Immigration Policy and Self Selecting Migrants*

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Abstract

We develop a simple model of self-selection into migration and immigration policy formation. We explore how immigrants’ skill composition (“quality”) respond to immigration restrictions and how this effect may be crucial also for understanding the formation of policy in the receiving country. A restrictive policy not only reduces the size of migration, but, given that its the marginal effect is greater on those with less incentive and fewer resources to migrate, it also influences immigrant quality. Hence, a trade-off between a size effect and a quality effect may arise: encouraging immigration when it is high skilled, or equivalently restricting when it is low skilled, may decrease its quality. When the latter effect becomes predominant, natives may prefer a more (less) restrictive policy even though immigrants complement (compete with) them. Finally, this trade-off implies also that the relation between immigration restrictions and natives’ welfare may be non-monotonous.

Keywords: Migration; immigrant self-selection; immigration policy preferences, political economy.

JEL codes: J61, F22, O24, D78

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1 Introduction

Immigration remains one of the hottest and most controversial topics in current academic and policy debates. Migration flows have been increasing over the past forty years and in many developed countries more than 10% of the population is now foreign born.\(^1\) The phenomenon has a broad range of social and economic effects both in sending and receiving countries, and these effects vary significantly with immigrants’ characteristics.\(^2\) As a result, receiving countries spend a considerable amount of their budget trying to govern the size and the composition of the migration flows, while at the same time facing the limited effectiveness of their policies.\(^3\)

In the attempt to systematically approach these issues, we develop a simple framework that explores the interaction between self-selection into migration and the determination of immigration policy. We analyze in particular three facets. First, what drives the decision to migrate, i.e. which conditions are likely to lead to high vs. low skilled migration. Second, how receiving countries’ policies affect this decision, i.e. what is the relation between immigration restrictions and immigrants’ skill composition. Last, what are the implications for receiving countries, i.e. how immigrants’ self-selection can be a crucial determinant of the impact of a policy, of its political support and ultimately of its "optimality".

Specifically, we model migration in a world with two countries. In the sending country, individuals (called "foreigners") are heterogeneous in terms of skills and wealth and they decide whether to migrate according to incentives and wealth constraints. The first term looks at wage differentials (net of migration costs) and tells that immigrants are likely to be high skilled if returns from migration increase with skills. The second term points out that, since migration is a costly investment and credit market are typically imperfect, one has to be sufficiently wealthy to afford it. Given that wealth and skill are in general positively correlated, this constraint tends to generate high skilled migration.

The receiving country has an heterogeneous population of workers (called "natives") and a standard labor market where immigrants compete with similarly skilled natives and complement those with different skills. Natives are only concerned with this labor market interaction, hence they simply support a policy that maximize their equilibrium wages:

\(^1\)See for example the data on Australia, Canada, France, Germany, Sweden, United States in SOPEMI (2004).


\(^3\)According to official budget data, in 2004 the United States spent over 18 billions dollars in immigration policy and the European union 150 millions euro (see the "Fiscal Year 2004 Budget" by the U.S. Department of Homeland Security and the "Final adoption of the general budget of the European Union for the financial year 2004", Official Journal of the European Union L053). Critiques of current policies on both sides of the Atlantic can be found e.g. in Borjas (1999), Huntington (2004), Boeri and Brücker (2005), Peri (2005).
high skilled aim at increasing the supply of low skilled immigrants, low skilled push for the opposite. These preferences are then aggregated by the receiving country government, which sets immigration restrictions according to the weight attached to different groups of natives.

Immigration restrictions increase the costs immigrants have to pay to enter and work in the receiving country. Given self-selection, i.e. given that incentives and resources to migrate differ across foreigners, the policy influences both the size and the skill composition ("quality") of the migration flow. While the effect on size is clear (restrictions lower immigration), the effect on quality depends on the response of different potential migrants. Higher costs, due to a wealth effect, allow only richer and more skilled foreigners to migrate, hence increase immigrant quality. At the same time, due to an incentive effect, they have stronger deterrence on those with lower gains from migration, hence increase immigrant quality if and only if returns to skills are higher at destination.

In other words, the policy (indirect) screening power is driven by the fact that its marginal effect is stronger on foreigners with less incentives and fewer resources to migrate. However, these two groups need not to coincide: high skilled are generally the ones with highest ability to pay, while if returns to skills are higher in the sending country, low skilled have the highest gain from migration and thus the highest willingness to pay. Thus the relation between immigration restrictions and immigrant quality is in general shaped by both effects. Given that these may have opposite directions, and that their strength varies with the level of costs, the relation need not to be monotonous. If migration incentives increase with skills, it is always positive. Otherwise it may be U-shaped, with the incentive effect dominating at low levels of cost and the wealth effect taking over afterwards.

Irrespective of its form, self-selection may be central also for understanding the effect of a given policy in the receiving country. Since in our setting immigrant quality is endogenous, the effect includes a size and a quality component. The former describes the usual way of considering immigration restrictions: flows are reduced while assuming that their quality is fixed, and the concern is on immigrants’ skill composition as compared to natives. Obviously, if immigrants are less skilled than natives, admitting less of them increases the ratio of high to low skilled workers in the receiving country. For the quality component, instead, what matters is how immigrants’ composition respond to different policies and, as explained above, this depends on self-selection. When the skill compositions in receiving and sending countries get similar, positive (negative) self-selection implies that immigrants are more (less) skilled than natives, hence the two components may push the total effect in opposing directions. Encouraging immigration when it is high skilled, or equivalently restricting it when low skilled, may also decrease its quality. Since, as before, the strength of the two components depend on the level of cost, also the relation between immigration policy and the skill ratio in the receiving country may be non-monotonous.

To be clear, this kind of non-monotonicity is again driven by self-selection, but it is
distinct from the one between immigration policy and immigrant quality. It deals with skill composition, rather than skill premia, in receiving vs. sending countries, and it tells that, when the population of immigrants is sufficiently heterogenous, the least represented group of immigrants may be, in absolute terms, the most sensitive to a policy change. Suppose for example returns to skills are higher at destination and the two countries have similar skill compositions, so that immigrants are positively self-selected and more skilled than natives. At low levels of cost, the quality effect tends to be stronger: increasing the cost increases the receiving country skill ratio by increasing immigrant quality. After some point, however, the size component takes over: when migration costs are very high, basically no low skilled foreigner migrates, hence further restrictions have no effect on skill composition. They just reduce the size of high skilled migration, hence reducing the receiving country skill ratio.

