information. A new migrant can always find a job with an employer of the *n* group at wage w_h upon arrival in the host country. However, in subsequent periods, a migrant seeking a new job finds one at w_h with probability *p* or a job with the large anonymous group at wage w_l with probability *(1-p).* An employer of the *n* group always pays w_h at the end of the first period of employment as the migrant=s level of effort is not observable by the employer and the level of output is observable only after a lag.[4] If, during each subsequent period of employment, high output per worker, q_h, is observed then, this employer continues to pay w_h at the end of each period. If a low output per worker, q_l, is observed during any subsequent

[4] For instance, it takes two periods to produce output. Importantly, wages cannot be made contingent on the ex post level of output due to lack of enforcement mechanism.

period, the worker is simply laid off. The laid off worker can still find a job at w_h with another employer of the *n* group with probability *p* or a job with the large anonymous group at wage w_l with probability *(1-p)*. The probability *p* does not depend on individual characteristics and in particular on the number of jobs held by one individual within the small labor sub-market. As explained below, it depends on the characteristics of the market such as its size.

$$U(w_h, e_H)(1 + \delta + \delta^2 + ...) > U(w_h, e_L) + u(w_h, w_l, e_L)(\delta + \delta^2 + ...),$$

Given the above assumptions, the migrant chooses a high level of effort whenever where $u(w_h, w_l, e_L) = [pU(w_h, e_L) + (1p)U(w_l, e_L)]$. The migrant chooses a low level of effort if the opposite inequality holds. The left-hand side of (3) is the present discount value of the migrant=s payoff when the migrant chooses a high level of effort in every period. The first term on the right-hand side of (3) is the migrant=s instantaneous payoff from shirking, while the second term is the present discount value of the expected payoff from finding a new job in every subsequent period, either in the small labor sub-market or in the large anonymous sub-market. Thus, with (3), if the migrant shirks once, shirking occurs in every

$$\delta > \delta_c = \frac{U(w_h, e_L) - U(w_h, e_H)}{U(w_h, e_L) - u(w_h, w_l, e_L)}.$$

period (stationary strategy). The relationship in (3) simplifies into

Since the two components of this ratio are positive but the numerator is smaller than the denominator (provided *p* is not too high), the right-hand side expression is smaller than one.

Furthermore, it defines a critical discount factor (δ_c) above which the new migrant chooses to provide a high level of effort and below which the new migrant chooses to provide a low level of effort in every period. In other words, if the new migrant does not care about the future (low level of δ), a low level of effort is chosen whereas a high level of effort is chosen if the new migrant attaches enough importance to the future (high level of δ). Since the discount factor is distributed uniformly over [0,1], δ_c also determines the proportion of migrants who shirk.

An equilibrium with an efficiency wage exists if, given the size of the sub-market and given p, n, e_H, e_L, there exist wages such that $w_h \exists w_l$ and the expected profit of each of the n employers in the small sub-market is at least equal to the profit obtained by simply offering w_l.

Since workers never supply e_H and receive w_l (see (2)), an equilibrium with w_h exists only if the employer=s revenue effect of an efficiency wage (through higher productivity) more than compensates its cost effect. In the present model, there are two costs: the direct cost of a higher wage and the expected cost of shirking induced by the high wage. This has two important implications for the range of parameters under which such equilibrium holds.

First, the existence of an equilibrium with an efficiency wage requires a minimum size of the sub-market where the high wage is offered. This can be seen by simply recognizing that, given n employers in this market, an equilibrium with high wages exists if no one has an incentive to switch from w_h to w_l and thus to reduce unilaterally its output. This requires a relatively elastic demand and if products are differentiated, a large enough market to avoid significant price effects associated with unilateral changes in output.

Second, an equilibrium with an efficiency wage also requires a market size which is smaller than some maximum size. This is linked to the quality of diffusion of the information and the number of shirkers. Simply put, as the quality of diffusion of the information changes, p changes and so does the number of shirkers. To see this point, suppose the diffusion of information among the n employers is perfect such that, all of them know after one period who among the new migrants is shirking. In this case, $p=0$ and (4) collapses to the standard condition,

$$\delta > \delta_c = \frac{U(w_h, e_L) - U(w_h, e_H)}{U(w_h, e_L) - U(w_l, e_L)},$$

where the payoff with the penalty from shirking is now $U(w_l, e_L)$ since shirkers get punished forever after a single deviation from a high level of effort. Hence, the only job those migrants ultimately find is in the large outside group of anonymous employers at their reservation wage w_l. For given w_h and w_l, $p=0$ generates the lowest value of δ_c since $U(w_l, e_L) < u(w_h, w_l, e_L)$, and thus the smallest proportion of shirkers. As the size of the small sub-market increases, the quality of the diffusion of information deteriorates. This implies a higher probability p as employers can no longer perfectly identify first-period shirkers. Since δ_c increases with p, the proportion of shirkers among the new migrants increases with the size of the sub-market. This necessarily increases the expected cost of using an efficiency wage. Hence, for an equilibrium to exist, w_h must ultimately decrease with the size of the market. The probability p does not need to be equal to 1 for δ_c to converge to one in which case all the new migrants shirk. More importantly, δ_c does not need to be equal to one for the

employers to find too costly to use efficiency wages in which case w_l is the only equilibrium wage.[5] The previous discussion is summarized in the following proposition:

