The Role of Cultural Clustering in Attracting New Immigrants*

by

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Abstract

This paper argues that new immigrants cluster in culturally homogenous groups in the host country because of imperfect information. However, the pulling-effect exists provided that the cultural communities are not too large. With a panel of migration flows to the major OECD countries from the mid-1980s to the mid-1990s, it is shown that the existence of similar cultural communities does attract new immigrants. The effect is, however, not homogenous for all types of source and destination countries. Also, the pulling effect is shown to fall to zero beyond some threshold size of the cultural community.

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1. INTRODUCTION

In this paper, we analyze the role of communities of the same origin in attracting new migrants to some OECD countries. We argue that the existence of a community of the same origin contributes to the segmentation of the labor market, thereby generating more attractive labor market options for new migrants. As a consequence, country-specific clusters of immigrants tend to develop in receiving countries.

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. 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 (see Green, 1995, and Borjas, 1992, for details). In West European countries, a very similar concentration could be observed with immigrants from Southern Europe as countries like Germany and Switzerland actively recruited foreign workers in Italy, Spain and Turkey to compensate for their chronic shortage of labor (see Zimmermann, 1996, for a description). Finally, France and the United Kingdom had preferential treatment for citizens from their former colonies. In all cases the ensuing skewness in the distribution of origins for immigrant populations was clearly demand-driven. By the mid-1970s all these countries had liberalized their immigration policies and adopted criteria unrelated to ethnic origin for selecting applicants. As a result, ethnic diversity in immigration flows increased despite the implementation of, sometimes, severe immigration restrictions (see OECD, 1995, 1997). Although the initial triggers for the shift in the composition of migration flows originated 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 choose to focus on one particular pull factor, namely the existence of a migrant community from the same country in receiving countries.

Leaving a community for an alien culture has long been seen as costly[1] and immigrants look for ways to minimize those costs. In doing so, immigrants tend to form clusters in the receiving country. For example, Buckley (1996) and Borjas (1999) find that migrants tend to cluster within the United States according to state welfare benefits. Cultural likeness in the receiving country is also seen as alleviating costs. For examples, 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 (see Feder, 1980, Foot and Milne, 1984, for regional migrations and Helliwell, 1997, for cross-border migrations). Also, Bartel (1989), in a cross-section study of the U.S., observes some persistence in ethnic distribution for successive cohorts of immigrants and finds that broadly defined ethnic groups (i.e., Asian, Hispanic and European) matter in location decision. Finally, Zavodny (1997) and Dodson (2001), combining both welfare generosity and the presence of ethnic clusters, find that immigrants are attracted by the presence of a foreign born population. It is worth noting that all these studies are about location decision in the United States. Moreover, in cases where the presence of cultural communities is explicitly tested as a pulling factor, there is no attempt to investigate the shape of the relationship between immigration and cultural clusters.

In this paper we analyze the role of country-specific resident communities in attracting newcomers to 12 OECD countries from 1988 to 1996. Our empirical investigation is based on an imperfect information framework which predicts that immigrants benefit from a higher wage in their own ethnic community than outside it. As a consequence, everything else being equal, and without constraint on settlement location, migrants will have an incentive to cluster. A second implication is that the wage advantage disappears as the community becomes too large. Although linking

informational issues to migrant's clustering is not new (see, for instance, Stark, 1994), to our knowledge no one has investigated how this link might affect the intensity of the clustering.

The panel-based empirical analysis presents a number of advantages over the existing studies. While the presence of similar cultural communities is found to be a determinant in location decision, as in the U.S. studies, we find that the effect is not uniform. First, cultural communities are more attractive for immigrants from non-OECD source-countries than from OECD source-countries suggesting that, between industrialized countries, information advantage does not matter as much in immigration decision. Second, the pulling role of cultural communities is stronger in traditional immigration countries such as Australia, Canada and the United States than in Europe and Japan. Finally, an important implication of the theoretical framework, namely that, beyond some size the impact of cultural communities fades is verified. The impact is shown to weaken significantly when the same country resident community grows beyond 5% of the foreign population.

The paper is organized in the following way: The next section presents the theoretical framework. Section 3 describes the dataset and some of its characteristics. Section 4 develops an empirical strategy and the results of the estimations are analyzed in section 5. Section 6 offers concluding comments and suggestions for further research.

2. A SIMPLE THEORETICAL FRAMEWORK

In this Section, we discuss some of the theoretical underpinnings useful to justify our empirical strategy. We want to explain first why, everything else being equal, migrants of close ethnic background may cluster in certain countries and not in others and second, why such clustering may weaken when the community becomes too large. To do so, we propose a simple explanation based on labor market segmentation and incomplete information. It can be summarized as follows: migrants cluster in countries where labor market segmentation is effective; that is, in relatively small

labor markets specialized for migrants where the equilibrium wage they earn is higher than the one they would earn in other labor markets.

Clustering can be justified in several ways. One explanation relies on the standard forces leading to the agglomeration of activities or the emergence of cities. For instance, if production exhibits increasing returns to scale and requires specific skills owned by migrants, both production and migrants tend to cluster. The agglomeration forces in this case may be self-reinforcing (see Krugman, 1991) or be exhausted beyond a certain size.[2] It is, however, not always easy to link these explanations with migrants' clustering by *ethnic origin*. For that purpose, another class of explanations based on informational issues seems especially appropriate. It is this explanation we wish to develop.