This observation has important implications in the receiving country, both with respect to natives’ attitudes and to the government’s optimal policy. First, the relation between natives’ skills and support for a given policy may appear counterintuitive. When the quality component is stronger, we may observe a group of natives supporting more (respectively less) restrictive policy even though immigrants complement (respectively compete with) them. For example, high skilled natives may support a less restrictive policy even if immigrants are high skilled since this would decrease immigrant quality, the receiving country skill ratio and hence increase high skilled wages. Here it is self-selection, rather than immigrants skill composition per se, that drives the effect of immigration policy and thus the relation between natives’ skills and immigration attitudes.

Second, the government’s program has now to account for immigrants self-selection. For example, when immigrant quality is fixed, free immigration is the most efficient policy (the one maximizing total surplus in the receiving country), and immigration restrictions are a way to protect those who lose from migration. In our setting, instead, positive migration costs are imposed even in a world with no distributional concerns and no political economy distortions, in order to minimize or maximize immigrants’ quality. When the quality effect matters, a positive cost may be an optimal way to screen the most desirable type of migration.

The rest of the paper proceeds as follows. Section 2 presents the basic structure of the model and discusses its main assumptions. Section 3 analyzes the model, highlighting its logic and main results in comparison with other approaches and some empirical evidence. Section 4 discusses and extends some central elements of our analysis: returns to skills and labor market discrimination; migration costs, networks effects and time consuming bureaucracies; immigration policy preferences, fiscal policy and political economy concerns. Section 5 concludes by drawing some policy implications. Before that, however, we briefly confront with the related literature.
1.1 Relation to the existing literature

The present model lies in the interaction between three streams of literature: the one on immigrants self-selection, the one on the determination of immigration preferences and the one on policy formation.

The basic theory of economic migration as human capital investment goes back to Sjaastad (1962). Studies following this approach typically assume that the rate of return to migration increases in skills, hence they predict (and estimate) positive self-selection (see Chiswick (1978) and Chiswick (1999)). A number of other models put forward reasons to question positive self-selection. The most influential work is probably by Borjas (1987), who adapts the Roy’s model to international migration. He emphasizes the role of the dispersion in returns to skills while abstracting from migration costs as an important determinant of self-selection. Arguing that wage inequality is in general higher in developing country, studies on this line typically predict (and estimate) negative self-selection. However, some of the more recent empirical literature stands in contradiction with Borjas (1987), as it documents positive self-selection even when returns to skills are higher in the sending country (see e.g. Chiquiar and Hanson (2005), Akee (2005)). These studies are mainly empirical, and their theoretical framework is highly ad-hoc. Our model tries to provide a general treatment of the determinants of self-selection. In addition to the role of returns to skills, we focus on the interaction between two elements highly overlooked in the formal literature. First, classical studies typically ignore the role of wealth constraints and credit market imperfection in shaping self-selection into migration. Second, and more importantly, the whole stream of literature considers only the supply side, without accounting for the role of immigration policies. The idea is probably that immigration restrictions, by selecting from a given pool of applicants, act on top of the migration decision, and independently from it. The paper shows that this separation may lead to erroneous conclusions both on self-selection and on the effect of immigration policy in the

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4Other interesting approaches challenging positive self-selection can be found in Katz and Stark (1987) on asymmetric information on immigrants productivity and the possible occurrence of lemon market effects or in Stark and Taylor (1991) where immigration is driven by poor performance relative to some reference group. In these models the "worst" are those who leave.

5Hatton and Williamson (2004) state: "When dealing with selection, the immigration literature tends to stress income incentive [...] But] changes in selection can be best explained by changes in the costs of the move and the capital constraints on it". These constraints play a leading role in the theory of illegal migration in Friebel and Guriev (2004), that has however a pretty different focus than our one. The most similar formalization of the migration decision is presented in Lopez and Schiff (1998), who highlight the interaction between heterogeneous labor force, migration costs and financing constraints in a modified Heckscher-Ohlin model. However they focus on the effect of trade liberalization in the sending country under the assumption that high skilled migration is driven only by incentives while low skilled migration only by wealth constraints.

6The only exception is, to my knowledge, Bellettini and Berti Ceroni (2005). Assuming that immigrants are positively self-selected, they argue in favor of an high immigration quota. By reducing wages in the receiving country, it increases immigrant quality and maximize national income.
receiving country (see the discussion in Section 5)

The demand side has traditionally received less attention. However, some recent papers investigates the determinants of individual preferences towards immigration. This literature finds a consistent pattern: in developed countries, there exists a strong positive correlation between individual education and "pro-immigration" attitudes. Nonetheless, there is no consensus on what is actually driving this relation. While basically nobody denies that different forces may be at play, some studies focus on factors like racism, anxiety, social and political alienation and other cultural values and beliefs (e.g. Espenshade and Hempstead (1996), Citrin, Green, Muste and Wong (1997), Hainmueller and Hiscox (2004)), while others emphasize economic motivations. In particular, a number of studies (e.g. Scheve and Slaughter (2001), Mayda (2004), O'Rourke and Simott (2004), Hanson, Scheve and Slaughter (2005b)) relate individual skills to immigration preferences using a standard factor-proportion analysis, where immigrants are assumed to compete in the labor market with similarly skilled natives and to complement natives with different skills. They explain the positive correlation observing that immigrants tend to be of low quality (in relation to natives) and (implicitly) assuming that skill composition of immigrant is fixed. We instead keep the quality of immigrants as endogenous and possibly dependent on immigration policies, as we are interested in analyzing precisely the effect of policy on quality (and not only on size) as a driving force of immigration policy preferences. Hence, our model can also be viewed as a test of robustness of the previous approaches, which have exogenous quality. In a sense, we follow the spirit of "rational expectation", where people account for the total effect of the proposed policy on equilibrium outcomes, as opposed to assuming "adaptive expectations", i.e. considering the quality as fixed to past levels.