Proposition 1: *Everything else being equal, migrants have an incentive to cluster relatively more in countries where labor markets are effectively segmented by informal barriers such as common cultural characteristics. This incentive holds only if the size of these country-specific markets is within a limited range.*

Since the migrant may earn a higher than average wage in the destination country depending on the existence of a community of the same origin and the level of effort on the job, the expected income in the country of immigration is not only a function of the competitive

[5] Note that depending on the discount rate, the low effort wage may or may not be high enough to induce migration.

wage, w_l, but also of the size of the existing foreign community (s^f) which determines the size

$$y^f = y^f(w_l, s^f).$$

of the premium in the cultural community. Hence,

Now, the repeated game framework can be coupled with the traditional model of migration decision where domestic and foreign financial opportunities are major determinants of the decision to migrate (Harris and Todaro, 1970, Layard et al., 1992). Since everything else is typically not equal, an econometric analysis at the aggregate level must take into account additional factors affecting the decision to emigrate. A person migrates if, taking into account the cost of emigrating (C), the expected income from abroad is higher than the expected

$$M = M[y^d, y^f(w_l, s^f), C, Z],$$

domestic income (y^d). Thus, the flow of migration can be defined as,

with Z representing other determinants of migrations. These factors are developed below where the variables are described. The migrants' choice of a destination is no longer simply a function of the differential in average incomes between the source and destination countries but it is also a function of the size of the population of the same origin in any given destination country which represents the possibility of earning a premium.

III. Estimations

Since the mid-1980s, the composition of the foreign population clearly shifted in host countries. Changes in international circumstances as well as in administrative constraints certainly initiated the shift but our argument is that the ensuing patterns of the migration flows have been in part determined by cultural clustering. Table 1 provides a few examples of changes in the size of cultural communities in some OECD destination countries which are part of our sample and for the period mid-1980s to mid-1990s.

[Insert Table 1 about here]

In Canada and Australia there has been an increase in migration flows from Asian sources at the expense of the more traditional immigration coming from Europe (U.K. and Italy, for examples). The Iranian community more than doubled its share in the foreign population of Sweden, and Portugal increased its presence in the foreign population of Belgium almost three fold. Meanwhile, some historically strong combinations of source and destination countries such as Finland/Sweden, Italy/Belgium and Turkey/Germany have weakened significantly. The role of this section, and of section 4, is to evaluate the dynamics of aggregate migration flows in light of the model developed in section 2. Two questions are addressed: First, are migration flows influenced by the presence of residents from the same origin in the host country? Second, does the size of these communities matter? In other words, is there a minimum size as well as a critical level for the cultural community beyond which the pull effect weakens?

In Figure 1, the top panel shows the total yearly flow of immigrants to the 12 sample destination countries during the period 1988-1996.[6]

[Insert Figure 1 about here]

The yearly total flow for the countries under consideration is around 2.9 million migrants with a peak at 3.8 million in 1991. Also, there is a downward trend at the aggregate level starting in 1991 which is likely due to the tightening of immigration regulations in most receiving countries (see OECD, 1998, Part C.1). The bottom panel in Figure 1 shows the average share of each receiving country for the whole period. Not surprisingly, the main destination country is the US with an average of 36% of the yearly flow. More surprising is the large share of Germany (30%) compared to a country of similar size such as France, the intake of which is 2.8%. Canada and Japan have each accepted 8% of the yearly flow and all the remaining host countries= shares are below 5%. Moreover, the shares have changed over time. Between the mid-1980s and the mid-1990s, the share of the flows going to the US has declined from 39.1% to 33.2%. Similarly, Australia=s share has dropped from 4.9% to 3.5%. Canada, Germany, Japan all saw their share increase significantly. Finally, when the flows are decomposed by source/destination countries, they are highly variable as the maximum reached 379,900 for migrants from the former Yugoslavia to Germany in 1992 and a minimum value of 100 migrants per year from a given source country is quite frequently

[6] See Appendix I for a complete list of source and destination countries.

observed. The variations across source-destination countries and through time suggest that the appropriate statistical set up is that of a panel of observations.

Thus the data set is a balanced panel of 134 immigration flows toward 12 destination countries and the number of source countries varies between 10 and 16 for each destination country.[7] The period covered by the sample, 1988 to 1996, has been divided into three equal sub-periods (1988-1990, 1991-1993, 1994-1996) over which the immigration flows are summed. From the top panel in Figure 1, it is clear that immigration flows are strongly serially correlated and this approach minimizes the problems related to the non-stationarity of variables which is not a trivial matter in panel data estimations. Aggregating over three years also increases the variability of the dependent variable and avoids potential simultaneity between the dependent and explanatory variables especially for the cultural clustering measure. The sample is thus a panel of 402 observations and the corresponding empirical specification is

$$y_{i,j,t} = \alpha + X'_t \beta + u_{i,j,t} ,$$
$$u_{i,j,t} = \mu_{i,j} + v_{i,j,t} ,$$

[7] The two exceptions are France and Belgium with 6 and 7 source countries respectively.

where *i* is the source country, *j* is the destination country and *t* is the time script. The dependent variable ($y_{i,j,t}$) is the number of people who migrated from country *i* to country *j* during sub-period *t*. The second line in (7) characterizes a fixed effect model which postulates that $\mu_{i,j}$ is the unobservable individual effect for each combination of source and destination countries and is independent of time and $v_{i,j,t}$ is a random disturbance term with the usual properties.