A new migrant may face two separate labor markets in the host country. One market is a relatively small and homogeneous market for migrants and the other is relatively large and anonymous. There are several reasons why the former market may sustain a higher wage for migrants with respect to what they would earn in the larger market. First, a relatively small labor market is typically composed of own-nationality employers or of employers who have invested in the immigrants' language and culture. These types of employers are more able to evaluate potential employees and to supervise them than in a larger more anonymous market. Second, new migrants, by being in contact with previous cohorts of migrants, benefit from an exchange of information that eases their entry in the labor market (i.e., better job match with their skills or faster hire through contacts).[3] Both explanations imply that the small labor market may be more efficient than the larger one simply because the quality of information is better. The role of information is the key factor in this argument and we want to show two of its implications. First, the above explanations are

consistent with the existence of an *equilibrium* with labor market segmentation. Second, they imply a natural limit to the size of the labor market where migrants cluster.

To see this, suppose that risk neutral migrants take wages as given in both labor markets and choose only their level of effort at work. The one-period payoff of a new migrant is denoted as w_j-e_i ($j = b, s; i = h, l$), where w_j is the wage earned in the `big' ($j$=$b$) or in the `small' (j=s) labor market and e_i is the high (i=h) or the low (i=l) level of effort. Assuming that $w_s \geq w_b$, $e_l < e_h$ and $w_s - e_h > w_b - e_l$, the ranking of migrant's payoffs is as follows

(1) $$w_s - e_l > w_s - e_h > w_b - e_l > w_b - e_h$$

Potential employers in the host country are split into two groups corresponding to the two labor markets, b and s. The small group is composed of n employers with the same cultural background as the new migrants and the large group is composed of many employers without defined cultural attributes. Suppose furthermore that w_s is the wage offered by the first group of employers and that w_b is the wage offered by the second group of employers.[4]

Migrants and employers interact repeatedly. Specifically, upon arrival in the host country, a new migrant always finds a job with an employer of the n group at wage w_s.[5] The same employer also pays w_s during each subsequent period if a high output per worker is observed. If a low output is observed during any subsequent period, the worker is laid off. In this case, a migrant seeking a new job finds one at w_s with probability $p(n)$ in the small labor market or one in the large labor market at wage w_b with probability $(1-p(n))$. The probability $p(n)$ depends directly on the quality of the information on the small labor market and it is function of its size (represented by the number of employers n). Hence, the smaller the migrant's labor market is, the better is the quality of the information and the lower is the probability to find another job with a high wage once being laid off.

A new migrant chooses between a high and a low level of effort knowing the consequences of

her choice on subsequent periods. A high level of effort is chosen when

$$(2) \qquad (w_s - e_h)(1+\delta+\delta^2+...) > (w_s - e_l) + u(w_s, w_b, e_l)(\delta+\delta^2+\ldots)$$

where $u(w_s,w_b,e_l)=p(n)(w_s-e_l)+(1-p(n)(w_b-e_l)$ and δ is the migrant's discount factor which is assumed to be distributed uniformly over the support [0,1]. The left-hand side of (2) is the present value of the migrant's payoff when choosing a high level of effort in every period, and the right-hand side represents the migrant's payoff given today's choice of a low level of effort. The first term is the migrant's instantaneous payoff from shirking, while the second term is the present value of the expected payoff from finding a new job in every subsequent period, either in the small or in the large labor market.[6] Inequality (2) simplifies into

$$(3) \qquad \delta > \delta^* = \frac{e_h - e_l}{[1-p(n)](w_s - w_b)}$$

This ratio defines a critical discount factor ($0 \le \delta^* \le 1$), above which a new migrant chooses to provide a high level of effort and below which a low level of effort is supplied in every period.[7] Hence, a low level of effort is chosen when the new migrant does not care about the future (low δ) or when the probability to find another job in the small labor market is high. In our simple model, δ^* also determines the proportion of shirking migrants. It is easy to see from (3) that, as the size of the small labor market *n* increases, the proportion of shirkers among the new migrants rises since *p(n)* rises. This limits naturally the size of the market where migrants cluster since the increasing proportion of shirking migrants generated by larger market size increases the firm's expected cost of using a high wage. Hence, for the equilibrium to exist, the wage w_s must decrease with the size of the market and, with it, the attractiveness of the cluster declines.[8] This result is intuitive given the type of informational issues discussed above. They all depend largely on informal contacts so that it is natural to expect that market size is a crucial factor.

An equilibrium with both a high and a low wage also requires that the expected profit of each of the n firms be at least equal to the profit obtained by offering unilaterally the low wage. To have no incentive to deviate, a significant negative revenue effect from lower output (since lower wage entices lower effort) is needed. This implies a relatively elastic demand faced by any firm in the small labor market and thus a relatively small market share held by an employer-firm. This suggests that an equilibrium with $w_s \geq w_b$ requires a minimum size to the small labor market, at least if the resulting production is mainly destined to the same migrant community.[9]

To summarize, if an equilibrium exists with segmented labor markets for migrants, it is feasible only for a migrant's labor market which is not too large otherwise the segmentation of the labor markets is not sustainable. It should not be too small either but this constraint depends more on the nature of the product market than on informational issues linked to the labor market. In any case, this implies a non-linear relationship between the incentive to cluster and the size of the labor market for migrants. If the size of this labor market is a direct function of the stock of similar past migrants, this establishes a non-linear relationship between clustering incentives and pre-existing sizes of specific communities.