On the determinants of policies, one standard approach focuses on the immigration surplus (e.g. Borjas (1995)), implicitly assuming that immigration policies are based solely on efficiency considerations. On the other hand, basic insights from the political economy literature reveal that the mapping from preferences to policy depends crucially on political and institutional factors (see e.g. Goldin (1994), Timmer and Williamson (1998) and Hatton and Williamson (2004) on the role of interest groups in shaping immigration policy). The issue has received little attention in the formal literature, but some exceptions are Benhabib (1996), who explores how the median voter determines minimal capital requirements for admission, and Epstein and Nitzan (2005) and Facchini and Willman (2005), who use a lobbying model to explain the formation of immigration quotas. Our paper does not develop any new political economy model, but it may be viewed as a contribution into this literature since individual preferences over policy and immigrant quality are fully endogenized and the role of migration cost as a policy variable

\footnote{For example Borjas (1994) states that "the literature does not yet provide a systematic analysis of the factors that generate the host country's demand function".}
2 The model

We study labor migration in a world with two countries, a receiving and a sending one. The sending country is populated by a continuum $n^*$ of workers, called "foreigners", who are heterogeneous in skills and wealth. Hence, each worker is endowed with skill $\theta \in \{H, L\}$ and some wealth, conditional on $\theta$, drawn by a distribution $\Omega_\theta$ with density $\omega_\theta$. Let $n^*_\theta$ denote the mass of workers of type $\theta$, so that $n^* = n^*_H + n^*_L$.

Depending on their wealth and skills, they decide whether to migrate by maximizing their (indirect) utility, which is linear in wages and costs of migration. That is, a foreigner $i$ of type $\theta$ enjoys utility

$$V_{i\theta} = \begin{cases} w^*_\theta & \text{if he stays} \\ w_\theta - (\gamma + \varepsilon_i) & \text{if he migrates} \end{cases}$$

Wages in the sending country, $w^*_\theta$, are exogenously given, while those in the receiving country, $w_\theta$, are determined within the model (as described below); and we denote $\Delta w^* = w^*_H - w^*_L$ and $\Delta w = w_H - w_L$, with $\Delta w^*, \Delta w \geq 0$. The cost of migrating, $\gamma + \varepsilon_i$, includes a common term $\gamma$ (i.e. any out-of-pocket and relocating cost) and an individual specific "psychic cost" $\varepsilon_i$, that is a random variable with support on $\mathbb{R}_+$ following a cumulative distribution $\Psi$, with $\Psi' = \psi$. Immigrants have to incur the cost $\gamma$ up-front, and the sending country has no credit market for them, thus only sufficiently wealthy people can afford to migrate.

The receiving country is a small open economy with perfectly mobile capital, competitive firms that maximize profits employing both high and low skilled workers, a neoclassical production function with constant returns to scale and a competitive labor market. In this country too we have a population of workers, here called "natives", who are heterogeneous in terms of skill $\theta$. Similarly to above, we denote their mass with $n = n_H + n_L$. Natives express their preference over immigration policy by maximizing the (indirect) function $U_\theta = w_\theta$. In fact, their equilibrium wages depend on immigration policy through its effect on immigrant skills and thus on workers’ marginal productivity. In this way, natives are concerned only by the skills ratio $R := N_H / N_L$, where $N_\theta = n_\theta + x_\theta$ is the total number of type $\theta$ workers and $x_\theta$ is the endogenous number of immigrant of type $\theta$.

The receiving country government sets the immigration policy by maximizing a weighted welfare function $W$, where the weight $\mu_\theta$ attached to group $\theta$’s utility depends on the in-

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8The fact that migration costs can (partly) be a policy variable is recognized also in Clark, Hatton and Williamson (2002), who assume that lower quotas indirectly imply higher costs for migrants. However their analysis, similarly to Mayda (2005), is focused on the volume of immigration flows and does not address the relation between policy and skills composition of immigrants.
stitutional setting we are going to specify.\footnote{One may for example consider a utilitarian function where $\mu_\theta = N_\theta$ or $\mu_\theta = n_\theta$, or a majoritarian democracy where $\mu_\theta = \begin{cases} 1 & \text{if } n_\theta > n_{-\theta} \\ 0 & \text{otherwise} \end{cases}$ (where $n_{-\theta}$ is the number of natives of the other type). Also, one may explore the role of lobbying by a group $n_\theta$ in order to increases its influence $\mu_\theta$.} Immigration policy acts on the monetary cost $\gamma$, hence the government’s program is

$$\max_{\gamma \in \mathbb{R}^+} W(\gamma) := \max_{\gamma \in \mathbb{R}^+} \mu_H w_H(\gamma) + \mu_L w_L(\gamma) \quad (2)$$

### 2.1 Assumptions

We add some more specific assumptions in order to keep the analysis simple and possibly generate clear predictions. They are now presented in a somewhat crude way, while their interpretation and essentiality are discussed in the next section.

First, the idiosyncratic component of foreigners’ utility $\varepsilon_i$, is assumed to be independent on type $\theta$ and its cumulative distribution is assumed to be logconcave, i.e.

**Assumption 1**: \[ \frac{\psi'(\varepsilon^1)}{\Psi'(\varepsilon^1)} \leq \frac{\psi'(\varepsilon^2)}{\Psi'(\varepsilon^2)}, \text{ for every } \varepsilon^1 \geq \varepsilon^2 \]

Second, let high skilled people be on average wealthier than low skilled. In particular, assume that the high skilled wealth distribution is more favorable than the low skilled one, in the sense of conditional stochastic dominance, i.e.

**Assumption 2**: \[ \frac{\omega_L(\gamma)}{1 - \Omega_L(\gamma)} \geq \frac{\omega_H(\gamma)}{1 - \Omega_H(\gamma)}, \text{ for every } \gamma \in \mathbb{R}^+ \]

Finally, define the production technology in the receiving country as $Y = F(N_H, N_L)$. In equilibrium, $F_\theta := \partial F(N_H, N_L)/\partial N_\theta = w_\theta$ and we require that a worker’s marginal productivity decreases with the amount of workers with the same skill and increases with the amount of workers with different skill, i.e.

**Assumption 3**: $F_{HH}, F_{LL} < 0$ and $F_{HL} > 0$

### 2.2 Discussion of the main ingredients

Before proceeding with the analysis, let us clarify the role of our main assumptions.

The psychic cost $\varepsilon_i$ (Assumption 1) just smooths the decision process and this allows a standard marginal analysis. It can be thought as a variable allowing for individual heterogeneity, i.e. the large set of elements influencing the decision to migrate that cannot
be reduced to monetary costs and benefits (e.g. age, family ties, access to networks at origin and destination country). The term does not drive any of the results, and its general interpretation can be justified to the extent that these elements are not significantly correlated with the type of migration (see also the discussion in Section 4.2).