The general specification for (7) follows that of Helliwell (1997) which is a gravity model for migration flows. Hence, the matrix X_t includes the level of population in the source- and destination-country to capture the size effect, and income per capita in the source- and in the destination-country to capture the relative financial attractiveness of migrating. While an imperfect measure, income per capita presents the advantage of capturing historical trends such as chronically low standards of living as well as more temporary phenomena such as wars or famines.[8] During the period covered by the sample, many receiving countries tightened their immigration policies and the resulting decline in immigration flows is taken into account by a time trend. Finally, the pull effect by the population of the same culture is measured by the share of residents from a given source country in the foreign population of the destination country in percentage points (CULTSH). Hence, income per capita captures the average opportunities and the cultural variable, the possibility of higher reward, a structure which is consistent with (6). The choice of the fixed effect model rather than straight OLS or the random effect model was determined by the results of the Hausman test

[8] A more complete specification could include, for each source/destination country {i,j}, a measure for the attractiveness of alternative choices of destinations as in Feder (1980) and Foot

and the single vs multiple constant test. Importantly, the fixed effect model specification does not allow for the nesting of the hypothesis of a standard gravity model as it precludes the introduction of a distance variable which varies for each set {i,j} but is constant over time and is therefore perfectly collinear with the fixed effect. All the explanatory variables are measured at the beginning of each 3-year sub-period and their main characteristics are given in Table 2. The basic log-linear specification is thus,

$$LIFL_{i,j,t} = \alpha + \beta_1 LYDES_{j,t} + \beta_2 LYSOU_{i,t} + \beta_3 LPOPDES_{j,t} + \beta_4 LPOPSOU_{i,t}$$

$$+ \beta_5 CULTSH_{i,j,t} + \beta_6 TIME + \mu_{i,j} + \nu_{i,j,t}$$

[Insert Table 2 about here]

with $LYDES_{j,t}$ ($LYSOU_{i,t}$), the log of income per capita in destination (source) countries and $LPOPDES_{j,t}$ ($LPOPSOU_{i,t}$), the log of population in destination (source) countries. It is expected that β_1, β_2, β_3, $\beta_5>0$ and $\beta_4<0$.

IV. Results

The results of the estimations for the above basic specification are presented in Table 3, column 1.

[Insert Table 3 about here]

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and Milne (1984), for examples.

As indicated by the F-values for equality of constant across {i,j}, the hypothesis of the fixed effect model cannot be rejected. Also, the Hausman test marginally rejects the random effect specification in favor of the fixed effect model.

The hypothesis from the gravity model that both population pools matter for the size of migration flows is not verified as the coefficient on the source-country population does not appear significantly. It is expected that, *ceteris paribus*, a larger pool at the source would generate larger flows. The absence of relationship with the population pool at the source may be due to the fact that the observations on the dependent variable are on the number of *accepted* immigrants. Since there is rationing of acceptances by destination countries and it is usually based on criteria other than country-size the effect is likely to be biased downward.[9] It is expected that the number of *applicants* to emigration would be much more responsive to the size of the source population. The results also show that only the push-side of financial incentive matters as income in the source-country is significant and with the expected sign. The coefficient on the time trend indicates there has been a steady decline in the flows of approximately 7% per 3-year period.

[9] Note that Rotte and Vogle (1998) find a similar result in a study covering African and Asian migrations to Germany. In their study, the result hold for the total inflow of migrants and for asylum seekers only.

We tried to approximate the tightening of immigration policies with the unemployment rate since most policies are linked to the position of the economy in the business cycle. The results in column 2 show that the variable could be a substitute for the time trend. It is however somewhat multicolinear with the population in the destination country most likely because unemployment is trended in many receiving countries during the period. Finally, the hypothesis that communities of the same origin in the destination countries act as a pull factor is supported whether the time trend or the unemployment rate is used. Moreover, each 1% increase in the size of culturally similar resident population increases the flow of newcomers by 0.04%. It is worth noting that our results are consistent with those of Zimmermann (1996) which finds a network effect for broadly defined regions in the case of asylum seekers to European countries. Hence, cultural clustering of migrants in receiving countries is confirmed in the simple specification of the model.

It is worth investigating the robustness of the results in general, and of the cultural clustering in particular. First, we investigate the hypothesis that the role of cultural communities may vary with some characteristics of the destination countries. We use dummies to represent special cases of bilateral relationship between source and destination countries that are likely to affect immigrants= choices and thus, may weaken or enhance the role of country-specific cultural ties. Two obvious cases are, first when both countries are linked by colonial ties or speak the same language and second, geographical proximity. In the latter case, the gain in reduced migration costs due to proximity may lower the importance of moving to a country with a sizeable community of the same origin. In our sample, 23% of the observations involve countries which belong to the first category and 12%, to the second one

(see Table 2). Hence, a dummy is set to 1 when the two countries speak the same language or are linked by colonial ties (LANG) and another dummy is set to 1 when the two countries are adjacent (ADJA). Each dummy is interacting with the cultural tie variable.[10] Results in columns 3 and 4 show that neither effect is relevant but geographical proximity is somewhat stronger.