The above framework has the advantage of being directly dependent on informational issues linked to ethnic origin. As such it 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). The decision to migrate then depends on the expected income in the source country (y_m) and destination country (y_k), the actual cost of migrating (C) and other factors (Z), which are developed in the empirical section. Since a migrant may earn more in specific communities than in larger labor markets of the destination country, the expected income in the country of immigration is the income from the large labor market (y_k) plus a premium that varies with the size of

the cultural community (s^m_k). Hence, the number of people deciding to migrate from a source country *m* to a destination country *k*, is the product of the probability to migrate (f_m) and the size of the population in the source country (POP_m)

$$f_m * POP_m = f[y_m, y_k, s_k^m, C, Z] * POP_m$$

Only a proportion (g) is accepted by the destination country that is determined by a number of factors (V_k) among which the parameters of the immigration policy. Hence, the flow of migrants ($IFL_{m,k}$) from source country *m* to destination country *k*, is

$$IFL_{m,k} = f_m * POP_m * g = f[y_m, y_k, s_k^m, C, Z] * POP_m * g(V_k)$$

or, in implicit form

$$IFL_{m,k} = IFL_{m,k}[y_m, y_k, s_k^m, C, Z, POP_m, V_k] \quad (4)$$

Hence, when the cultural community effect is coupled with the traditional migration decision framework, migrants' choices of destinations are no longer simply functions of the differential in incomes between the source and destination countries but of the size of the population of the same origin in any given destination country (s^m_k) which represents the possibility of earning a premium. It must be apparent that, by using an aggregate framework, our purpose is not to test directly the above model but only its predictions on migration inflows paying particular attention to the role of cultural communities.

3. DATA CHARACTERISTICS

The role of this section is to reconcile the available statistical observations with an empirical framework suitable to analyse the role of communities on the basis of (4). Since the mid-1980s, the composition of the foreign population has 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 between the mid-1980s and the 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 from Europe (U.K. and Italy, for examples). Also, 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 threefold. Meanwhile, some historically strong combinations of source and destination countries such as Finland/Sweden, Italy/Belgium and Turkey/Germany have weakened significantly.

In Figure 1, the top panel shows the total yearly flow of immigrants to the 12 destination countries[10] of our sample during the period 1988-1996.

[Insert Figure 1, about here]

The yearly total flow for the countries under consideration fluctuates around 2.8 million migrants with a peak at 3.6 million in 1991. Also, there is a clear downward trend starting in 1991 which is likely to be 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, between 1988 and 1996, for each receiving country. Not surprisingly, the main destination country is the US with an average of 38% of the yearly flow. Germany is next (28%) and has a much larger share than a country of similar size like France, the intake of which is 2.8%.[11] Canada and Japan have each accepted 7.9% and 8.6% of the yearly flow respectively and all the remaining host countries' shares are below 4%. Not apparent in the figure is the fact that, relative shares have changed over time. Between the mid-1980s and the mid-1990s, the share of the flows going to the US went from 30% in 1988, to 50% in 1991,

to 37% in 1996. Australia's share dropped from 6.6% to 4.0% and Canada, Germany, Japan saw their shares increase significantly. Finally, when the flows are decomposed by source/destination country, they are highly variable. They vary from more than 100,000 Mexican immigrants yearly to the United States, excluding legalized immigrants in the early 1990s (see note 2, Table 2), to hardly 100 migrants per year for several source/destination country combinations.

The observations cover the number of people from a given source country who entered *legally* one of the OECD countries. However, one of the difficulties when analyzing inflows of legal immigrants is to disentangle the effects of supply factors, embodied in the probability of leaving a country (f), from those of demand factors entering the proportion of accepted applicants by a destination country (g). Regarding this latter point (V in (4)), and changes in immigration legislations in particular, the emphasis on family reunion that started in the early to mid-1990 in most countries cannot be ignored. The other major change in policy, that is the move away from source-country specific immigration, happened at a time not covered by this analysis (i.e., the mid-1960s in Canada and the United States, and in the mid- to late 1970s in Europe).

Before starting the empirical analysis a comment must be made about the consistency between the theoretical framework based on enclaves, therefore suggesting a regional approach, and country-level observations. It is clear that some countries may have more than one immigrant clusters (i.e., exhibit a distribution of enclaves) and national data may not capture the nature of the clustering adequately. Since our focus is on cultural or country-specific clustering among immigrants there are two cases when no bias is introduced by the use of national-level observations. The first case is when enclaves are `specialized' in one type of source-country immigrants and there is only one for each type. The second case is when all enclaves are identical in terms of the distribution of source-country immigrants and other factors. In both cases, carrying the analysis at the enclave or the national level

makes no difference with our specification. If enclaves are not sufficiently specialized or sufficiently homogenous, then clearly a disaggregated regional approach is more appropriate. Whether the large countries in our sample satisfy the above symmetry requirements is difficult to assess. It is likely however that at least for the small countries (for instance most of the European countries) national level observations are not introducing any bias as these countries can easily be viewed as single immigrant enclaves.

4. EMPIRICAL IMPLEMENTATION

Two main questions are addressed in the empirical analysis: First, are migration flows influenced by the presence of residents from the same origin in the host country? Second, if so, does the intensity of the pull effect decline beyond some size of the cultural community?

The overall dataset consists of 134 immigration flows toward 12 destination countries for the period 1988 to 1996. The number of source countries per destination country varies between 6 and 16. The sample period has been divided into three equal sub-periods (1988-1990, 1991-1993, 1994-1996) over which the immigration flows are summed. Because the flows include all immigrants, not just workers, they tend to be serially correlated on an annual basis and this approach minimizes the problems related to the non-stationarity of variables, which is not a trivial matter in a panel framework. Aggregating over three years also increases the variability of the dependent variable and avoids potential simultaneity between the dependent and explanatory variables such as the cultural clustering measure which is based on the level of immigrants.

The variations across source-destination countries and through time suggest that the appropriate statistical set up is that of a panel of observations. The sample is, thus, made of 402 observations and each combination of source-destination country is considered independently with a three-period dimension. The corresponding specification is of the following general type

$$y_{m,k,t} = \alpha + \mathbf{X}_t\boldsymbol{\beta} + u_{m,k,t}$$
$$u_{m,k,t} = \mu_{m,k} + v_{m,k,t} \quad (5)$$

where $\mathbf{X_t}$ is a vector of explanatory variables and *t,* the time script such that *t*=1 to 3. The second line characterizes a fixed effect model which postulates that $\mu_{m,k}$ is the unobservable individual effect for each combination of source and destination countries and is independent of time; $v_{m,k,t}$ is a random disturbance term with the usual properties. The validity of the fixed effect assumption is tested.