The assumption of logconcavity is a standard monotonicity requirement. Intuitively, it captures the fact that a lower realization of the cost \( \varepsilon \) is associated with a higher probability of migration, i.e. the less one suffers from moving the more likely he is willing to do it. In our setting, this implies that the marginal effect of a change in gains or cost is greater on those with less incentive to migrate. Formally, logconcavity means that those who are more sensitive to a change in the parameters are not too concentrated in the tails of the distribution, and the assumption is very mild as a large class of distributions, in particular all those who seem relevant in our application, satisfies it.\(^{10}\)

On wealth distribution (Assumption 2), we have again a monotonicity requirement: the probability of being able to pay the migration cost increases with skill. The positive correlation between skill and wealth is however a well documented regularity, especially in developing countries (see for example Filmer and Pritchett (1999) or Piketty (2000)).\(^{11}\) Formally, we require hazard rate dominance, that is slightly stronger than first order stochastic dominance (\( \Omega_H(\gamma) < \Omega_L(\gamma) \) for every \( \gamma \)), but weaker than the standard assumption of monotonous likelihood ratio.\(^{12}\)

The relation between wages and migration deserves some words. First, we think that, from an individual perspective, the effect on wages is negligible, and thus it does not influence the decision to migrate. What matters for policy formation is the aggregate effect. Since we are interested in the receiving country’s policy, we can keep wages in the sending country as exogenous.\(^{13}\) In the receiving country, instead, Assumption 3 requires that immigrants are perfect substitutes for similarly skilled natives and they compete in a standard labor market. The evidence on this is pretty controversial. Many studies (see the reviews in Borjas (1994) and Friedberg and Hunt (1995) or the recent study by...

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\(^{10}\)For example one can consider the Uniform, Normal, Lognormal, Weibull, Exponential, Logistic, Laplace, Gamma, Chi-Squared distributions. Furthermore, we require that \( \log \Phi \) is concave, that is a weaker than assuming that \( \log \varphi \) is concave. While if \( \varphi \) is logconcave then \( \Phi \) is also logconcave, the converse is not always true. The Pareto distribution has logconvex density but logconcave cumulative distribution function (see Bagnoli and Bergstrom (2005)). Finally, we need logconcavity but not actually differentiability, that is maintained just for simplicity (see the general treatment in An (1998)).

\(^{11}\)In light of this, the fact that we do not consider the possibility to borrow money in order to migrate is also pretty innocuous. Even if an (imperfect) credit market was opened, wealthy people would be able to borrow more or at a lower cost than the poor ones, that is what we need. Obviously, if one assumed a perfect world, wealth constraints would become irrelevant.

\(^{12}\)The importance of the monotonous likelihood ratio property (MLRP) in economics applications was emphasized for example by Milgrom (1981). A simple proof that MLRP implies hazard rate dominance, which implies stochastic dominance can be found in Krishna (2002) (Appendix B).

\(^{13}\)This needs not to be a realistic assumption: e.g. Mishra (2003) and Hanson (2005) document how Mexican wages are affected by emigration.
Card (2005)) find a rather small impact of immigration on natives' wages, while Borjas (2003) forcefully documents that immigrants do compete with similarly skilled natives and significantly lower their equilibrium wages. Taken literally, our model is consistent with the latter literature. However what we need is citizens' beliefs, rather than actual effect, to be of this kind. More generally, we are interested in connecting the economic impact of immigration to natives' preferences and, for this purpose, we derive how the receiving country skills' ratio changes under different immigration policies. We keep the somewhat crude and controversial assumptions on preferences and labor market outcomes in order to identify the determinants of immigration policy preferences in a clean way. One may think of more realistic assumption, but the logic of our exercise should hold (see Section 4.3).

The policy variable we focus on is $\gamma$, that is the cost foreigners have to incur to enter and work in the receiving country. A few assumptions are implicit here. First, the relevant policy space is restricted to $\gamma$. Second, this policy is not systematically related to immigrants skills. Third, the migration cost $\gamma$ is (partly) endogenous, i.e. it can be significantly influenced by the receiving country policies. The first two features are clearly a simplification. Immigration policies are much more articulated, and to some extent they are conditional on immigrant type $\theta$. Our formalization can be thought as a starting point to explore the relation between immigration policy and self-selection, in a world where immigrant type $\theta$ is not perfectly observable or contractible. Some complications to this picture can be included as minimal extensions of the basic model, and are presented in Section 4.2.

The third is instead an essential feature of our approach. Migration costs are both an argument of the migration decision and a policy variable. Of course these include the distance between the two countries, that is surely exogenous, and transportation costs or the existence of an established network of previous migrants, which are partly exogenous components. We argue, however, that policies in the receiving country may play a significant role. What immigrants have to pay comprises also direct fees, bureaucracies, queuing and other time consuming requirements which increase foregone earnings, and these components may become more and more relevant, given the historical trend of decreasing transportation costs and increasing immigration restrictions (Hatton and Williamson (Forthcoming)). In addition, policy makers seem well aware of this: historically, the first interventions to limit and to select immigration flows in the US and Canada acted on prices: costs were increased, removing monetary incentives and introducing lengthy procedures or head taxes for admission. Quantity restrictions (quotas)

\[14\] This seems evident if one considers the centrality of the issue in past and current policy debates and the literature on immigration attitudes quoted above.

\[15\] This cost can also be thought as a consequence of uncertainty. The model abstracts from the issue, but one can interpret the set of people that are sufficiently wealthy as those who have sufficiently low risk aversion. The relation between skills and risk aversion however is less clear. If it tends to be positive (less risk adverse people invest more in human capital), the model may apply.
came at a later stage.\footnote{Timmer and Williamson (1998) report that the United States, for example, introduced a head tax of 50 cents per migrant in 1882, that was progressively raised to $8 in 1917. Also, in 1907 they introduced the first financial test, establishing that each individual must have $25 (or $50 per family). The same acts extended the classes of "excludable" immigrants, i.e. those who were prohibited to entry because they would have surely become a burden for the hosting society. Passenger acts in the US in the 19th century (fixing minimal standards to carry immigrants) is another policy that indirectly increased migration costs. Canada has also acted on costs in order to control the composition of the immigrant population. In 1870, a travel fund of C$30 per adult (for Mennonites that agreed to build settlements) was introduced, while in 1910 migration was restricted by a tax of C$50 per head (C$200 per head for Asians). The first quota restriction in the United States came in 1921.}

Finally, it is clear that the political economy part of the paper is pretty stripped down, since for example we do not model where the weights $\mu_\theta$ come from. It is not our intention, however, to develop a new ad-hoc model on this. Rather we prefer having a flexible form and, exploiting the insights of existing models, let these weights vary and look at what happens to the preferred migration policy, once immigrant quality is endogenous.

