Barriers to Immigration and Cultural Homogeneity: Is Anything Wrong?*

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Abstract

We study the migration and return decision in presence of heterogeneity in preferencences for home consumption, when both the stability of the origin country and the possibility to recover abroad are uncertain.

We use our model to evaluate the impact of frontier closure on inflows and outflows of migrants. Then, we address the problem of immigrants' assimilation: as long as assimilation is an intergenerational process, immigration policies have a very long-lasting effect. We show that, since restricitive policies incentivate permanent migration -thus reproduction abroad- there exist a trade-off between less immigration today and more assimilation needed in the future. This problem is more serious the more difficult it is to assimilate the immigrants' culture. Since concerns for cultural homogeneity are an important cause of closed-door policies, our findings cast some doubts over the effectiveness of such policies in the long run. Moreover, frontier closure affects negatively the flow of remittances towards poor countries.

Keywords: return migration, enclaves, cultural transmission.

JEL classification: D91, F22.

1 Introduction

Migrations are one of the most compelling topics on the policy-makers agenda. As a result of increased labour market competition and concerns about terrorism, the trend of the recent legislation over immigration points to an increasing frontier closure (OECD 1999, 2001).

Moreover, fears for the possible entry of terrorists have generated pressures to defend the country's cultural homogeneity, and extraordinary measures are being announced to fight illegal immigration.

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Efforts to combat illegal immigration always came along with barriers to entry, because the latter do not eliminate incentives to emigrate: wage differentials continue to spur inflows, and macroeconomic shocks cause waves of constrained emigration. Therefore, the question one should answer is how restrictive immigration policies change the individual behavior, and what are their effects.

Simple textbook models show that migrations occur when wage differentials incentivate international labour mobility, until full convergence is achieved. Reality, indeed, is much more complicated than this: wage differentials among countries are persistent, (Lucas 1990) and there exist both inflows and outflows of migrants.

Early contributions, like Hill (1987) and, more recently, Dustmann (2000, 2001) have initiated the study of migrations as an intertemporal phenomenon: permanent migration is a corner solution, rather than the rule. However, most of the literature concerned with temporary migration still considers a single period of migration. There are no theoretical reasons supporting this assumption, and, indeed, overwhelming historical evidence shows that temporary migrations and *multiple* migration spells were quite common even in the XIX century (Baines 1991, Chiswick and Hatton 2002). Magris and Russo (2001, 2005) develop an infinite-horizon model with no restriction to the number of possible migration spells.

In this paper, we analyse the decision about optimal duration duration when entry to the destination country is rationed. We consider a population of potential migrants where each individual is indexed with respect to her preference for home consumption. Emigration from an Origin country to a Destination country and *viceversa* may occur in each period.

In our model, there are two reasons why an individual should migrate: wage differentials and economic shocks. In the first case, the decision comes from intertemporal maximization; in the second case the agent is forced to leave her country. Shocks as wars, floods, famines, earthquakes, have always been important push factors . The recent surge in regional conflicts (ex Jugoslavia and Middle East, for instance), has generated new migration waves (for a comprehensive survey, see Chiswick and Hatton, 2002); long-term climatic changes are contributing to the desertification of vast regions, and are moving entire populations. These shocks are typical of the source countries, whose unstable economic and political environments are quite often associated to poverty and underdevelopment .

Our aim is to stress the long-lasting effects of entry barriers adopted by destination countries. As we shall see in Section 2.1 and Section 4, current policies affect the choice between permanent and temporary emigration, generating very persistent effects. Permanent immigrants reproduce abroad, and, as long as the assimilation of their children is not immediate, reproduction is the transmission mechanism that causes current policies to affect future generations.

In their well-known contribution, Bisin and Verdier (2000) show that ethnic and religious traits can be conveyed across generations through family socialization and marital segregation decisions. With respect to the transmission of religious preferences, Bisin, Topa and Verdier (2004) prove the possibility of a steady-state equilibrium where the U.S. population is composed of a majority of Protestants and a minority of residual groups.

In the sociological literature, for example, it is known since the 1950s that the low rate of interreligious marriages would hinder the assimilation of immigrants (Herberg, 1955)[1].

Assimilation of immigrants is, indeed, a multi-dimensional process which may take several generations and is not always complete: again, Bisin and Verdier (2000) prove that a culturally heterogeneous population can well be a locally stable equilibrium. In Sociology, the concepts of "segmented assimilation" or "downward assimilation" are used to depict the possibility that many in the second and third generations from the immigrants can be incorporated into a society as disadvantaged minorities (Alba and Nee, 2003; Portes and Rumbaut, 2001).

This issue is of particular importance when we consider the widespread concern for the preservation of a country's cultural homogeneity: while the U.S. are *ab initio* a multi-cultural society, European countries are by far more homogeneous. A huge literature confirms that racials and cultural factors matter in preferences over immigration.

In their study on British data, Dustmann and Preston (2000) find that, though welfare and labor market concerns are significant, racial discrimination is by far the most important factor to explain opposition to immigration. Other authors present similar, though less extreme, results: O' Rourke and Sinnott (2004), using survey evidence for 24 countries, show that attitudes towards immigration reflect not only economic interests, but also nationalist sentiment. Gang, Rivera-Batiz and Yun (2001) find similar results for European countries. Scheve and Slaughter (2001) also find evidence for the importance of non-economic factors in the U.S.

Since socio-cultural factors matter in raising barriers to entry, we must hypothesize that the dislike for immigration is conveyed towards *non-assimilated enclaves of immigrants*. Since such enclaves are made of immigrant dinasties, we have to take into account the effect of closed-door policies over all dinasties until assimilation is achieved. Intuitively, assimilation is the more difficult the more dissimilar are culture, customs and language of the sending and receiving countries (Lazear, 1999; Kònya, 2002). In the present model, closing borders to immigrants can increase the size of the enclaves and may thus exacerbate racial tensions in the future.

Finally, we will see that since immigration policies affect return migration, they affect as well the flow of remittances towards origin countries.

The paper is organised as follows: Section 2 develops our model and comparative statics results; Section 3 is devoted to the assimilation problem; Section 4 focuses on the long-term effect of entry rationing; Section 5 contains an analysis of the trade-off between less immigration in the current period and less assimilation in the future; Section 6 contains our conclusions.