Applying the theoretical framework from (4) to the fixed effect model in (5), $y_{m,k,t}$ is defined as the log of the number of people who migrated from country *m* to country *k* during sub-period *t* ($LIFL_{m,k,t}$). The explanatory variables are, first, the level of population in the source country (*LPOPSOU*) which captures the size effect. Second, the probability of being accepted in a given destination country is influenced by its size measured by population (*LPOPDES*). Third, financial incentives are represented by two variables. Income per capita in the source- and in the destination-country (*LYDES, LYSOU*) measures the relative attractiveness of migrating. While an imperfect measure, it 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.[12] The additional incentive provided by a 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 (*CULTSH*). The foreign population rather than total population is used as the base to avoid collinearity problems. Because of the relative sizes of immigrant and native populations, variations of the latter would dominate and the cultural variable would then, be highly correlated with the population variable. Also, our measure is consistent with the focus on cultural clustering rather than immigrant clustering in general. Fourth, changes in immigration policies in receiving countries are approximated by a time trend (*TIME*) and its square ($TIME^2$). Unfortunately, the fixed effect specification precludes the introduction of a

distance variable, usually used to measure the cost of migrating. Since it varies for each set $\{m,k\}$ but is constant over time, it is perfectly collinear with the fixed effect. Finally, since the observations for some European countries include the long-term but temporary immigration by people from the former Yugoslavia, a dummy (*BOSWAR*) is entered for the war period for those countries. Then the basic log-linear specification for (5) can be written as

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

$$+ \beta_5 CULTSH_{m,k,t} + \beta_6 TIME + \beta_7 TIME^2 + \beta_8 BOSWAR + \mu_{m,k} + \nu_{m,k,t}$$

with $LIFL_{m,k,t}$, the log of the migrant inflow from source country m to source country k during period t. The population and income variables are also in log and it is expected that $\beta_1, \beta_3, \beta_4, \beta_5 > 0$ and $\beta_2 < 0$. All the stock explanatory variables are measured at the beginning of each 3-year sub-period to reflect the information available to potential immigrants. Note that the specification is an augmented, unconstrained gravity model for migration flows and is, thus, consistent with that in Helliwell (1997). The main characteristics of the variables are given in Table 2.

[Insert Table 2, about here]

While it has already been mentioned that the variability of the immigration flows is quite large, the dispersion of the explanatory variables is also quite large including for income in the destination countries despite the fact that they are all OECD members.

5. RESULTS

Two hypotheses follow from our theoretical background: First, the decision to migrate to a given country may be influenced by the existence of a community of the same origin; second, the relationship between clustering incentives and pre-existing sizes of specific communities may be non-linear. We first establish the robustness of the results for the basic specification (Table 3) before turning to the test for non-linearity.

[Insert Table 3, about here]

From columns 1 and 2 it is clear that the corrective dummy for the unusually large immigrant flows from the former Yugoslavia in the early 1990s plays its role. Also, as indicated by the F-values for equality of constant across $\{m,k\}$, the hypothesis of the fixed effect model vs straight OLS is strongly supported.[13] Overall the t-values appear to be relatively low, a possible sign of multicollinearity. An indication that this is unlikely is the values of the simple correlation coefficients between the explanatory variables (see table A.1., Appendix II) which are not larger than 0.3 in absolute values.

The basic gravity model posits that the sizes of both population pools influence positively migration flows. In column 2, the coefficients on the population variables have opposite signs with the negative sign on source-country population. The sizes of the two coefficients, however, are not significantly different from each other (t-value for equality in absolute value is 0.171) and that suggests that the relative sizes of the destination and source countries matter rather than the two sizes independently. One implication is that a larger receiving country compared to the sending country attracts larger flows of immigrants. This effect can be related to some "absorption capacity" factor as smaller countries may be more weary of accepting immigrants from very large source countries. Alternatively, immigrants from the large source countries may feel that their chance of being accepted is better in other large countries.[14] Also, when the two population variables are omitted from the estimation, the coefficients on the other variables vary little but the Hausman test for the fixed effect increases drastically.[15] This suggests another interpretation: the variables may capture unmeasured country-specific effects. Such effects would be, for the source country for example, some unknown time-varying conditions that make the home country relatively more desirable and decrease out migration.

Turning to the income variables, the results show that only the push-side of financial incentive matters as only income in the source-country is significant and with the expected sign. Finally, the coefficients on the two trend variables show that there has been a steady increase in immigration flows but at a declining rate.[16] Note that both, *TIME* and $TIME^2$ are significant even though the time dimension of the panel is quite short. To test the robustness of that result, we eliminated the quadratic trend. This obviously leads to biaised estimates because of an omitted variable as the Schwarz Criterion (SC), as well as the adjusted R^2, decreases when the quadratic term is removed (from lnSC= -0.120 to lnSC=-0.135) and the other coefficients remain stable. The two trend variables are likely to correct for some of the inertia introduced in the flows across sub-periods by changes in immigration policies such as more emphasis on family reunion and for the overall tightening of the acceptance rules.

Finally, the first hypothesis related to the theoretical framework, that the size of the community of the same origin in the destination countries matters is clearly supported. Each percentage point increase in the culturally similar foreign resident population raises the number of newcomers from that country by approximately 4%. As the trend variables are meant to capture changes in policies such as the move toward family reunion, our results on the significance of clustering (through *CULTSH*) and its interpretation as location choice variables, are particularly strong. Hence, our results for OECD countries are in line with Bartel (1989)'s and Zavodny (1997)'s for the U.S.. They are also consistent with Zimmermann (1996) who finds a network effect for broadly defined regions in the case of asylum seekers to European countries and with Rotte and Vogler (1998) who uncover a network effect for African and Asian immigrants to Germany in the 1980s and 1990s.