\section{Analysis}

\subsection{The migration decision}

It follows directly from (1) that a foreigner $i$ of type $\theta$ prefers migration if $w_\theta - (\gamma + \varepsilon_i) \geq w^*_\theta$, and for each type $\theta$ there exists a cut-off value $\varepsilon^\theta \equiv w_\theta - w^*_\theta - \gamma$ such that each individual $i$ of type $\theta$ with $\varepsilon_i < \varepsilon^\theta$ would like to migrate. In addition, this individual must be sufficiently wealthy to incur the migration cost $\gamma$. Thus, the supply of migrants of type $\theta$ is defined by

$$x^*_\theta = [1 - \Omega_\theta(\gamma)]\Psi [w_\theta - w^*_\theta - \gamma] n^*_\theta$$

(3)

where the fraction $\Psi [w_\theta - w^*_\theta - \gamma]$ represents those who have incentive to move, the fraction $[1 - \Omega_\theta(\gamma)]$ those who could afford to move and $n^*_\theta$ the amount of type $\theta$ foreigners.

Most of the following results depends on the average skill ratio of immigrants (that we often call "quality"), implicitly defined by

$$Q := \frac{x_H^*}{x_L^*} = \frac{[1 - \Omega_H(\gamma)]\cdot \frac{\Psi [(w_L - w^*_L) + (\Delta w - \Delta w^*) - \gamma]}{\Psi [w_L - w^*_L - \gamma]} \cdot \frac{n_H^*}{n_L^*}}{[1 - \Omega_L(\gamma)]}$$

(4)

Our characterization of the forces that shape the individual decision to migrate is very simple and of course cannot be considered the complete story. However, we already have enough ingredients to address some fundamental relations and to relate them to the results in the current literature.
3.1.1 Positive or Negative Self-Selection

As noted, many studies document that migrants are not a random sample of the sending country population. Self-selection can be of course evaluated along many dimensions. We focus on observable skills, and in this sense we define positive or negative self-selection when those who migrate are on average more or less skilled than those who remain at home. In the model, self-selection is driven by constraints, i.e. different ability to incur the migration cost, and incentives, i.e. different returns to skills. Wealth constraints are less severe for the high skilled (Assumption 2) and thus push towards positive self-selection:

\[ [1 - \Omega_H(\gamma)] > [1 - \Omega_L(\gamma)] \]

Incentives to migrate, instead, are greater for high skilled if the wage differential in the receiving country is higher than in the sending one:

\[ \frac{\Psi[(w_L - w_L^*) + (\Delta w - \Delta w^*) - \gamma]}{\Psi[w_L - w_L^* - \gamma]} \geq 1 \iff \Delta w \geq \Delta w^* \]

In this case we can clearly conclude that immigrants are positively self-selected, while if \( \Delta w < \Delta w^* \) the total effect is ambiguous and it depends on the relative strength of the two forces, i.e. whether the migration decision is driven more from wealth constraints (likely for relatively poor source countries) or incentives (likely for relatively rich source countries).

Proposition 1  When wealth constraints are the main determinant of the migration supply, immigrants tend to be positively self-selected. When migration is driven mostly by incentives the same holds if and only if \( \Delta w \geq \Delta w^* \).

What is clear is that, due to wealth constraints, higher migration costs push towards a more positive self-selection, and this effect is greater the poorer the source country is. This matches the evidence reported in Hatton and Williamson (2004), where the gap in years of schooling between movers and stayers in the 1990s is positive (thus supporting the view that immigrants are positively self-selected); it increases with the distance between source and destination country and it decreases with source country per capita GDP.\(^{17}\) Also the recent findings by Chiquiar and Hanson (2005), i.e. Mexican immigrants to the US are positively self-selected despite returns to skills are higher in Mexico, can be interpreted recognizing the interaction between costs of migration and returns to skills in shaping the self-selection process.

\(^{17}\)They report a gap of 1.2 years for Mexico (close to the US), 4.8 years for the Eastern Europe and the Balkans (close to the EU), 8.6 years for Asia and 10.8 years for Africa.
3.1.2 Comparative statics: incentive and wealth effects

We are now interested in describing how migration size and quality depend on migration costs and economic conditions in the source country. In Borjas (1987), who focuses on the role of migration incentives, higher source inequality (being a proxy for higher returns to skills) is associated with lower quality of immigrants. Chiswick (1999), while not explicitly introducing wealth constraints, emphasizes the role of costs (implicitly assuming that returns to skills are higher in the receiving countries) and in his model higher costs increase the quality of immigrants. We generalize these results, emphasizing how they depend crucially on self-selection, and in particular on whether migration is driven by wealth constraints or incentives.

Migration cost

Obviously cost and size of migration are negatively correlated. To see the effect on quality, denote (abusing a bit) \( L = w_L - w^*_L - \gamma, \ H = w_H - w^*_H - \gamma \) and \( \Omega(\gamma) = \Omega_\theta \). Then \( \frac{\partial Q}{\partial \gamma} \geq 0 \) if

\[
\Psi(H)\Psi(L)\omega_L(1 - \Omega_H) + (1 - \Omega_H)(1 - \Omega_L)\psi(L)\Psi(H) - \\
\Psi(H)\Psi(L)\omega_H(1 - \Omega_L) - (1 - \Omega_H)(1 - \Omega_L)\psi(H)\Psi(L) \geq 0
\]

or, rearranging

\[
\frac{\partial Q}{\partial \gamma} \geq 0 \iff \frac{\omega_L(1 - \Omega_H) - \omega_H(1 - \Omega_L)}{(1 - \Omega_H)(1 - \Omega_L)} + \frac{\psi(L)\Psi(H) - \psi(H)\Psi(L)}{\Psi(H)\Psi(L)} \geq 0 \tag{5}
\]

The first term is always positive and it represents a *wealth effect*: increasing the cost one gets richer and more skilled immigrants, and the strength of this term increases with the level of cost and with wealth inequality. The second term instead is positive iff \( \Delta w \geq \Delta w^* \), and this describes an *incentive effect*: changing costs has a relatively higher impact on people with lower gain from migration. If \( \Delta w \geq \Delta w^* \), low skilled are on average those with less incentives to migrate, thus an increase in costs has a stronger deterrence on them and the quality increases. Then it is clear that when wealth constraints are the main determinant of the migration supply, immigrant quality increases with migration cost, while if migration is driven mostly by incentives the same occurs if \( \Delta w \geq \Delta w^* \). Instead, when \( \Delta w < \Delta w^* \), the effect is ambiguous. For low levels of cost the relation is surely negative, as the incentive effect dominates. As the cost gets higher the wealth effect may take over and the relation may become positive (see figure 1).