[1] We refer to the Introduction of Bisin, Topa and Verdier (2001) for a survey of the sociological and economic literature about interreligious marriages.

2 The Model

We use a simple two-period, two-country model with risk-neutral agents. Countries are an origin -or source- country (O), and a destination country (D). D is a developed country, and O is a developing country. Each individual is endowed with a unit of labor she supplies inelastically.

A single consumption good Y_D, Y_O, storable from one period to another, is produced in D and O respectively using only labor **(by means of a linear technology)**.

$$\begin{aligned} Y_D &= \omega_D L_D \\ Y_O &= \omega_O L_O \end{aligned}$$

where L_D, L_O are the total labor input in D and O. An individual earns a wage equal to her marginal productivity: $w_D = \omega_D$, and $w_O = \omega_O$ in D and O respectively. Productivity is higher in D, therefore $\omega_D > \omega_O$. As a consequence, it is possible to accumulate more savings abroad.

The assumption of a higher marginal utility of home consumption is common in temporary emigration models (See, for example, Dustmann, XXX XXX). However, since we are considering the whole population of O, it is quite realistic that residents of O differ with respect to their preference for home consumption. Therefore, we introduce a parameter $\theta_j \in (0, \infty)$ to catch this heterogeneity: when θ_j is close to zero individuals prefer to live in D, and when θ_j is close to infinity they prefer to stay in O.

For a native of O, individual utility is multiplied by $\theta_j \in (0, \infty)$ when she consumes in $O : u(c) = \theta_j u(c_O)$. In D, instead, utility is simply $u(c) = u(c_D)$.

The simplest representation of this assumption is the following:

$$\begin{aligned} u(c_D) &= c_D \\ u(c_O) &= \theta_j c_O \\ \theta_j &\sim f(\theta_j), \quad \theta_j \in (0, \infty) \end{aligned} \tag{1}$$

For our purpose, it is clear that when $\theta_j \leq 1$ emigration is permanent. Non-trivial solutions to the emigration problem arise when $\theta_j > 1$.

However, as we argued in the Introduction, macroeconomic shocks are a major cause of (constrained) migration: though consumption in O may yield a higher utility, the instability of the economic environment can overcome the desire to stay home.

Floods, famines, wars, political turmoils are some examples of these shocks[2]. We rule out such shocks in D, which enjoys a comparatively highly stable economic environment. As a consequence, the state of the world in O is good with a probability p and migration is voluntary, whereas with a probability $q \equiv (1-p)$

[2] Think, for example, to the recent surge in regional conflicts which has pushed thousands of refugees towards the EU.

constrained migration arises. This happens because, by migrating, individuals can get a positive expected utility, while in O their utility would be zero.

We depict this situation assuming that in O a shock may drive to zero the utility of consumption. The expected utility of consuming at home is, then,

.

$$E\left[u(c_O)\right] = p\theta_j c_O \tag{2}$$

where p is the probability of the "good" state of nature, and q is the probability of the "bad" state of nature.

For simplicity, we assume that an individual migrates voluntarily only when young. This assumption greatly simplifies the algebra.

Consider now that restrictive immigration policies work via entry rationing in D. Since the number of attempts to enter D is finite by assumption, no individual is certain of succeding in crossing the border. The probability of a successful migration is $\pi \in (0, 1]$.

π captures the degree of frontier closure chosen by the destination country. $\pi = 1$ means total freedom of entry; when π approaches 0, it is increasingly difficult to enter. A low value of π seems to depict best the current immigration policies.

A possible migrant must choose where to live in both periods. The possible choices are: staying home both periods (O-O), staying abroad one period and returning home(D-O), staying abroad both periods (D-D). We have thus to rank these choices.

The timing of the decision is as follows: **first, the nature reveals the state of the world in O**, then the agent decides whether to migrate. Notice that the bad state of nature generates a migration wave.

In D, there are no restrictions to re-migrate to O, but the decision is taken without observing the state of the world in O. This assumption may seem too strong, but it is only used to simplify our model: with three periods there would be no need of informational asymmetries between O and D, but we'd have to compare 9 possible strategies, with a substantial analytic complication and without changing our results[3].

Agents whit $\theta_j \leq 1$ will of course be permanent migrants.

We are now going to compare the consumer's utility under the different migration choices[4]. The expected utility of the different strategies are $E\left[u\left(O-O\right)\right]$, $E\left[u\left(D-D\right)\right]$, $E\left[u\left(D-O\right)\right]$, where O-O, D-D and D-O indicate the country where the individual lives in period one and two respectively.

Given the simple structure of the model, the utility of a permanent migrant is simply $2\omega_D$.

[3] We want to study the effect of the migration policy on both inflows and outflows of migrants. Imagine a three-period model, and consider a successful migrant willing to return after the first period: if the state of the world in O is good, return is possible. However, the possibility of a shock in the third period and the uncertainty about the ability to recover abroad may dominate the incentive to return. In this case one can compute the critical values of θ as well. To preserve simplicity, we have preferred a two-period model.

[4] For simplicity, agents do not discount the future.

$$[u\,(D-D)] = 2\omega_D \tag{3}$$

A consumer who stays in O both periods has to solve

$$\begin{aligned}
MaxE\,[u\,(O-O)] &= \theta_j(c_{1O}+pc_{2O})+q\pi c_{2D} \\
s.t. \qquad c_{1O} &\leq \omega_O - s_O \\
c_{2O} &\leq \omega_O + s_O \\
c_{2D} &\leq \omega_D + s_O \\
c_{1O} &\geq 0 \\
c_{2O} &\geq 0 \\
s_O &\geq 0 \\
c_{2D} &\geq 0
\end{aligned} \tag{4}$$

Where
$c_{1i}, \quad i = O, D$ is the first-period consumption in country i;
$c_{2i}, \quad i = O, D$ is the first-period consumption in country i;
$s_{i,} \quad i = O, D$ are savings in country i.
A returning migrant computes

$$\begin{aligned}
\max E\,[u\,(D-O)] &= c_{1D}+p\theta_j c_{2O}+q\pi c_{2D} \\
s.t. \qquad c_{1D} &\leq \omega_D - s_D \\
c_{2O} &\leq \omega_O + s_D \\
c_{2D} &\leq \omega_D + s_D \\
c_{1D} &\geq 0 \\
s_D &\geq 0 \\
c_{2O} &\geq 0 \\
c_{2D} &\geq 0
\end{aligned} \tag{5}$$

Since we use risk-neutral individuals, we have corner solutions: the first-period consumption is either 0 or ω_i.