Since the role of migrant communities in receiving countries is confirmed by the basic specification of the model, we now turn to investigating the robustness of the result. Specifically, we analyse whether the role of cultural communities varies with some specific characteristics linking source and destination countries. First, we use dummies to represent special types of bilateral relationships between the sets of countries. Each is likely to affect immigrants' choices and may weaken or enhance the role of country-specific cultural ties. Two obvious cases are when countries are linked by colonial ties or speak the same language and, geographical proximity. In both cases, the gain in reduced migration costs (due to administrative preference or to proximity) may weaken the importance of finding a community of the same origin. In our sample, 23% of the observations involve countries with linguistic or colonial ties and 12%, are physically adjacent (see Table 2). Hence, a dummy is set to 1 when the two countries speak the same language or are linked by colonial history (*LANGUAGE*) and another dummy is set to 1 when the two countries are adjacent (*ADJACENT*). Each dummy is interacted with the cultural tie variable. Results in columns 4 and 5, Table 3, show that language is not relevant and the impact of geographical proximity is significant only at 10%. So, it would appear that only proximity may enhance the impact of cultural preferences in the immigration choices.

Two other cases of privileged relationships between source and destination countries are also considered: First, the fact that both countries belong to the European Union (*EUR. UNION [WITHIN]*) and second, the fact that both countries are OECD members (*OECD [WITHIN]*). In the first case, which represents 9% of the observations, the relative easiness with which citizens from member countries are able to move across the European Union 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

because their labour markets are alike. In our sample, 38% of the observed flows occur within the OECD. The results in column 6 show that membership in the EU has no impact on the role of cultural communities. However, in column 7, the effect of the cultural tie variable is severely diminished when source and destination countries are both members of the OECD. In fact, the coefficient on the dummy interacting the cultural variable has the opposite sign and its absolute value is not different from the coefficient on the cultural variable itself (t-value=0.9). We, therefore, conclude that among economically developed countries, cultural ties do not matter. Based on our framework this can be interpreted as labour market information being more uniform and more readily available, so that the need for cultural communities to support newcomers in their initial entry into the labour market is lessened. Alternatively, jobs' and workers' characteristics are more homogenous across OECD countries and ethnic specificity provides a weaker information advantage.

Beyond the possible privileged relationships between source and destination countries another feature characterizes the data set: the goals of immigration policies by the receiving countries represented in the sample are very different. In particular, the approach to immigration adopted by the three major traditional immigration countries (Australia, Canada and the United States) is vastly different from that of the other sample destination countries (basically, Europe and Japan). It is then of interest to determine whether these countries' different approaches to immigration affect the role of cultural communities, especially since the flows to the three countries are dominated by immigrants from developing countries.[17] Hence, we introduced a dummy for the case when the receiving country is Australia, Canada or the United States (AUS-CAN-USA [DEST]) and used it interactively with the cultural variable.

In column 8, we combine the analysis of the 'OECD factor' with the separation of destination countries into the two groups (Australia, Canada, United States and the rest of the sample countries).

This allows for the distinction between two types of destination countries and two types of source countries. The resulting effects are summarized in Table 4.

[Insert Table 4, about here]

Now, the cultural tie effect is not only much larger in the three countries for OECD member-source countries but it is even larger for immigrants from developing countries. In effect, in Australia, Canada and the United States, each percentage point increase in a population cluster increases the flow of immigrants by 18% if the country of origin is a developing country and by 12% if the country of origin is an OECD member. For the other sample destination countries, the impact is uniform at 3%. These results indicate that cultural communities matter in all destination countries but more in traditional immigration countries and particularly for migrants from non-OECD source countries, i.e., for developing countries. Hence, information advantage is obviously more relevant for migrants from non-industrialized economies to industrialized economies, particularly to the three countries.

To summarize, the results regarding the role cultural communities play in the decision-making of immigrants are quite robust but they are not uniform across all combinations of source and destination countries. Two factors influence the magnitude of the effect: First, the fact that the receiving country is a country with a tradition of immigration. Second, the fact that the both the sending and the receiving countries are part of the industrialized world.

The second key prediction of our theoretical framework is that the attractiveness of cultural communities for new migrants decreases with size. To the extent that the sizes of cultural groups vary widely[18] we could test this hypothesis. The non-linearity is specified with a spline function through two different approaches: First, five threshold values were tested independently (1%, 2.5%, 5%, 7.5% and 10%). As indicated in Table 2, for almost half the cases, the share of residents from the same

culture is less than 2.5% and in 15% of the cases, it is more than 10%. In a second step, brackets were defined based on the results of the first step. The results are given in Table 5.

[Insert Table 5, about here]

Column 1 (identical to column 7, in Table 3) is the reference. In the next five columns each threshold is tested with a spline function allowing a structural break in the slope with no discontinuity.[19] The results show that a threshold is likely to exist around 5% or slightly above. There is no clear evidence of a threshold at 1% or 2.5% and the effect is rather weak below 1%. Hence, the second step is specified with brackets above 5%. The results in column 7 show that up to 5% the cultural effect is much stronger than in the average case (column 1) and then it falls to zero. Moreover, the effect remains at zero not only for cases between 7.5% and 10% but also beyond 10%. While it is not shown unambiguously that there is a minimum necessary size for cultural communities to attract new immigrants, the overall evidence points toward a weaker attractiveness when the community size is below the threshold.

The two main implications of our theoretical framework are thus, confirmed. First, the existence of cultural community matters in location decision by immigrants and there is clustering. Second, the effect is not uniform for all sizes of communities. There is a threshold around 5% beyond which the impact falls to zero.