Recalling our discussion on Proposition 1, we can sum up saying:

**Proposition 2** If \( \Delta w \geq \Delta w^* \) migration cost and immigrant average skills are positively correlated. If \( \Delta w < \Delta w^* \) the relation is ambiguous, being either decreasing everywhere or non-monotonous.
Figure 1 Relation between immigration cost and immigrant quality. The top line represents the case of $\Delta w > \Delta w^*$, the middle one $\Delta w < \Delta w^*$ and "strong" wealth effect, the bottom one $\Delta w < \Delta w^*$ and "weak" wealth effect.

Wealth and wages As the source country becomes wealthier, more people are able to incur the migration cost, thus we should expect migration to increase. On the other hand this is often associated with an increase of wages at home, that reduces the incentives to migrate and thus the migration flow. In fact source countries typically experience an inverted-U relationship between development and migration (see e.g. Rotte and Vogler (2000), Hatton and Williamson (2004) and Mayda (2005)): at early stages, higher growth relaxes wealth constraints and leads to higher migration; at later stages instead it tends to decrease the incentives and hence to reduce migration.

The effects on quality are similar to those analyzed at the previous point. An increase in the average wealth in the source country decreases the quality (since now more poor and low skilled people can afford to move), while an increase in the level of wages $w^*_L$ increases $Q$ iff $\Delta w \geq \Delta w^*$ (since as before $\partial Q/\partial w^*_L > 0 \iff \psi(L)\Psi(H) - \psi(H)\Psi(L) > 0$).

Finally, the effect of source country inequality is ambiguous. More wealth inequality (i.e. the lower is $\Omega_H$ with respect to $\Omega_L$) increases $Q$, while more wage inequality (i.e. higher $\Delta w^*$) decreases $Q$. Once again, since wealth and wage distributions tend to be highly correlated, the total effect on $Q$ depends on whether wealth constraints or incentives are the major determinant of the migration decision.

\[\text{This should be clear even if the relation between wealth and income is not explicitly analyzed in our model (that is intentionally kept a static one).}\]
3.2 Natives’ preferences

The ratio of high to low skilled immigrants (what we call "quality") is an interesting variable \textit{per se}. It may be useful for example for understanding the impact of migration on the source country or to investigate issues like assimilation, discrimination, crime, in the receiving country. However, we focus on the impact of immigration on the receiving country labor market, hence we have to consider the ratio \( R \) of high to low skilled workers.

This depends on migration flows according to the following expression:

\[
R = \frac{n_H + x_H^*}{n_L + x_L^*} = \frac{n_H + [1 - \Omega_H(\gamma)]\Psi[(w_L - w_L^*) + (\Delta w - \Delta w^*) - \gamma]n_H^*}{n_L + [1 - \Omega_L(\gamma)]\Psi[w_L - w_L^* - \gamma]n_L^*}
\]

(6)

Now \( w_L \) (respectively \( w_H \)) depends positively (respectively negatively) on \( R \); so preferences of different groups can be reduced to preferences over \( R \): Immigration policy, i.e. a change in migration cost \( \gamma \); affects \( R \) by changing not only the size but also the quality of immigration. And since these two effects may have opposing directions, the relation is not obvious ex-ante. Suppose for example that immigrants are on average less skilled than natives. A more restrictive policy reduces the size of immigration and thus \textit{ceteris paribus} increases the skills ratio. However, if immigrants are negatively self-selected, the same policy may also decrease immigrants quality and the total effect may actually be a decrease in the skills ratio.

In order to analyze these mechanisms more precisely, consider that \( \frac{\partial R}{\partial \gamma} \geq 0 \iff \)

\[
n_L n_H^* \{\Psi(H)\Psi(L)[\omega_L(1 - \Omega_L) - \omega_H(1 - \Omega_H)] + (1 - \Omega_L)(1 - \Omega_H)[\psi(L)\Psi(H) - \psi(H)\Psi(L)]\} + n_L n_H^* [\omega_H\Psi(H) + \psi(H)(1 - \Omega_H)] \geq 0
\]

(7)

or, rearranging,

\[
\frac{\omega_L\Psi(L) + (1 - \Omega_L)\psi(L)}{(1 - \Omega_L)\Psi(L)} \geq \frac{(1 - \Omega_L)\Psi(L)}{n_L n_H^* + n_L^* n_H(1 - \Omega_L)\Psi(L)} \leq \frac{(1 - \Omega_H)\Psi(H)}{n_L n_H^* + n_L^* n_H(1 - \Omega_H)\Psi(H)}
\]

(8)

Notice that

\[
\frac{\omega_L\Psi(L) + \psi(L)(1 - \Omega_L)}{(1 - \Omega_L)\Psi(L)} \geq \frac{\omega_H\Psi(H) + \psi(H)(1 - \Omega_H)}{(1 - \Omega_H)\Psi(H)} \iff \frac{\partial Q}{\partial \gamma} \geq 0
\]

(9)

and

\[
\frac{(1 - \Omega_L)\Psi(L)}{n_L n_H^* + n_L^* n_H(1 - \Omega_L)\Psi(L)} \geq \frac{(1 - \Omega_H)\Psi(H)}{n_L n_H^* + n_L^* n_H(1 - \Omega_H)\Psi(H)} \iff \frac{x_H}{x_L} \leq \frac{n_H}{n_L}
\]

(10)
Equation (9) represents the quality effect, as analyzed in the previous section: increasing the cost increases the skill ratio $R$ if and only if it increases immigrants quality. In addition to selection, $R$ is affected by the general skill composition of the sending vs. the receiving country, i.e. $n_H^*/n_L^*$ vs. $n_H/n_L$. It is clear that the higher is the difference $n_H^*n_H - n_Ln_L^*$ the more likely equation (7) is positive. This is simply a size effect, as described in equation (10): increasing the cost increases $R$ if and only if immigrants are less skilled than natives. The sign and magnitude of the two effects is important in order to understand the effect of a given policy on $R$ and thus its political support. In fact these may or may not reinforce each other. When immigrants are positively self-selected but still less skilled than natives, increasing the cost increases $R$ both because you get a lower amount of immigrants and because their average skill increases. However, whenever $n_H^*/n_L^* \rightarrow n_H/n_L$, i.e. the skill composition of source and destination country gets similar, positively self-selected immigrants are more skilled than natives (or vice versa), hence you may instead have a trade off. Suppose for example immigrants are negatively self-selected and less skilled than natives: in this case, increasing the cost reduces migration flows (hence increasing $R$) but it may also lower immigrant quality (hence decreasing $R$). Now, the important question is of course under which conditions one force or another is likely to prevail.