First of all, remark that there is no incentive to save when one lives both periods in O: the only way to increase total consumption in O is to bring savings from D.

In the Appendix we show that a temporary migrant will always save her first-period income. Thus, we have to rank the agents' preferences with respect to the strategies *D-D*, *O-O* with no saving and *D-O* with saving.

In the Appendix we prove that two cases are possible: in the first case, the population of O is partitioned between temporary migrants and permanent migrants; in the second case the population is partitioned between permanent migrants and non-movers.

To rank the migration choice intuitively, it is useful to introduce the following inequality:

$$p \geq \frac{\omega_O}{\omega_D} \tag{6}$$

As we show in the Appendix, when (6) holds any individual has an incentive to migrate at least for one period; when the sign of the inequality is reversed there is either permanent emigration or no emigration at all. In the first case, we can write the following Proposition:

Proposition 1 *(Permanent migration and return migration): when $p \geq \frac{\omega_O}{\omega_D}$ the population of O is partitioned between permanent migrants and temporary migrants. Given*

$$\theta^* \equiv \frac{2\omega_D(1-q\pi)}{p(\omega_O+\omega_D)} \tag{7}$$

emigration is permanent for $\theta_j < \theta^*$ and temporary for $\theta_j \geq \theta^*$

Proof. see the Appendix. ■

In principle, according to the individual preferences, we can find permanent migrants, temporary migrants and non-movers. It is remarkable that when $p \geq \frac{\omega_O}{\omega_D}$ there are no non-movers (see the Appendix), and everyone has an incentive to migrate for at least one period.

It is important to notice that $\frac{\partial\theta^*}{\partial\pi} \leq 0$, i.e. that frontier openness incentivates return migration. We will analyse extensively the policy implication of this finding in Section 2.1 and Section 4.

When (6) does not hold, we need a new Proposition:

Proposition 2 *(No return migration): when $p < \frac{\omega_O}{\omega_D}$ the population of O is partitioned between permanent migrants and non-movers. Given*

$$\theta^A \equiv \frac{\omega_D(2-q\pi)}{\omega_O\,(1+p)} \tag{8}$$

when $\theta_j < \theta^A$ emigration is permanent, and when $\theta_j \geq \theta^A$ there is no voluntary emigration.

Proof. see the appendix. ■

This means thar when $p < \frac{\omega_O}{\omega_D}$ there is no incentive to come back because, in case of temporary migration, the probability of enjoying increased consumption at home is too low. From this point of view, we can say that expected returns to savings are negative. As a consequence, either emigration is permanent or there is no emigration at all. However, constrained migration and return migration after a shock are still possible.

Notice that in this case we have $\frac{\partial\theta^A}{\partial\pi} \leq 0$ as well.

Having found the critical values θ^* and θ^A, it is easy to get the number of permanent migrants, returining migrants and non-movers: given a distribution $f(\theta_j)$, when $p \geq \frac{\omega_O}{\omega_D}$,we observe permanent migrants and returning migrants:

$$
\begin{aligned}
PM &= \int_0^{\theta^*} f(\theta_j)\, d\theta_j \quad \text{(permanent migrants)} \qquad (9)\\
RM &= \int_{\theta^*}^{\infty} f(\theta_j)\, d\theta_j \quad \text{(returning migrants)}\\
&\quad \text{Case (a)}
\end{aligned}
$$

whereas, when $p < \frac{\omega_O}{\omega_D}$, we have only permanent migrants and non-movers:

$$
\begin{aligned}
PM &= \int_0^{\theta^A} f(\theta_j)\, d\theta_j \quad \text{(permanent migrants)} \qquad (10)\\
PD &= \int_{\theta^A}^{\infty} f(\theta_j)\, d\theta_j \quad \text{(non-movers)} \qquad (11)\\
&\quad \text{Case (b)}
\end{aligned}
$$

In Figure 1 we give an example of case (a) using, for simplicity, a normal distribution for θ_j: permanent migrants are in the dark area, and temporary migrants are in the clear area[5]. In the figure, we only show the distribution for $\theta_j \geq 1$.

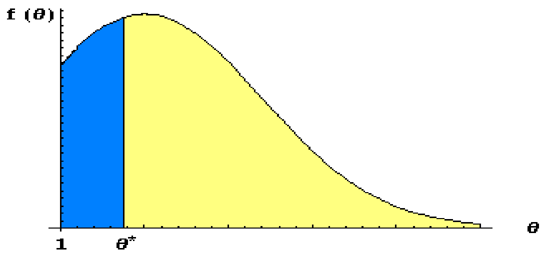

Figure 1

Case (b) looks like case (a), substituting θ^A to θ^* : the dark area gives permanent migrants, and the clear area the non-movers.

We are now going to present some comparative statics results.

[5] Intuitively, there are no permanent residents in case (a) because return migration is the only way to increase period 2 consumption. If there were the possibility to get a return on savings in O, persons with a sufficiently high θ_j would be permanent residents -for example those with $\theta \to \infty$−.

2.1 Comparative Statics

In this section we show the comparative statics properties of the model. As to the effect of π, it is easy to compute

$$\frac{\partial \theta^*}{\partial \pi} \leq 0 \quad \text{and} \tag{12}$$

$$\frac{\partial \theta^A}{\partial \pi} \leq 0 \tag{13}$$

the derivative (12) shows that, as π grows, the share of temporary migrants increases. This happens because frontier openness makes it easier to recover abroad in case of a shock, thus a lower value of θ is required to make the return possible. Of course, when $\pi = 1$, $\theta^* = \frac{2\omega_D}{(\omega_O+\omega_D)}$ depends only on the ratio between wages in D and in O, and $\frac{\partial \theta^*}{\partial \pi} = 0$.