6. CONCLUSION

It has been observed that new migrants cluster in groups that are ethnically homogenous. In this paper, we attribute this behaviour to imperfect information. We argue that the existence of 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. If that is the case, migrants will cluster provided the community is not too large. Using a panel of major migration flows to OECD countries from the

mid-1980s to the mid-1990s, we investigate the empirical relevance of these implications. Our cross-country empirical analysis supports the role of cultural communities in attracting new migrants but not in a uniform fashion. There is no role for cultural clustering when the source and destination countries are OECD members. Also, the clustering effect is much stronger in Australia, Canada and the United States than in Europe and Japan for non-OECD source countries reflecting partly the longstanding immigration objectives of these countries. We also find support for a weakened attractiveness of large communities. Hence, overall the empirical results are consistent with imperfect information and a higher wage in cultural communities.

Clearly, this paper is a first approach to investigating non-uniform effects of cultural clustering and work can be developed in several directions. We shall mention only two of them. First, within large countries, clustering may not be homogenous across regions. It would be interesting to investigate whether our different results for the three countries, Australia, Canada and the U.S. can be clearly attributed to their different approach to immigration policy or result from some bias due to the use of national-level observations. 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 with respect to the job market. It would then be of interest to investigate the nature and the role of these characteristics (for example, individual skills) and then compare migrant with native workers to evaluate the value of clustering.

Footnotes:

1. See Harris and Todaro (1970) for the theoretical argument and Layard et al. (1992) for an application to East-West migrations after the fall of the Berlin Wall.

2. In a similar vein, Roback (1982) develops the idea of `amenity' which, when productive, could lead to a wage premium in cities.

3. The role of social networks has long been recognized in studies of the labour market in relation to searching for jobs (see for examples, Montgomery, 1991, Jackson and Wolinsky, 1996) as well as in relations to migration decisions (see for examples Waldorf, 1996 and Chau, 1997).

4. Without loss of generality, w_b is assumed to be independent of effort and insensitive to immigration.

5. An employer of the *n* group pays w_s as the migrant's level of effort is not directly observable and output is observable only after a lag. Importantly, wages cannot be made contingent on the ex- post level of output due to lack of enforcement mechanism.

6. Thus, if the migrant shirks once, shirking occurs in every period (stationary strategy).

7. Note that *p(n)* cannot be too high for $\delta^* \leq 1$. Specifically, $p(n) \leq 1-(e_h - e_l)/(w_s - w_b)$ is needed. 8. Note that δ^* does not need to be equal to one for the employers to find too costly to use a high wage in which case w_b is the only equilibrium wage.

9. If it is not the case, the market share held by a firm is likely to be small irrespective of the size of the migrant's labor market.

10. See Appendix I.A. for a complete list of source and destination countries. It is important to note that, in general, this data set excludes asylum seekers and seasonal workers (Appendix I.B.).

11. The inflow into Germany does not include ethnic German from Eastern Europe. Also, to compute the numbers used in Figure 1, the inflow from the former Yugoslavia into Germany has been corrected to represent the average non-war period intake between 1991 and 1995. Many people were accepted on long term (i.e., more than 3 months) yet temporary basis because of the Bosnia war.

12. A more complete specification could include, for each source/destination country {m,k}, a measure for the attractiveness of alternative choices of destinations as in Feder (1980) and Foot and Milne (1984), for examples.

13. The random effect model is also rejected by the result of the Hausman test (see footnote 3, Table 3).

14. It must be kept in mind that since the dependent variable is the number of accepted immigrants,

supply and demand factors matter. Of course, clearer results could be obtained from the number of applicants but this information is unavailable on the scale needed in this study.

15. Without the population variables, the results are the following:

$$LIFL = c_{m,k} + .393LYDES - .448^{**} LYSOU + .421^{**} TIME - .127^{**} TIME^2 + 0.042^{**} CULTSH + .744^{**} BOSWAR - .032^{**} OECD$$

with F=31.49 for the fixed effect model against the OLS model.

16. Many of the receiving countries tightened their immigration policies during the sample period and we also tried to approximate this tightening with the unemployment rate since most policies are linked to the position of the economy in the business cycle. The results, in column 3, show that an increase in the unemployment rate, would slow down immigration. However, the unemployment rate is collinear with income per capita in the destination country and its interpretation is far from clear since it also enters immigrants' decision as a signal for job prospects.

17. Only 23% of the source countries are members of the OECD when destination countries are Australia, Canada and the United States while 56.8% are in the rest of the sample. The legalization of hundreds of thousand of immigrants in the early 1990s by the U.S. (see Buckley, 1996, for example) is likely to be picked up by the fixed effect coefficients.

18. Mexican immigration to the United States is not recent and approximately one in five foreign-born person is from Mexico. Alternatively, migration from Iraq to Sweden is a recent phenomenon and the share of Iraqis in the Swedish foreign population is still small. Nevertheless, it rose from 1% to 4.3% within 8 years.

19. See for example, Greene (1997), chapter 8.

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Appendix I
A. Sample destination and source countries

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

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

B. Definitions of the immigration flows.

Destination Countries	Definition
Australia	Permanent resident permits with dependents.
Canada	Permanent resident permits with dependents.
United States	Permanent resident permits with dependents.
Belgium	Registered foreigners with a residence permit for at least 3 months.
France	Permanent work permits and family reunification.
Germany	Registered foreigners with a residence permit for at least 3 months. Excludes inflow of ethnic Germans. Includes asylum seekers living in private households.
Hungary	Registered holders of a long-term residence permit (up to one year).
Japan	Registered foreigners in the country for more than 90 days.
The Netherlands	Registered holders of a residence permit for at least 6 months.
Norway	Registered holders of a residence permit for at least 6 months.
Sweden	Registered holders of a residence permit for at least 1 year.
Switzerland	Registered holders of a permanent or annual residence permit.

Adapted from OECD (1998), Statistical Annex.