Two other cases of privileged relationships between some source and destination countries are also considered: First, the fact that both countries belong to the European Union (EU) and second, the fact that both are OECD members. In the first case, which is 9% of the sample, the relative easiness with which EU citizens are able to move across member countries may weaken the importance of cultural ties. Similarly, cultural ties may be less important for migrants between industrialized countries (i.e., OECD members) than for migrants from developing to industrialized countries. In our sample, 38% of the observed flows occur within the OECD. The results in column 5 show that membership in the EU has no impact. However, in column 6, the cultural tie variable weakens significantly, from 0.049% to 0.017% for each 1% increase in the size of the community, in the case of OECD

[10] In all cases, a scale effect on the flows was also tested by introducing the dummies as shift variables but they were never significant.

membership. This result can be interpreted in two ways. First, within economically developed countries, labor market information is more uniform and more readily available, thereby lowering the likelihood of sub-markets with efficiency-wage setting. Second, the result reflects a demand-side effect related to the fact that, in most European countries, citizens from OECD countries have benefited from preferential treatment because of their skill characteristics. The distribution of source countries is still strongly skewed in favor to OECD source countries in Germany, The Netherlands or Switzerland, for examples (see Appendix I). To get some insight into which of the two hypotheses may hold, we exploited the fact that our sample includes the three countries of traditional immigration, Australia, Canada, USA, where immigration policies were not restricted to filling labor market needs. We tried to identify which effect is likely to explain the weak role of cultural ties within the OECD by testing whether the cultural variable performs differently for flows from OECD members in this subset of countries. The results are given in column 7. For migrant flows from OECD countries to Australia, Canada and the US, the presence of a cultural community also has a much weaker effect. Therefore, whether receiving countries have immigration policies targeted at the labor market need or not, cultural communities matter less when flows occur between OECD countries. We, therefore, conclude that the reason why cultural communities matter less for migration decision within the OECD is likely to be the lack of informal barrier between sub-markets. Alternatively, job and workers= characteristics are more homogenous across OECD countries and ethnic specificity provides a weaker information advantage.

The presence of the three traditional immigration countries in the sample offers another advantage. The flows to these countries are dominated by developing source

countries and it is of interest whether the fact that these countries= approach to immigration is vastly different from that of other industrialized nation has an impact on the role of cultural communities. Hence, we introduced an interacting dummy for the three countries (ACU). The results in column 8 show that, as far as the cultural tie variable is concerned, there is no significant difference between the subset Australia-Canada-USA, and the other receiving countries when migrations from all source countries are taken into account. The coefficient however is quite large and positive. Coupled with the investigation on immigration within OECD, this result suggests that it is not so much the characteristics of the destination country that determine cultural clustering but the matching of characteristics between the source and destination countries and specifically whether both are industrialized or not.

To summarize, overall the results regarding the role cultural communities play in the decision-making of immigrant are quite robust and universal. They show that ethnic characteristics do generate a better outcome (i.e., a higher probability of an efficiency wage process) in the destination country independently of the goals of immigration policies. However, the better outcome does not materialize when the source and destination countries both belong to the OECD set.

The second type of test concerns the shape of the relationship between the size of the community and immigration flows. The theoretical framework suggests that the size of the communities must be above a minimum threshold to influence migration flows and that, as the market expands, information flows less easily and the incentive to shirk increases. So, the efficiency-wage effect becomes less powerful and the wage tends to move toward the market-

clearing level. This implies that the attractiveness of a cultural community for new migrants decreases with its size as the premium does.

Our sample provides a large variability in the sizes of the communities. For example, Mexican immigration to the United States is not a recent phenomenon and approximately one in five foreign-born people in the US is from Mexico. Alternatively, there is no obvious historical tie between Sweden and Iraq and movements of people between the two countries are clearly recent phenomenons. So, the share of Iraqis in the Swedish foreign population is still small but it rose from 1% to 4.3% within 8 years. To the extent that the sizes of cultural groups vary widely we try to identify whether first, the effect decreases with size and second, some threshold value is relevant to influence immigration flows. We tested non-linearities in two ways: First, by defining two threshold dummies for 5% and 10% and second, by splitting the range of sizes of communities into several brackets. As indicated in Table 2, in 39% of the cases, the share of residents from the same culture is less than 2% and in 15% of the cases, it is more than 10%. In almost half the cases, the share is between 2 and 10%. The results for various hypotheses are given in Table 4.

[Insert Table 4 about here]

Column 1 (identical to column 6, in Table 3) gives the reference specification with the OECD effect but no non-linearities in the cultural community effect. In column 2, the specification tests whether a threshold size of 5% matters for the elasticity or for a shift effect. In column 3, a similar hypothesis is tested for a threshold size of 10%. There is no shift effect in either case but the elasticity declines significantly when a single community represents more than 10% of the foreign population in the destination country. From 0.097% the elasticity drops to

0.033%. Hence, there is a non-linearity in the pull effect of cultural communities. In column 4, the non-linearities are modeled in a finer way and the cultural tie variable is decomposed into several brackets: share<2%; 2%#share<5%; 5%#share<10%; share$10%. The nonlinear effect is clearly more complex that the test on a single absolute threshold suggested. Below a share of 2% of the foreign population, the community is not relevant. However, while increasing in significance with larger shares of the same culture in the foreign population, the coefficient also decreases in size suggesting a strong nonlinear effect. A community the size of which is above 10% of the foreign population is only half as attractive as one between 2% and 5% for new immigrants.