The derivative (13) has the same meaning: when there exists no return migration the value of θ necessary to stay forever in O decreases as π increases. Here, too, θ^A does not depend on π anymore when $\pi = 1$. In this case, we have the simple result $\theta^A = \frac{\omega_D}{\omega_O}$.

Summarizing, frontier openness shifts the incentives toward return migration, and restrictive policies bias the incentives towards permanent migration. As we shall see in Section 2.1 and Section 4, though a low value of π may reduce entries in the current period, it can backfire in future periods.

The comparative statics derivatives of θ^* and θ^A with respect to p are

$$\frac{\partial \theta^*}{\partial p} < 0 \quad \text{and} \tag{14}$$

$$\frac{\partial \theta^A}{\partial p} < 0 \tag{15}$$

Here the effect is quite intuitive: improved economic conditions at home reinforce the incentive to return and induce more individuals to be non-movers. It is interesting to remark that substituting $\pi = 1$ into θ^* and θ^A is equivalent to set $p = 1$. In other words, total freedom of emigration creates an insurance against risk in O. **(CHECK)**

3 Immigrants and assimilation

In Economics, the term "assimilation" was usually referred to wage convergence between natives and immigrants, and therefore only to labor market assimilation. Currently, a growing literature has initiated the study of migrants' cultural assimilation (Kònya, 2002; Bisin and Verdier, 2000; Lazear, 1999), thus broadening the definition beyond wage convergence. Now, we can define assimilation as the convergence of a vector of characheristics - for example language abilities, income, human capital, fertility rates, criminality rates, mortality rates- between immigrants and the mainstream of the destination country[6]. Notice that convergence may occur in both directions: even some elements of the mainstream charachteristics may converge towards the immigrants' ones.

It is important now to stress why a permanent migrant creates more assimilation concerns with respect to a temporary migrant. If there were no difference between the two types, a country would simply be indifferent in having 99% of permanent migrants and 1% of temporary ones, or viceversa. However, attempts to limit immigration are mostly targeted to permanent migration.

There are many reasons why permanent migration differs from temporary migration, the main one being that permanent migrants are entitled to family reunification and reproduce themselves in the host countries. Family reunification is generally considered -at least in the short run- as a burden for the welfare system of the receiving country: families of unskilled workers with high fertility rates consume more subsidies and health services, and the low women's participation rates mean that their net contribution to the welfare system is negative (Borjas, 1994; 2002).

More importantly, according to Bisin and Verdier (2000), homogamous families are the technology required to transmit cultural and ethnic traits. This enables minority cultures to persist over generations, particularly when immigrants live in segregated enclaves. Such enclaves may delay indefinitely the assimilation process.

An example can be some Afro-American or Mexican communities. Borjas (1993) reports evidence for the downward assimilation of Mexican immigrants. This problem is well-known since Chiswick (1978) and Carliner (1980)[7].

Dustmann (1996) studies the social assimilation of immigrants. He finds that a decade of residence within Germany increases by 3% the probability that an immigrant considers himself as a German, and decreases by 14% the probability that the immigrant declares to stick to his original nationality. This finding underscores the importance of a protracted interaction with the mainstream of the host country.

We are aware that, in some cases, enclaves may play a positive role, providing new immigrants with information and connections to get a job, speeding up the assimilation. For our approach to be valid, however, we need only that this process takes time.

In our view, therefore, assimilation is not only a matter of citizenship,[8] even though citizenship affects assimilation by itself: we can simply mention the right to vote. Intuitively, the assimilation time should be longer the more different are the cultures of origin and destination (Lazear 1999).

[6] Early definitions of assimilation pretend minority groups would shed their own cultures to adopt the cultural model of middle-class Protestant whites. Contemporay sociologists, instead, define assimilation as the decline of an ethnic distinction, where "decline" means that individual's ethnic origin become less and less relevant in relation to the members of others ethnic groups (Alba and Nee, 2003).

[7] We refer to the concept of downward assimilation reported in the Introduction.

[8] Notice that often the first generation of foreign-born is entitled to conserve the nationality of O.

It is well-known that initial differences between natives and immigrants tend to persist across generations (Borjas 1992, 1993, 1994).

Comparing data from the 1940 and 1970 U.S. censuses, Borjas (1993) finds that roughly half of the wage differential between any two national origin groups persists from the first to the second generation. "In fact, if the intergenerational correlation is on the order of .5 and is constant across generations, the evidence suggests that the ethnic skill differentials will persist into the third generation and perhaps even into the fourth.[...] Ethnicity matters, and it seems to matter for a very long time" (Borjas 1994, p.1711).

The point is now to include properly the foreign-born in the total number of non-assimilated individuals. This depends on the time interval required to achieve assimilation.

In other words, unless we admit that no assimilation problem exists, and that there is no difference between the immigrants and the natives of D, we have to consider a time lag necessary to the integration.

4 Barriers to entry and aliens assimilation

As we have shown above, the degree of frontier openness affects deeply the individual behaviour, and encourages permanent migrations. Now we address the problem of computing the expected population of migrants abroad. In order to achieve this goal, we develop an OLG-like framework. In the previous section we have partitioned the population of potential migrants according to their location choice. We are now introducing a new assumption: old individuals in O reproduce themselves in the second period *before* the shock is realized at rate $(1+n)$. This assumption is used to avoid the possibility of a total population depletion in O after a migration wave.[9] We denote the shares of permanent migrants and temporary migrants with $\alpha_1(\pi)$ and $\alpha_2(\pi)$ respectively. When $p \geq \frac{\omega_O}{\omega_D}$ we can write

$$\alpha_1(\pi) = \frac{\int_0^{\theta^*} f(\theta)\, d\theta}{\int_0^{\infty} f(\theta)\, d\theta} \tag{16}$$

$$\alpha_2(\pi) = \frac{\int_{\theta^*}^{\infty} f(\theta)\, d\theta}{\int_0^{\infty} f(\theta)\, d\theta} \tag{17}$$

$$(\alpha_1(\pi) + \alpha_2(\pi) = 1)$$

when $p < \frac{\omega_O}{\omega_D}$, $\alpha_1(\pi)$ and $\alpha_2(\pi)$ will denote permanent migrants and non-movers -obviously the critical value of θ_j will be θ^A.