Appendix II: Definitions of the variables.

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

AUS-CAN-USA [DEST]: Dummy which is 1 if the destination country is Australia, Canada or the United States and 0 otherwise.

AUS-CAN-USA [DEST] and OECD [WITHIN]: product of the two dummies which distinguishes immigrants from OECD countries from those from developing countries, going to Australia, Canada and the United States.

BOSWAR: Dummy which is 1 for Belgium, Germany and Norway for the 2nd and 3rd periods (1991-1996). The immigration flow data for these 3 countries include temporary immigrants (see Appendix I.B. for definitions).

$CULTSH_{m,k,t}$: Share of residents from the same country of origin (m) in the foreign population of the destination country (k) at the beginning of the period of the period (t). (Australian Bureau of Statistics, OECD, Statistics Canada, US Bureau of Census). 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.

DSH[s]: Dummy which is 0 when CULTSH < s and 1 otherwise, where s is some threshold percentage (1%, 2.5%, 5%, 7.5% or 10%).

EUR. UNION [WITHIN]: Dummy which is 1 if the source and destination countries are both members of the European Union, 0 otherwise.

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

$LIFL_{m,k,t}$: Log of the sum of the yearly inflow of immigrants from a given source country (m) into a given destination country (k) over 3 years (t). (OECD).

$LPOPDES_{k,t}$ ($LPOPSOU_{m,t}$): Log of the population in the destination (k)/source (m) country at the beginning of the period, 1988, 1991, 1994. (International Monetary Fund, World Bank).

$LYDES_{k,t}$ ($LYSOU_{m,t}$): Log of GNP per capita in the destination (k)/source (m) country, constant 1987-US dollars at the beginning of the period. (World Bank).

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

$UNEMP.RATE_{k,t}$: Unemployment rate in the destination (k) country at the beginning of the period, 1988, 1991, 1994. (World Bank).

Table A.1.: Correlation Coefficients

	$LIFL_{m,k,t}$	$LYDES_{k,t}$	$LYSOU_{m,t}$	$LPOPDES_{k,t}$	$LPOPSOU_{m,t}$	$CULTSH_{m,k,t}$
$LIFL_{m,k,t}$	1					
$LYDES_{k,t}$	0.371	1				
$LYSOU_{m,t}$	-0.160	0.065	1			
$LPOPDES_{k,t}$	0.709	0.138	-0.262	1		
$LPOPSOU_{m,t}$	0.088	-0.017	-0.063	0.085	1	
$CULTSH_{m,k,t}$	0.286	-0.019	0.009	-0.007	-0.001	1

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[a/]

Variables	Mean	Maximum	Minimum
IMMIG FLOW	38,953	875,500[b/]	210
INC. DESTINATION[c/]	17,407.5	29,335.8	2,165.2
INC. SOURCE[c/]	5,999.9	23,475.2	99.3
POP. DESTINATION (mios)	55.0	260.6	4.2
POP. SOURCE (mios)	115.5	1,208.8	0.39
CULTSH (%)	6.26	75.74	0.001
Dummies			
SAME LANGUAGE	0.23	-	-
ADJACENT	0.12	-	-
EUR. UNION [WITHIN]	0.09	-	-
OECD [WITHIN]	0.38	-	-
AUS-CAN-USA [DEST.]	0.30	-	-
Distribution of the cultural shares			
SHARE <1%	0.15	-	-
SHARE < 2.5%	0.46	-	-
2.5% ≤ SHARE < 5%	0.22	-	-
5% ≤ SHARE < 7.5%	0.11	-	-
7.5% ≤SHARE < 10%	0.06	-	-
SHARE ≥ 10%	0.15	-	-

[a/] Calculated for observations over 3-year periods.
[b/] The maximum is 1,286,600 when the amnesty for Mexicans in the US is included.
[c/] In constant1987-US$.

TABLE 3: Immigration flows and cultural ties

	$LIFL_{m,k,t}$ 1.	$LIFL_{m,k,t}$ 2.	$LIFL_{m,k,t}$ 3.	$LIFL_{m,k,t}$ 4	$LIFL_{m,k,t}$ 5.	$LIFL_{m,k,t}$ 6.	$LIFL_{m,k,t}$ 7.	$LIFL_{m,k,t}$ 8.
$LYDES_{k,t}$ [a/]	.333 (0.5)	.181 (0.3)	-1.078 (1.9)	.172 (0.3)	.092 (0.1)	.171 (0.3)	.207 (0.3)	.237 (0.4)
$LYSOU_{m,t}$	-.497 (2.1)	-.408 (1.7)	-.470 (1.9)	-.409 (1.7)	-.404 (1.7)	-.410 (1.7)	-.402 (1.6)	-.445 (1.8)
$LPOPDES_{k,t}$	1.030 (1.6)	.924 (1.5)	1.072 (1.8)	.923 (1.5)	.889 (1.5)	.966 (1.6)	.923 (1.5)	.896 (1.5)
$LPOPSOU_{m,t}$	-1.216 (1.9)	-1.076 (1.7)	-.706 (1.2)	-1.092 (1.7)	-1.150 (1.8)	-1.018 (1.6)	-.967 (1.5)	-1.140 (1.7)
TIME	.471 (2.6)	.437 (2.5)	-	.439 (2.5)	.449 (2.5)	.442 (2.5)	.418 (2.4)	.416 (2.3)
$TIME^2$	-.132 (3.3)	-.125 (3.2)	-	-.125 (3.2)	-.126 (3.2)	-.128 (3.3)	-.122 (3.1)	-.120 (3.1)
$CULTSH_{m,k,t}$	.040 (2.2)	.037 (2.0)	.035 (1.8)	.036 (1.8)	.023 (1.3)	.039 (2.0)	.044 (2.1)	.032 (1.4)
BOSWAR	-	.666 (2.5)	.757 (2.6)	.667 (2.5)	.700 (2.6)	.730 (2.6)	.663 (2.4)	.662 (2.4)
$UNEMP.RATE_{k,t}$	-	-	-.061 (1.5)	-	-	-	-	-
$UNEMP.RATE_{k,t}^2$	-	-	.002 (0.8)	-	-	-	-	-
LANGUAGE[b/]	-	-	-	.010 (0.3)	-	-	-	-
ADJACENT[b/]	-	-	-	-	.046 (1.3)	-	-	-
EUR. UNION [WITHIN][b/]	-	-	-	-	-	.014 (1.2)	-	-
OECD [WITHIN][b/]	-	-	-	-	-	-	-.030 (2.2)	.008 (0.3)
AUS-CAN-USA [DEST] and OECD [WITHIN][b/]	-	-	-	-	-	-	-	-.059 (1.8)
AUS-CAN-USA [DEST][b/]	-	-	-	-	-	-	-	.147 (2.4)
Adj. R^2	.933	.934	.933	.934	.934	.934	.934	.935
N (d.f.)	402 (261)	402 (260)	402 (260)	402 (259)	402 (259)	402 (259)	402 (257)	402 (259)
F-test (H_0:α_i=α)[c/]	12.8 (.00)	12. 7(.00)[d/]	12.5 (.00)	12.4 (.00)	12.7(.00)	12.6 (.00)	12.7 (.00)	11.4 (.00)