3.2.1 The tension between size and quality effects

We distinguish selection according to its main driving force. This simplifies the exposition and it turns out not to be crucial: the conditions needed in both cases are very similar. Moreover, in order to abstract from the issue of relative skill composition of the two countries already described above, we concentrate on the case

$$\frac{n_H^*}{n_L^*} = \frac{n_H}{n_L}$$

Under this condition, as it is clear from equations (9) and (10), a tension between size and quality effect is most likely to arise.

Selection through wealth constraints Suppose first that incentives do not depend on skills, i.e. $\Delta w = \Delta w^*$. In this case, a slightly positive correlation between wealth and skills is enough to guarantee positive self-selection. Now the effect of cost on $R$ is positive, i.e. the quality effect is stronger, when

$$\psi[n_H^*n_H(1-\Omega_L) - n_Ln_L^*(1-\Omega_H)] + \Psi[n_L^*n_H\omega_L - n_L^*n_H\omega_H] + \Psi^2n_L^*n_H^*\omega_L(1-\Omega_H) - \omega_H(1-\Omega_L) \geq 0$$

Or, under condition (11),

$$\psi[\Omega_H - \Omega_L] + \Psi[\omega_L - \omega_H] + \Psi^2[\omega_L(1-\Omega_H) - \omega_H(1-\Omega_L)] \geq 0$$
The first term is always negative. Hence, the size effect is stronger when $\psi$ is high, i.e. many potential immigrants are almost indifferent between moving or not. Now, increasing the cost convences a lot of them not to move. Since we have positive self-selection, these are typically high skilled, hence $R$ decreases. On the other hand, as $\Psi$ increases, the quality effect gets stronger. When many foreigners are willing to move, increasing the cost increases $R$. This happens because in this case an higher cost does not affect much immigrants' incentives, but rather allow only the richest, and hence high skilled, to move. Having higher incentives to move is more likely when the cost is low. Moreover, a sufficiently low cost is needed in order to have $\omega_H/(2 - \Omega_H) < \omega_L/(2 - \Omega_L)$. In this case, the first term is negative (size effect) and the other two terms are positive (quality effect).

Example 1 To gain a slightly more precise idea of what "sufficiently low" means, suppose wealth is distributed according to $\omega_\theta = \text{Weib}(k_\theta, \beta)$, that is a Weibull with location parameters $k_L < k_H$ and shape parameter $\beta > 1$. This distribution resembles a lognormal while still having a simple analytical form. Now, after some algebra, one can see that as $k_L \to k_H$, we need $\gamma < k_\theta \sqrt{1.28}$, i.e. the cost has to be small enough to allow at least 28% of the low skilled the possibility to move. The requirement gets milder the higher is wealth inequality between groups (i.e. the higher is the difference $k_H - k_L$). If for example high skilled foreigners are on average twice (respectively four times) as wealthy as low skilled, similar computations show that we require that at least 10% (respectively 3%) of the low skilled can incur the migration cost.

On the other hand it is clear that if the cost is already so high that almost no low skilled can afford to move, a further increase just prevents some high skilled to migrate, hence reduces $R$. In other words, for the quality effect to be at play, we need that a sufficiently high fraction of both groups of foreigners can afford to move. Otherwise, we

19 Given our assumption on wealth distributions, we require the ratio

$$\frac{\psi_\theta(\gamma)}{2 - \Psi_\theta(\gamma)} = \frac{1 - e^{-\frac{\gamma}{k_\theta ^ \beta} \left( \frac{1}{k_\theta ^ \beta} \right)}}{1 + e^{-\frac{\gamma}{k_\theta ^ \beta}} \left( \frac{1}{k_\theta ^ \beta} \right)}$$

to be decreasing in $k_\theta$. That is, taking the derivative and rearranging, we require

$$2(\frac{\gamma}{k_\theta})^\beta - 2 - e^{-\gamma k_\theta ^ \beta} \leq 0$$

and this holds for any $\gamma < k_\theta \sqrt{1.28}$. The fraction of low skilled who can afford to move is $1 - \Psi_L(\gamma) = e^{-\gamma k_\theta ^ \beta} = e^{-1.28} = 0.27804$.

20 To see how wealth inequality strengthen self selection and thus the quality effect, normalize $k_L = 1$ and $k_H = k \geq 1$ (skilled workers are on average $k$-times richer than low skilled) and let $\beta = 2$. Computations similar to the previous note show that if e.g. $k = 2$ then $\gamma^* = 1.52$, where $\Psi_L(\gamma^*) = 0.9$ while if $k = 4$ then $\gamma^* = 1.88$, where $\Psi_L(\gamma^*) = 0.97$. 
simply have a size effect. In general, for low levels of cost the quality effect is likely to dominate, then the size effect takes over. Hence, when these two effects have opposing direction, the relation between $R$ and $\gamma$ becomes non-monotinous. Assume for example that wealth distribution conditional on type becomes extremely concentrated at $k_0$ (so that either almost everybody or just the high skilled can afford the migration cost). In this case, we have an inverted-U relationship between cost and $R$: as long as $\gamma < k_L$ an increase in the cost increases $R$ as only richer and more skilled people are admitted, after $k_L$ no low skilled is able to incur the cost, thus increasing it just means preventing high skilled immigrants to enter, and thus reduces $R$ (see figure 2).

Finally, as a limiting case, suppose people in the source country are insensitive to incentives. It may be for example that the wage gap is so high that everybody would like to move. This may be a way to isolate a pure wealth effect. Hence $\Psi$ is constant and $\psi = 0$, that is the quality effect dominates as long as $\omega_H / (2 - \Omega_H) < \omega_L / (2 - \Omega_L)$.