The evolution of the population in O is thus given by

$$N_t^y = [1 - \pi\alpha_1(\pi)]\, N_{t-1}^y (1+n) \tag{18}$$

[9] Suppose that $\pi = 1$ and the shock occurs. In that case, the whole population -young and old- of O is able to enter D. However, if reproduction occurs in D nobody will return to O at the end of the period. On the other hand, when reproduction occurs before the shock, return migration occurs.

where $n > 0$ is the rate of growth of the population.

The steady-state rate of population growth is $n^* = \frac{\pi\alpha_1(\pi)}{1-\pi\alpha_1(\pi)}$: it has to be high enough to avoid that eventually emigration causes total population depletion in O.

For simplicity, we assume that foreign-born children are not willing to return to their Origin country: being born abroad, they do not get any externality in consuming in O. Preference for home-consumption may indeed translate into preference for consumption within the enclave[10] -NOTA: LA TENDENZA A USCIRE DALL'ENCLAVE è MAGGIORE O MINORE DELLA TENDENZA DEI NATIVI A USCIRE DALLA LORO CITTà? -.

We want now to compute properly the expected stock of aliens living in D at time t. This stock is given by the current entrants plus the inherited non-assimilated dinasties. Therefore, we have to know the number of individuals inherited from the past generations of immigrants.

Permanent emigrants to D reproduce at the rate of their origin country until they are assimilated. Convergence in fertility rates is indeed an important indicator of assimilation. Let us indicate with m the number of generations necessary to a complete assimilation.

As a first example, we are going to consider the shortest possible lag: we suppose that assimilation needs only a generation ($m = 1$): the migrants' children are not different with respect to natives of D. In such a case, we should take into account just their fathers, entered at $(t-1)$. Thus, in t we have $\pi\alpha_1(\pi)N^y_{t-1}$ old immigrants entered in the previous period.

In this case, the stock of inherited aliens is

$$[S_t \mid m = 1] = \pi\alpha_1(\pi)N^y_{t-1} \tag{19}$$

where $S_t \mid m = 1$ stands for "stock at time t conditioned to an assimilation lag of one generation".

When $m = 2$, we have an inherited stock of $\pi\alpha_1(\pi)N^y_{t-2}(1+n)$ (children of young immigrants entered in $(t-2)$), plus $\pi\alpha_1(\pi)N^y_{t-1}(2+n)$ (immigrants in $(t-1)$ plus their children born in t.

Therefore,

$$\begin{aligned}[S_t \quad | \quad m = 2] &= \pi\alpha_1(\pi)N^y_{t-2}(1+n) + \\ &+\pi\alpha_1(\pi)N^y_{t-1}(2+n)\end{aligned} \tag{20}$$

Iterating this procedure, we get the general expression for m generations of assimilation, and we can write the following Proposition:

Proposition 3 *(inherited aliens): when m generations are required for achieving assimilation, the number of inherited aliens is*

$$\begin{aligned}[S_t \quad | \quad m] &= \pi\alpha_1(\pi)N^y_{t-m}(1+n)^{m-1} + \\ &+\pi\alpha_1(\pi)\sum_{k=2}^{k=m} N^y_{t-m+(k-1)}[(1+n)^{m-(k-1)} + (1+n)^{m-k}]\end{aligned} \tag{21}$$

[10] It is possible to incorporate into the model a share of return migration of future generations; this, however, would cause unnecessary analytic complications.

substituting (18) into (21) we can get the stock of non-assimilated individuals as a function of N^y_{t-m}. It is important to remark that $f(\theta)$ and π may change over time. In this case, π and $f(\theta)$ may be time- dependent, and we should write $\alpha_1(t) = \alpha_1(\pi_t, f_t(\theta))$. The above expression becomes

$$[S_t \quad | \quad m] = \pi_{t-m}\alpha_1(t-m)N^y_{t-m}(1+n)^{m-1} + \\ +\pi_{t-m+(k-1)}\alpha_1(t-m+(k-1))\sum_{k=2}^{k=m} N^y_{t-m+(k-1)}[(1+n)^{m-(k-1)} + (1+n)^{m-k}] \tag{22}$$

obviously in this case computing the number of inherited aliens is more difficult because we need to know $f_t(\theta)$ and π_t from (t-m) to (t-1).

Proof. See the Appendix. ■

To know the total non-assimilated population we only need to add the admissions in the current period. They are given by the weighted average of the entrants in the good state of the world and the bad state of the world. When $p \geq \frac{\omega_O}{\omega_D}$ we indicate them with $E[M^*_t]$.

$$E[M^*_t] = p\pi_t N^y_t + q\pi_t(N^y_t + N^o_t) \tag{23}$$

where $N^o_t = [1 - \pi_{t-1}\alpha_1(t-1)] N^y_{t-1}$ are the old inhabitants of O, and $N^y_t = [1 - \pi_{t-1}\alpha_1(t-1)] N^y_{t-1}(1+n)$ are the young born in t.

Therefore, the expected stock of aliens $E\left[A^1\right]$ is

$$E\left[A^1\right] = [S_t \mid m] + p\pi_t N^y_t + q\pi_t(N^y_t + N^o_t) \qquad (p \geq \frac{\omega_O}{\omega_D}) \tag{24}$$

Denoting with $E[M^A_t]$ the expected entrants when $p < \frac{\omega_O}{\omega_D}$,

$$E[M^A_t] = p\pi_t\alpha_1(t) N^y_t + q\pi(N^y_t + N^o_t) \tag{25}$$

and the stock of aliens $E\left[A^2\right]$ is

$$E\left[A^2\right] = [S_t \mid m] + p\pi_t\alpha_1(t) N^y_t + q\pi(N^y_t + N^o_t) \qquad (p < \frac{\omega_O}{\omega_D}) \tag{26}$$

Now we can study the effect of the immigration policy.