[a/] Absolute t-values in parentheses. Calculated from heteroscedastic-consistent standard errors. The critical values are 1.28, 1.65 and 2.33 at 10%, 5% and 1% significance respectively for one-tail tests. [b/] The dummy is interacted with the variable CULTSH [c/] P-values in parentheses. The hypothesis is that all intercept are equal vs fixed effect model. [d/] The Hausman test of H0:Random effect vs fixed effect is $\chi^2(5)$= 6.52 and the random effect model is rejected.

TABLE 4: Summary of the magnitudes of the pulling effects from cultural communities

Total Effect		
Receiving countries	**Sending countries**	
	OECD countries	***Non-OECD countries***
All countries	0	0.04
- Australia, Canada, U.S.	0.12	0.18
- Other countries (Europe and Japan)	0.03	0.03

TABLE 5: Immigration flows and non-linearities in cultural effect

	$LIFL_{m,k,t}$	$LIFL_{m,k,t}$ (s=1%)	$LIFL_{m,k,t}$ (s=2.5%)	$LIFL_{m,k,t}$ (s=5%)	$LIFL_{m,k,t}$ (s=7.5%)	$LIFL_{m,k,t}$ (s=10%)	$LIFL_{m,k,t}$ (s=5%)
	1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**
$LYDES_{k,t}$ [a/]	.207 (0.3)	.117 (0.2)	.094 (0.1)	-.015 (0.1)	.041 (0.1)	.113 (0.2)	.019 (0.2)
$LYSOU_{m,t}$	-.402 (1.6)	-.423 (1.7)	-.382 (1.6)	-.335 (1.4)	-.336 (1.4)	-.366 (1.4)	-.348 (1.5)
$LPOPDES_{k,t}$	.923 (1.5)	.928 (1.5)	.999 (1.6)	1.147 (1.9)	1.127 (1.9)	1.060 (1.7)	1.029 (1.6)
$LPOPSOU_{m,t}$	-.967 (1.5)	-.828 (1.3)	-.951 (1.5)	-.979 (1.5)	-.925 (1.4)	-.927 (1.4)	-1.053 (1.6)
TIME	.418 (2.4)	.373 (2.1)	.370 (2.1)	.389 (2.2)	.356 (2.1)	.356 (2.1)	.326 (2.0)
$TIME^2$	-.122 (3.1)	-.116 (3.0)	-.114 (2.9)	-.116 (2.9)	-.112 (2.9)	-.112 (2.9)	-.106 (2.8)
$CULTSH_{m,k,t}$	.044 (2.1)	-	-	-	-	-	-
BOSWAR	.663 (2.4)	.687 (2.5)	.695 (2.6)	.649 (2.6)	.642 (2.4)	.644 (2.4)	.678 (2.8)
OECD [WITHIN] [b/]	-.030 (2.2)	-.029 (2.2)	-.028 (2.1)	-.024 (1.6)	-.026 (1.9)	-.028 (2.1)	-.022 (1.4)
CULTSH for SHARE<s	-	.508 (1.4)	.222 (1.7)	.239 (3.4)	.139 (3.0)	.084 (2.3)	.277 (3.5)
ΔCULTSH [SHARE ≥ 1%] [c/]	-	-.469 (1.3)	-	-	-	-	-
ΔCULTSH [SHARE ≥ 2.5%]	-	-	-.186 (1.4)	-	-	-	-
ΔCULTSH [SHARE ≥ 5%]	-	-	-	-.220 (2.9)	-	-	-.261 (1.7)
ΔCULTSH [SHARE ≥ 7.5%]	-	-	-	-	-.115 (2.2)	-	-.154 (0.7)
ΔCULTSH [SHARE ≥ 10%]	-	-	-	-	-	-.052 (1.2)	.165 (1.1)
Adj. R^2	.934	.935	.935	.937	.936	.935	.938
N (d.f.)	402 (259)	402 (258)	402 (258)	402 (258)	402 (258)	402 (258)	402 (256)

[a/] Absolute t-values in parentheses. Calculated from heteroscedastic-consistent standard errors. The critical values are 1.28, 1.65 and 2.33 at 10%, 5% and 1% significance respectively for one-tail tests. [b/] The dummy is interacted with the variable *CULTSH*. [c/] The structural change variable for the spline is calculated as *DSH[s]*(CULTSH-s)* for each threshold value *s*. See Appendix II for definition.