To summarize, our empirical investigation supports the role of cultural communities in the location choice by immigrants and in the determination of the size of the flows. Moreover, we identify the minimum size of the community to be attractive around 5% of the foreign population in the destination country and there is clearly a decreasing effect as the size of the community rises.

V. Conclusion

It is often observed casually that new migrants cluster within countries and across countries in groups that are ethnically homogenous. In this paper we explain such behavior with a theoretical framework based on efficiency-wages and imperfect information. We show that a separate equilibrium for two markets of different sizes with a more attractive wage for new migrants in their cultural community than in the general labor market is sustainable. Our cross-country empirical investigation on aggregate immigration flows to major OECD

countries, between the mid-1980s and the mid-1990s, supports the role of cultural communities in attracting new migrants. However, the effect weakens significantly for migration between industrialized countries. Our test suggests that this result is due to a greater homogeneity of job and workers' characteristics within OECD members and thus, a weaker segmentation of markets. Surprisingly enough, the clustering effect is as strong in traditional immigration countries (Australia, Canada and the United States) as it is in Europe. We also find support for a necessary minimum size to trigger the effect, and for decreasing attractiveness as the community becomes larger. The empirical results are consistent with our theoretical argument that the quality of the diffusion of information about workers' unobservable characteristics decreases with the size of the market. Thus, workers' incentive to shirk increases and the premium disappears as the wage converges toward the market-clearing level. The peak impact on immigration flows is when a given cultural community represents between 2% and 5% of the foreign population.

Work in this area could be expanded in several different directions. We shall mention only two of them. First, clustering is commonly observed at the regional level. It would be interesting to investigate whether our results are robust within countries, namely whether regional cultural communities play a similar role as national communities in the location decision of migrants. Second, the very different clustering effect between migrants from industrialized countries and migrants from the rest of world suggests that clustering is a response to some migrant characteristics, perceived or objective. It would then be of interest

to investigate the nature and the role of these characteristics (for example, individual skills) and to then compare migrants to native workers to evaluate the value of clustering.

Clearly, the empirical investigation could be expanded further by investigating whether cultural communities play a similar role in the location decision of immigrants within countries since clustering is also commonly observed at the regional level.

Appendix I: Sample destination and source countries.

Destination Countries	Source Countries
Australia	China, Fidji, Hong-Kong, India, Malaysia, New Zealand[2], Philippines, South Africa, Taiwan, United Kingdom[2], United States[2], former USSR, Vietnam, former Yugoslavia.
Canada	China, Hong-Kong, India, Philippines, Poland[2], Sri Lanka, Taiwan, United Kingdom[2], United States[2], Vietnam.
United States	Canada[2], China, Columbia, Cuba, Dominican Republic, El Salvador, Haiti, India, Jamaica, Korea, Mexico[2], Philippines, Poland[2], former USSR, Vietnam.
Belgium	Democratic Republic of Congo, Italy[1,2], Morocco, Portugal[1,2], Spain[1,2], Turkey[2], former Yugoslavia.
France	Algeria, Morocco, Poland[2], Tunisia, Turkey[2], former Yugoslavia.
Germany	Greece[1,2], Hungary, Italy[1,2], Morocco, Portugal[1,2], Romania, Spain[1,2], Turkey[2], United States[2], former Yugoslavia.
Hungary	China, Germany[2], Greece[2], Israel, Poland[2], Romania, Russia, Slovakia, Ukraine, United Kingdom[2], Vietnam, former Yugoslavia.
Japan	Brazil, Canada[2], China, Germany[2], Korea[2], Peru, Philippines, Taiwan, Thailand, United Kingdom[2], United States[2].
The Netherlands	Belgium[1,2], France[1,2], Germany[1,2], Italy[1,2], Morocco, Poland[2], Suriname, Turkey[2], United Kingdom[1,2], United States[2].
Norway	Denmark[1,2], Germany[1,2], Iran, Pakistan, Philippines, Poland[2], Somalia, Sri Lanka, Sweden[1,2], Turkey[2], United Kingdom[1,2], United States[2], former Yugoslavia.
Sweden	Chile, Denmark[1,2], Ethiopia, Finland[1,2], Irak, Iran, Lebanon, Norway[1,2], Poland[2], Turkey[2], United Kingdom[1,2], United States[2], former Yugoslavia.
Switzerland	Austria[2], Canada[2], France[2], Germany[2], Italy,[2] The Netherlands[2], Portugal[2], Spain[2], Turkey[2], United Kingdom[2], United States[2], former Yugoslavia.

[1] Destination and source country are both EU members. Sweden since 1994. Norway is part of the European Space since 1994.[2] Destination and source country are both OECD members. Mexico, since 1994, Hungary, Korea and Poland, since 1996.

Appendix II: Definitions of the variables.