5 Immigration policy

In our model, the immigration policy decides essentially the extent of the entry rationing. As a consequence, it can be depicted by the probability to enter D. Since the inherited stock cannot be modified, the chosen policy affects only the current expected entrants: when $(p \geq \frac{\omega_O}{\omega_D})$ it is easy to verify that a more severe entry rationing reduces entries in the current period:

$$\frac{\partial E[M^*_t]}{\partial \pi_t} > 0. \tag{27}$$

A restrictive immigration policy is effective in reducing entries, but, as we have seen in Section 2.1 and Section 4, it biases incentives towards permanent migration. As a result, governments face a trade-off between less immigrants today and more children to assimilate in the future.

This result is known especially among demographers (Bonifazi and Strozza, 2002; King, 1993). When this issue is addressed, we know that increasing borders closure may create more assimilation problems in the long run: in our simplified model the stock of non-assimilated individuals is minimum for $\pi = 1$.

When ($p < \frac{\omega_O}{\omega_D}$), the effect of the policy is

$$\frac{\partial E[M_t^A]}{\partial \pi_t} = pN_t^y \left[\alpha_1 (t) + \pi_t \frac{\partial \alpha_1 (t)}{\partial \pi} \right] + q(N_t^y + N_t^o) \tag{28}$$

Since in this case $\frac{\partial \alpha_1(t)}{\partial \pi} < 0$ the sign of the derivative depends on the magnitude of the change in the share of permanent immigrants.

Interestingly, from (28) we see that, when there are only permanent immigrants, a restrictive policy may in principle backfire even in the current period. The possibility of such an outcome should be determined empirically.

As we told in the Introduction, legislative trends in OECD countries point to increasing borders closure. From this perspective, unless a country is able to assimilate quickly the immigrants' culture, the change in incentives may spur the creation of ethnic enclaves that make assimilation more difficult.

This would be particularly true for immigrants bringing in cultures quite different with respect to the destination country.

A tempting conclusion is that a restrictive immigration policy is the more likely to backfire the less assimilable are the immigrants.

For marginal changes in π it would be important to know the magnitude of $\frac{\partial \alpha_1}{\partial \pi}$. However, the most important finding of our model is that the effect of current policies tend to persist in the future. This means, for example, that even though only a generation is required for assimilation the consequences of current choices last for two or three decades, i.e. more than the time horizon of any democratic government.

From another prespective, what is happening today may be the effect of choices made many years ago.

5.1 Consumption and savings

Our model produces some important links between economic volatility, migration policy, and saving bahaviour well-known in the literature. Given the simple nature of the model, the only way to increase the second-period consumption is to save abroad. Thus, aggregate savings S exist only when ($p \geq \frac{\omega_O}{\omega_D}$):

$$S = \pi \omega_D \int_{\theta^*}^{\infty} f(\theta) \, d\theta \tag{29}$$

The comparative statics results of the previous Section imply imply that $\frac{\partial S}{\partial \pi} > 0$, i.e. aggregate savings are increasing in π. As $\pi \to 1$, θ^* tends to its lowest value, and a larger share of the distribution $f(\theta)$ enters the area of the integral (29). As a consequence, π determines the flow of remittances towards O. Therefore, we should be aware that entry barriers in developed countries may hinder the development in poor countries. This result is well-known in the literature (See, for example, 'O Rourke, 2003).

Even though the present model is not concerned with growth issues, our findings suggest that restrictive immigration policies may backfire on the steady-state equilibrium in endogenous growth[11].

A combination of restricted access and high probability of negative shocks in the source countries appears particularly dangerous from this point of view. Unfortunately, such policies seem to be quite pervasive and they are getting even more severe after the concerns for terrorism.

Finally, when ($p < \frac{\omega_O}{\omega_D}$), there will be no aggregate savings in O. We have seen that this occurs when **a very low value of p makes negative the expected returns on savings.** The intuition behind this result is that high uncertainty about the future unincentivates savings, and incentivates permanent migration.

So far, we have not discussed the role of $f(\theta)$. Of course, its shape is crucial for the empirical importance of our results.We can conjecture that a high kurtosis may dampen the consequences of the immigration policies, and *viceversa*. If $f(\theta)$ is skewed towards low values of θ, **restrictive policies may be effective**. Moreover, as we told above, it is reasonable to hypothesize that $f(\theta)$ may change from one generation to another. In such a case, we should write $f_t(\theta)$.

Estimating $f(\theta)_t$ for a country may be an interesting, though difficult, task.

6 Conclusions

Our intention was to study how migration policies in the destination countries affect individual incentives to migration duration and the size of immigrant dinasties. Our results question the effectiveness of the policies currently chosen in developed countries: entry restrictions incentivate permanent migrations, spur the creation of enclaves and reduce remittances, contributing to the risk of generating poverty traps.

The existence of a time-requiring assimilation process implies a trade-off between less entries in the current period and more individuals to assimilate in the future. Moreover, frontier closure makes agents more reluctant to be assimilated to settle permanently.

These effects reinforce each other, and suggest that borders enforcement, in the long run, is likely to fail the task of protecting a country's cultural homogeneity.

Some empirical evidence supporting our results is found, for example, in Bonifazi and Strozza (2002): they show that, after the oil shocks caused frontier

[11] This result is already known in the literature, too: for example, Reichlin and Rustichini (1998) show that migration in endogenous growth can exacerbate the divergence between poor and rich countries.

closure in Europe, the foreign population has been growing significantly, mainly through family reunifications.

Family reunification is an important signal that the expectations about the migration duration have changed: the costs implied by this decision are usually too high to permit an easy reversal[12]. Currently, family reunification accounts for no less than 50% of the *legal* inflows to EU (OECD, 2004). This seems to indicate that permanent migration is indeed responsive to policy changes.

We think that more empirical research is needed to assess the importance of these effects, and we hope to develop this point in the future.

Our results stress as well the importance of the economic instability in the origin countries: uncertainty reduces savings and induces permanent migration. Restrictions to entry in the destination countries reinforce this unwanted effect.

From this point of view, immigration policies based on frontier closure may hinder growth prospect for source countries, without succeeding in preserving cultural homogeneity of destination countries.

An alternative incentive-compatible policy could try to match less entry rationing and more efforts to promote economic and political stability in developing countries. In our setting, this would increase p, creating more return migration and more remittances towards the origin countries.

Though the empirical importance of our results has to be evaluated, we think that it is no negligible *a priori*.