ACU : Dummy which is 1 if the destination country is Australia, Canada or the United States and 0 otherwise.

ADJA : Dummy which is 1 if the source and destination countries are adjacent and 0 otherwise.

BET2-5% : Dummy which is 1 if the share of a given country of origin in the foreign population is larger than or equal to 2% and strictly smaller than 5%.

BET5-10% : Dummy which is 1 if the share of a given country of origin in the foreign population is larger than or equal to 5% and strictly smaller than 10%.

EU : Dummy which is 1 if the source and destination countries are both members of the European Union, 0 otherwise.

$CULTSH_{i,j,t}$: Share of residents from the same country of origin (i) in the foreign population of the destination country (j) at the beginning of the period of the period (t). (ABS, OECD, StatsCan, USBC). For countries with censuses (Australia and Canada, quinquennial, US, decennial, France, 1982 and 1990), linear extrapolations have been computed for years between censuses. For 1990s in the US, the forward-looking country-specific population series is calculated as the previous year population augmented by the inflow during the year.

$IFL_{i,j,t}$: Sum of the yearly inflow of immigrants from a given source country (i) into a given destination country (j) over 3 years (t). (OECD).

LANG : Dummy which is 1 if the source and destination countries speak the same language or were linked by colony ties and 0 otherwise.

MAX2% : Dummy which is 1 if the share of a given country of origin in the foreign population is strictly smaller than 2%.

MIN10% : Dummy which is 1 if the share of a given country of origin in the foreign population is larger than or equal to 10%.

OECD : Dummy which is 1 if the source and destination countries are both members of the OECD and 0 otherwise.

$POPDES_{j,t}$ ($POPSOU_{i,t}$): Population in the destination (j) /source (i) country at the beginning of the period, 1988, 1991, 1994. (IFM, WB)

$YDES_{j,t}$ ($YSOU_{i,t}$): GNP per capita in the destination (j)/source (i) country, constant 1987-US dollars at the beginning of the period. (WB).

Sources:

ABS. Australian Bureau of Statistics. *1996 Census of the Population and Housing*.

IMF. International Monetary Fund. *International Financial Statistics.* Electronic Databank.

OECD. Organisation for Economic Cooperation and *Development. Trends in International Migration*. Paris. Various years.

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USBC. United States Bureau of the Census. Internet release. March 9, 1999.

WB. World Bank. *World Development Indicators*. Electronic Databank.

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Table 1: Size of some cultural communities in percentage of foreign population

AUSTRALIA	1986	1996
Italy	8.1	6.1
Philippines	1.0	2.4
Poland	2.1	1.7
U.K.	33.4	27.4
Vietnam	2.6	3.9
BELGIUM	1985	1995
Italy	30.0	26.7
Morocco	14.6	15.4
The Netherlands	7.0	8.5
Portugal	1.1	2.6
Turkey	8.8	9.0
CANADA	1986	1996
China	3.1	4.7
India	3.3	4.8
Italy	9.4	6.7
Philippines	2.1	3.7
U.K	20.3	13.2
GERMANY	1985	1995
Greece	6.4	5.0
Italy	12.1	8.2
Poland	2.4	3.9
Turkey	32.0	28.1
former Yugoslavia	13.5	18.1
JAPAN	1985	1995
Brazil	0.2	13.0
China (including Taiwan)	8.8	16.4
Korea	80.3	48.9
Peru	0.1	2.7
U.S.A.	3.4	3.2
SWEDEN	1985	1995
Finland	35.7	19.7
Iraq	0.9	4.0
Iran	2.1	5.5
Poland	4.0	3.0
Turkey	5.5	3.8
USA	*1986*	1996
Canada	4.7	3.2
Cuba	4.0	3.2

Mexico	19.3	23.0
Poland	2.0	2.4
Vietnam	2.3	3.3

Table 2: Characteristics of the variables

Variables	Mean[1]	Maximum	Minimum
IFL	38,953	875,500[2]	210
YDES	17,407.5	29,335.8	2,165.2
YSOU	5,999.9	23,475.2	99.3
POPDES (mios)	55.0	260.6	4.2
POPSOU (mios)	115.5	1,208.8	0.39
FORSH (%)	6.26	75.74	0.001
Dummies			
LANG	0.23	-	-
ADJA	0.12	-	-
EU	0.09	-	-
OECD	0.38	-	-
ACU	0.30	-	-
STO5%	0.34		
STO10%	0.15		
MAX2%	0.38	-	-
BET2-5%	0.30	-	-
BET5-10%	0.17	-	-
MIN10%	0.15	-	-

[1] Calculated over 3-year periods.
[2] The maximum is 1,286,600 when the amnesty for Mexicans in the US is included.