An important development of our model would be incorporating the reallocation of inflows between legal and illegal immigration stemming from entry restrictions. When entry is made difficult, the simplest reply is entering illegally.

In this article, we were concerned with the *total* number of immigrants, which includes both legal and illegal ones. Nonetheless, a recomposition towards illlegal entry may act as a "filter": the "best" migrants will try to enter legally where it is possible, while those who have nothing to lose may be indifferent. This may be another subject of future studies.

[12] Think, for example, to the childrens' education.

References

[1] Alba R., Nee V., 2003. Remaking the American Mainstream. Harvard University Press.

[2] Baines D.E., 1991. Emigration From Europe, 1815-1930. Macmillan, Basingstoke.

[3] Bisin A., Verdier T., 2000. Beyond the Melting Pot: Cultural Transmission, Marriage and the Evolution of Ethnic and Religious Traits, Quarterly Journal of Economics, 3, 955-988.

[4] Bisin A., Topa G., Verdier T., 2004. Religious Intermarriage and Socialization in the US, Journal of Political Economy, vol. 112, 615-665, 2004.

[5] Bonifazi C., Strozza S. 2002. International Migration in Europe in the Last Fifty Years, in: Bonifazi C., Cesano G., (Eds.), Contributions to International Migration Studies. Istituto per le Ricerche sulla Popolazione, CNR, Monografie, n. 12, 33-106 .

[6] Borjas, George J.,1992, "Ethnic capital and intergenerational mobility", Quarterly Journal of Economics, 123 – 50.

[7] Borjas, George J., 1993, "The intergenerational mobility of immigrants", Journal of Labour Economics, 113 – 135.

[8] Borjas G. J., 1994. The Economics of Immigration. Journal of Economic Literature 32, 1667-1717.

[9] Borjas G. J., 2002. Welfare Reform and Immigrant Participation in Welfare Programs, International Migration Review, vol. 36 (4), pp. 1093-1123.

[10] Byerlee D., 1974. Rural-Urban Migration in Africa: Theory, Policy, and Research Implications. International Migration Review 8, 543-566.

[11] Carliner, Geoffrey, 1980, "Wages, earnings and hours of first, second and third generation American males", Economic Inquiry, 87 – 102.

[12] Carrington W.J., Detragiache T., Vishwanath T., 1996. Migration with Endogenous Moving Costs. American Economic Review 86, 909-933.

[13] Chiswick, Barry R., 1978, "The effect of Americanization on the earnings of foreign born – men", Journal of Political Economy, 897 – 921.

[14] Chiswick B., Hatton T., 2002. International Migration and the Integration of Labor Markets IZA discussion paper # 559.

[15] Cornelius W., 1978. Mexican Migration to the U.S.: Causes, Consequences and U.S. Responses. Center for International Studies, MIT, Cambridge, MA.

[16] Djajic S., 1989. Migrants in a Guest-Worker System. Journal of Development Economics 31, 327-339.

[17] Djajic S., Milbourne R., 1988. A General Equilibrium Model of Guest-Worker Migration. Journal of Interntional Economics 25, 335-351.

[18] Dustmann C., 1996. Return Migration: The European Experience. Economic Policy 22, 214-250.

[19] Dustmann C., 1997. Return Migration, Uncertainty and Precautionary Savings. Journal of Development Economics 52, 295-316.

[20] Dustmann C., Preston I., 2000. Racial and Economic Factors in Attitudes to Immigration. IZA Discussion Paper no. 190.

[21] Dustmann C., 2001. Return Migration, Wage Differentials, and the Optimal Migration Duration. IZA Discussion Paper 264.

[22] Dustmann C., Kirchkamp O., 2001. The Optimal Migration Duration and Activity Choice AfterRe-Migration. IZA Discussion Paper 266.

[23] Faini R., 1996. Comment to Dustmann. Economic Policy 22, 253-256.

[24] Galor O., Stark O., 1991. The Probability of Return Migration, Migrants' Work Effort, and Migrants' Performance. Journal of Development Economics 35, 399-405.

[25] Gang I., Rivera-Batiz F.L., Yun M.S. 2001. Economic Strain, Ethnic Concentration and Attitudes Towards Foreigners in the European Union. Mimeo, Rutgers University, 75 Hamilton St, New Brunswick NJ 08901-1248 USA.

[26] Harris J.R., Todaro M.P., 1970. Migration, Unemployment and Development: A Two-SectorAnalysis. American Economic Review 70, 126-.

[27] Herberg W., Protestant-Catholic-Jew, (New York: Doubleday, 1955).

[28] Hill K.J., 1987. Immigrant Decisions Concerning Duration of Stay and Migratory Frequency. Journal of Development Economics 25, 221-234.

[29] King R., 1993. (editor). Mass Migration in Europe. The Legacy and the Future. Belhaven Press, London.

[30] Kònya I., 2002. A Dynamic Model of Cultural Assimilation. Mimeo, Boston College.

[31] Kònya I., 2002. Optimal Immigration, Assimilation and Culture. Mimeo, Boston College.

[32] Lazear E. P. 1999. Language and Culture. Journal of Political Economy, December

[33] Lucas R. E., 1990. Why Does't Capital Flow From Rich to Poor Countries? American Economic Review, Papers and Proceedings, 80, 92-96.

[34] Mc Cormick B., 2001. (editor) Managing Migration in the EU Welfare State. Report for the Fondazione Rodolfo de Benedetti, Trieste (www.frdb.org).

[35] Mesnard A., 2000. Temporay Migration and Capital Market Imperfections. Mimeo, Universite' deToulouse

[36] North D.S., Houstoun M. T., 1976. The Characteristics and Role of Illegal Aliens in the U.S.Labor Market: An Exploratory Study. Linton and Co., Washington DC.

[37] O'Rourke K.H., 2003. The Era of Free Migration: Lessons for Today. Paper presented at conference on Globalization, the State and Society, Washington University, 13-14 November.

[38] O'Rourke K.H., Sinnott R., 2004. The Determinants of Individual Attitudes Towards Immigration. Mimeo, Trinity College, Dublin.

[39] OECD, 1999. Trends in International Migration. SOPEMI, Paris.