Table 3

Immigration flows and cultural ties

	$LIFL_{i,j,t}$ 1.	$LIFL_{i,j,t}$ 2.	$LIFL_{i,j,t}$ 3.	$LIFL_{i,j,t}$ 4.	$LIFL_{i,j,t}$ 5.	$LIFL_{i,j,t}$ 6.	$LIFL_{i,j,t}$ 7.	$LIFL_{i,j,t}$ 8.
LYDES	.112 (0.2)	-.747 (1.2)	.106 (0.2)	.042 (0.1)	.104 (0.2)	.143 (0.3)	.068 (0.1)	.131 (0.2)
LYSOU	-.511 (2.7)	-.556 (3.0)	-.511 (2.7)	-.511 (2.7)	-.513 (2.8)	-.503 (2.7)	-.468 (2.6)	-.536 (2.9)
LPOPDES[1]	1.401 (2.1)	1.199 (2.0)	1.401 (2.1)	1.379 (2.0)	1.433 (2.1)	1.390 (2.1)	.870 (1.5)	1.379 (2.0)
LPOPSOU	-.922 (1.3)	-.869 (1.3)	-.932 (1.3)	-.989 (1.4)	-.882 (1.2)	-.808 (1.1)	-1.07 (3.2)	-1.01 (1.4)
TIME	-.072 (1.6)	-	-.071 (1.6)	-.065 (1.5)	-.076 (1.7)	-.080 (1.8)	-.071 (1.6)	-.071 (1.6)
CULTSH.	.041 (2.8)	.039 (2.7)	.040 (2.6)	.029 (1.7)	.042 (2.8)	.049 (3.2)	.044 (3.1)	.037 (2.5)
UNEMP. RATE	-	-.030 (2.2)	-	-	-	-	-	-
LANG*CULTSH	-	-	.007 (0.1)	-	-	-	-	-
ADJA*CULTSH	-	-	-	.039 (1.2)	-	-	-	-
EU*CULTSH	-	-	-	-	.009 (0.5)	-	-	-
OECD*CULTSH	-	-	-	-	-	-.032 (1.7)	-	-
ACU*OECD* CULTSH	-	-	-	-	-	-	-.042 (2.0)	-
ACU*CULTSH	-	-	-	-	-	-	-	.089 (1.2)
Adj. R^2	.930	.931	.930	.930	.930	.931	.931	.930
n	402	402	402	402	402	402	402	402
LM Heterosc[2]	.016 (.90)	.004 (.95)	.013 (.91)	.001 (.98)	.020 (.89)	.268 (.61)	.278 (.60)	.031 (.86)
D.W.	1.65	1.65	1.65	1.66	1.65	1.66	1.66	1.65
F-test (H_0:α_i=α)[3]	12.28 (.00)	12.41 (.00)	12.08 (.00)	12.25 (.00)	12.25 (.00)	12.31 (.00)	12.53 (.00)	11.62 (.00)
Hausman Test[4]	13.5 (.02)	35.1 (.00)	13.4 (.04)	14.4 (.03)	13.3 (.04)	17.9 (.01)	35.4 (.00)	14.1 (.03)

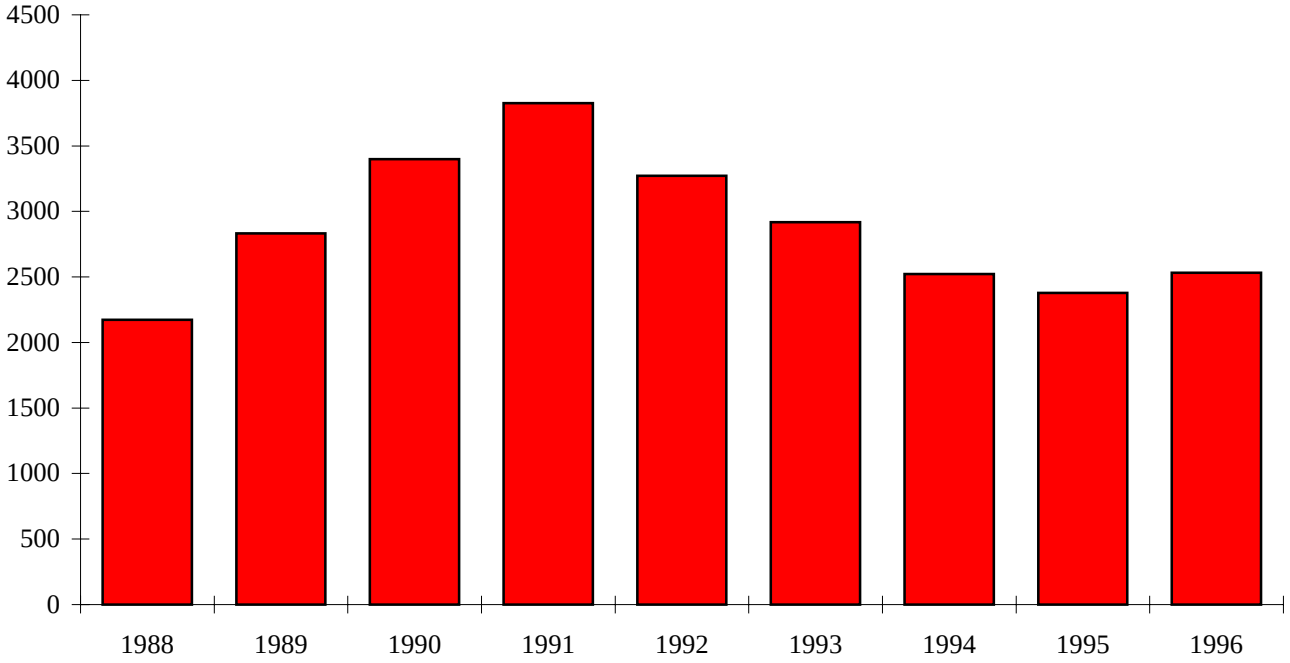
[1] Absolute t-values in parentheses.
[2] P-values in parentheses.
[3] The hypothesis is that all intercept are equal vs fixed effect model.
[4] Random effect vs fixed effect model. The random effect model is rejected in all cases.