[40] OECD, 2001. Trends in International Migration. SOPEMI, Paris.

[41] OEDD, 2004. Trends in International Migration. SOPEMI, Paris.

[42] Portes A., Rumbaut R., 2001. Legacies -The Story of the Immigrant Second Generation. University of California Press and Russell Sage Foundation.

[43] Reichlin P., Rustichini A., 1998. Diverging Patterns in a Two Country Model with Endogenous Labor Migration. Journal of Economic Dynamics and Control 22, 703-728

[44] Scheve, K.F., SlaughterM.J., 2001. "Labour Market Competition and Individual Preferences Over Immigration Policy." Review of Economics and Statistics 83: 133-145.

[45] Sjaastad L.A., 1962. The Costs and Returns of Human Migration. Journal of Political Economy, Supplement, 70, 80-93.

[46] Stark O., Wang Y. 2002. Inducing Human Capital Formation: Migration as a Substitute for Subsidies. Journal of Public Economics 86, 29-46.

Appendix

Proof of Proposition 1:

First, we have to prove that a permanent resident does not save in the first period, i.e. that

$$E\left[u(O-O \mid s=0)\right] > E\left[u(O-O \mid s=\omega_O)\right]$$

where $E\left[u(O-O \mid s=0)\right]$ is the expected utility of staying for two periods in O with no saving, and $E\left[u(O-O \mid s=\omega_O)\right]$ is the expected utility of staying two periods in O saving the first-period income. Substituting the values of the expected utility, we have

$$\begin{aligned} \theta_j\omega_O + p\theta_j\omega_O + q\pi\omega_D &> p\theta_j 2\omega_O + q\pi\left(\omega_O+\omega_D\right) \\ i.e. \quad \theta_j &> \pi \end{aligned}$$

since $0<\pi\leq 1$ and $\theta_j>1$ for any permanent resident, it is proved that a permanent resident will never save her first-period income.

Now, it is useful to prove that, as $p \geq \frac{\omega_O}{\omega_D}$ everybody migrates at least for one period. After we shall prove that, in equilibrium, a temporary migrant always saves her first-period income.

$$E\left[u(D-O \mid s=\omega_D)\right] > E\left[u(O-O \mid s=0)\right] \tag{30}$$

substituting the values of the expected utility,

$$\begin{aligned} p\theta_j\left(\omega_O+\omega_D\right) + 2q\pi\omega_D &> \theta_j\omega_O + p\theta_j\omega_O + q\pi\omega_D \\ i.e. \quad \theta_j(p\omega_D-\omega_O) &\geq -q\pi\omega_D \end{aligned}$$

This is clearly true when $(p\omega_D-\omega_O)\geq 0$. When $(p\omega_D-\omega_O)<0$, for (30) to hold we need $p>\frac{\theta_j\omega_O-\pi\omega_D}{\pi\omega_D(\theta_j-\pi)}>\frac{\omega_O}{\omega_D}$. Therefore, the inequality (30) is reversed when $p<\frac{\omega_O}{\omega_D}$. We conclude that when $p\geq\frac{\omega_O}{\omega_D}$ temporary migration is better than no migration for any θ_j (case a), and that when $p<\frac{\omega_O}{\omega_D}$ no migration is better than temporary emigration for any θ_j.

CASE a): when $p\geq\frac{\omega_O}{\omega_D}$ (30) holds for any θ_j. We have still to rank the expected utility of temporary migration to the utility of permanent migration. Remark that the utility of staying both periods abroad is certain.

$$E\left[u(D-O \mid s=\omega_D)\right] > E\left[u(D-D)\right]$$

Substituting the values of the expected utility, we obtain

$$\begin{aligned} p\theta_j\left(\omega_O+\omega_D\right) + 2q\pi\omega_D &> 2\omega_D \\ i.e.\theta_j &> \frac{2\omega_D(1-q\pi)}{p\left(\omega_O+\omega_D\right)} \equiv \theta^* \end{aligned}$$

This proves the Proposition.

Proof that $\theta^* > 1$:

$$2\omega_D(1-\pi(1-p)) > p(\omega_O+\omega_D)$$

since $2\omega_D > \omega_O + \omega_D$, a sufficient condition for $\theta^* > 1$ is that

$$(1-\pi(1-p)) \geq p$$

which gives

$$(1-\pi) \geq p(1-\pi)$$

that is always true.

We whish now to prove that a returning migrant always saves her first-period income:

$$E\left[u(D-O \mid s=\omega_D)\right] > E\left[u(D-O \mid s=0)\right]$$

substituting the values of the utilities,

$$\begin{aligned} p\theta_j\left(\omega_O+\omega_D\right)+2q\pi\omega_D &> \omega_D+p\theta_j\omega_O+q\pi\omega_D, \\ i.e. p\theta_j+q\pi &> 1 \end{aligned}$$

since for any returning migrant we have $\theta_j \geq \theta^*$, substituting θ^* to θ_j we have

$$\frac{2\omega_D(1-q\pi)}{(\omega_O+\omega_D)} > (1-q\pi)$$

that is always true for any $\theta_j \geq \theta^*$.

Proof of Proposition 2

when $p < \frac{\omega_O}{\omega_D}$ (30) does not hold for any θ_j. We have now to rank the expected utility of permanent residence to the utility of permanent emigration:

$$E\left[u(O-O \mid s=0)\right] > E\left[u(D-D)\right]$$

substituting the values of the utilities,

$$\begin{aligned} \theta_j\omega_O+p\theta_j\omega_O+q\pi\omega_D &> 2\omega_D \\ i.e. \theta_j &> \frac{\omega_D(2-q\pi)}{\omega_O\left(1+p\right)} \equiv \theta^A \end{aligned}$$

this proves the Proposition.

Proof that $\theta^A > 1$:

$$\omega_D(2-\pi(1-p)) \geq \omega_O(1+p)$$

since $\omega_D > \omega_O$ by assumption, it is sufficient that

$$(2-\pi(1-p)) \geq (1+p)$$

by rearranging, we get

$$(1-\pi) \geq p\left(1-\pi\right)$$

that is always true.

We are now going to describe how the expected stock of immigrants over the two periods is computed. We show the derivation for the general case.