Table 4: Immigration flows and non-linearities in cultural effect

	$LIFL_{i,j,t}$ 1.	$LIFL_{i,j,t}$ 2.	$LIFL_{i,j,t}$ 3.	$LIFL_{i,j,t}$ 4.
LYDES	.143 (0.3)	.067 (0.1)	.029 (0.1)	.222 (0.4)
LYSOU	-.503 (2.7)	-.487 (2.6)	-.455 (2.4)	-.512 (2.7)
LPOPDES	1.390 (2.1)	1.427 (2.1)	1.534 (2.2)	1.278 (1.9)
LPOPSOU	-.808 (1.1)	-.793 (1.1)	-.765 (1.1)	-.800 (1.1)
TIME	-.080 (1.8)	-.087 (1.9)	-.094 (2.1)	-.085 (1.9)
CULTSH	.049 (3.2)	.091 (1.8)	.097 (2.9)	-
OECD*CULTSH	-.032 (1.7)	-.031 (1.9)	-.030 (1.6)	-.031 (1.7)
STO5% (share < 5%)	-	.180 (0.7)	-	-
STO5%*CULTSH	-	-.048 (0.9)	-	-
STO10% (share < 10%)	-	-	.636 (1.6)	-
STO10%*CULTSH	-	-	-.064 (1.7)	-
MAX2%*CULTSH (share < 2%)	-	-	-	.154 (1.5)
BET2-5%*CULTSH (2% # share < 5%)	-	-	-	.095 (2.1)
BET5-10%*CULTSH (5% # share < 10%)	-	-	-	.061 (2.3)
MIN10%*CULTSH (share ∃ 10%)	-	-	-	.046 (3.0)
Adj. R^2	.931	.931	.931	.930
n	402	402	402	402
LM Heteroscedasticity[1]	.268 (.61)	.275 (.60)	.455 (.50)	.214 (.64)
D.W.	1.66	1.67	1.67	1.64

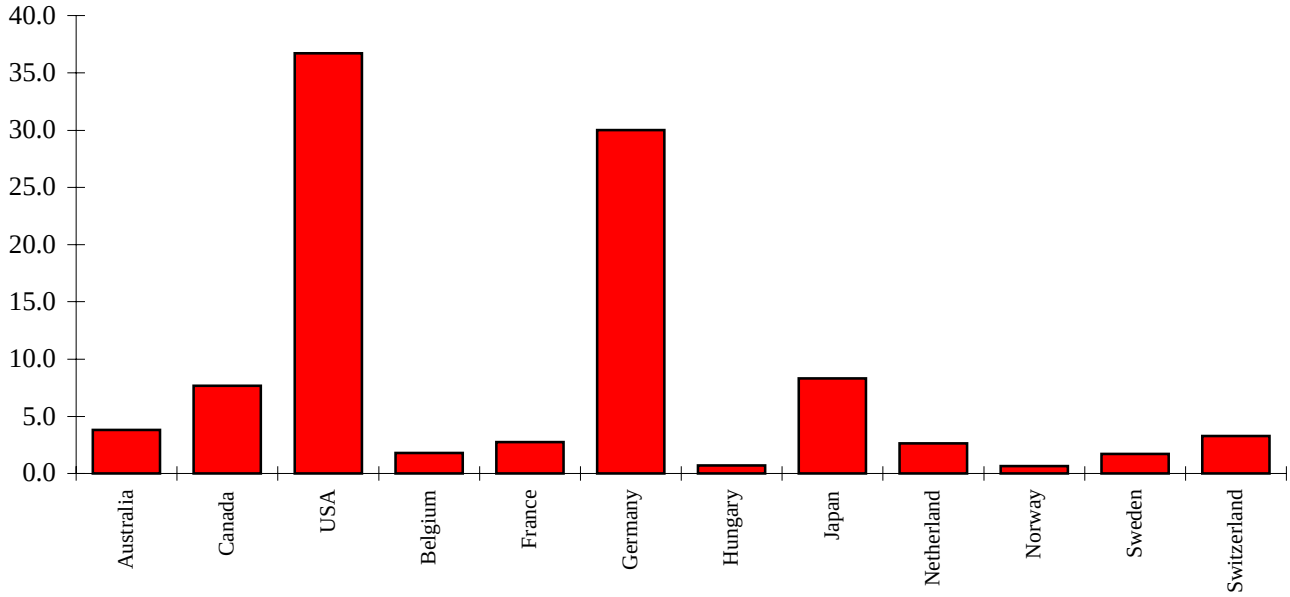
**, * significant at 5% and 10% respectively.
[1] P-value in parentheses.

Figure 1: Total flow of immigrants to the sample destination countries (in millions)



Destination countries: Australia, Canada, USA, Belgium, France, Germany, Hungary, Japan, The Netherlands, Norway, Sweden, Switzerland.

Figure 2: Share of total immigration flow for each destination country



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