Selection through incentives  Alternatively, suppose that wealth distribution is independent on skills, i.e. $\Omega_H = \Omega_L = \Omega$. Now equation (7) becomes

$$\omega[n_L n_H \Psi(L) - n_L n_H \Psi(H)] + (1 - \Omega)[n_L n_H \psi(L) - n_L n_H \psi(H)] + n_L n_H (1 - \Omega)^2[\psi(L) \Psi(H) - \psi(H) \Psi(L)] \geq 0$$

Or, under condition (11),

$$\omega[\Psi(L) - \Psi(H)] + (1 - \Omega)[\psi(L) - \psi(H)] + (1 - \Omega)^2[\psi(L) \Psi(H) - \psi(H) \Psi(L)] \geq 0$$

Similarly as above, the power of the size effect increases with $\omega$. If the cost is at the mode of $\omega$, many potential immigrants are at the margin between affording or not the migration cost. In this situation, increasing the cost makes migration impossible to many of them. If $\Delta w > \Delta w^*$, these are mostly high skilled, hence an increase in the cost decreases $R$. If instead $\Delta w < \Delta w^*$, the opposite occurs. The power of the quality effect, instead, increases with $(1 - \Omega)$, that is with the amount of foreigners who can afford to migrate. If this fraction is high, i.e. if the cost is relatively low, increasing cost does not prevent many people to migrate but rather screens those with highest incentive. With positive self-selection, $\Delta w > \Delta w^*$, these are the high skilled, hence $R$ increases. Again, if $\Delta w < \Delta w^*$, the opposite occurs. Notice that a sufficiently low cost is necessary both for having $(1 - \Omega)$ high and for having $\psi/(1 + \Psi)$ decreasing. The last requirement is needed for the quality effect to drive the effect on $R$. If this is the case, we have a tension between the first term, that is positive iff $\Delta w < \Delta w^*$ (size effect), and the other two terms (quality effect), that are positive iff $\Delta w > \Delta w^*$.

Once again, the precise meaning of "sufficiently low" cost depends on what one assumes about $\Psi$. If the density is always decreasing, we do not need to impose any restriction. In general, a low cost is needed to avoid going too much on the left of the mode of $\psi$, where only the size effect is at play, in a very similar way to what we have already observed
above.\textsuperscript{21} In the limit, let $\Psi$ have all the mass in $\varepsilon$. Now suppose for example returns to skills are higher in the receiving country, hence the quality effect tells that increasing the cost increases $R$ as more and more low skilled stay at home. Beyond the point $w_L - w^*_L - \varepsilon$, no low skilled immigrant want to migrate, hence increasing the cost just discourages high skilled to migrate, and thus reduce $R$. The relation between $\gamma$ and $R$ follows an inverted-U relationship. Similarly if returns to skills are higher in the source country we have a U relationship, with a minimum at $\gamma = w_H - w^*_H - \varepsilon$ (see figure 2).

Finally, as above, we may want to isolate a pure incentive effect, considering a particularly wealthy source country (or equivalently a particularly low cost of moving\textsuperscript{22}), so that almost everybody can afford migration. Now $\omega = \Omega = 0$, hence in this case the quality effect dominates when $\psi/(1 + \Psi)$ is decreasing. In this case, increasing the cost increases the ratio if and only if $\Delta w > \Delta w^*$ (that is here equivalent to positive self-selection).

**Proposition 3** Immigration restrictions are not always beneficial for low skilled natives, even though immigrants are less skilled than natives. When the source country has a similar skill composition, high returns to skills and the migration cost is low, the quality effect implies that increasing the cost reduces $R$.

### 3.2.2 The quality effect and its empirical relevance

In our analysis we have assumed, for simplicity, that immigration policy preferences can be described purely through the effect on the receiving country skill ratio $R$. We have pointed out that this effect comprises a size component and a quality component. The first is what standard analysis of preferences have looked at, while the second can be understood only by endogenizing the migration decision. We have emphasized that, if the skill composition in receiving and sending countries is similar, these two components may push the total effect in opposing directions. Moreover, we have identified the conditions under which the quality effect is likely to be stronger. Roughly, this happens when migration cost are low, so that there is an high proportion of people of both types who can afford or are willing to migrate. In this case, the model predicts a counterintuitive relation between natives’ skills and support for a given policy, i.e. some natives supporting more (respectively less) restrictive policy even though immigrants complement (respectively compete with) them.

In order to illustrate the argument, suppose migration from poor country is driven mostly by wealth constraints. Those who move are basically those who can afford it, hence we have positive self-selection. If the destination country is rich and have a much higher skill composition, it may be that immigrants are less skilled than natives even though they are positively self-selected. In this case, as we have already noted, size and quality

\textsuperscript{21}Assuming $\psi$ is a Weibull with shape parameter equals 2, simulation like in the previous section show that $\gamma$ has to be sufficiently small so that at least 30% of each group would be willing to migrate.

\textsuperscript{22}As we have already noted, subsidies to promote immigration are not uncommon in the history.
effects go hand in hand: increasing the cost benefits low skilled both because they get less immigration and because immigrants’ average skill increases. However, if the destination country is also poor, skill compositions are similar and immigrants improves the skill ratio. Here, depending on the strength of selection and of the quality effect (i.e. on wealth inequality and the level of cost relative to wealth), you may observe that high skilled support a less restrictive policy even though immigrants are high skilled. Consider now migration from rich countries, assuming that it is driven mainly by incentives. Suppose also the receiving country is rich, have similar skill composition and higher returns to skills, hence we have positive self-selection and immigrants increase the skill ratio. Now, with a similar reasoning, low skilled may want a more restrictive policy even if immigrants complement them.\footnote{The last case to consider would be North-South migration. But here typically only high skilled migrate (see for example SOPEMI (2004)) for high skilled migration from Japan and the US to China). Hence, in our two-types model, we would have only a size effect.}

Empirically testing these conclusions is admittedly not an easy task. There is very little literature on migration in the South and little is known about immigration preferences there (see Mayda (2004)). Also, survey studies in the North focus on immigration in general, hence we do not know whether attitudes differ according for example to immigrants source country. And since the typical case in South-North migration is that the immigrants are positively self-selected but still lower skilled than natives (as documented
e.g. in Borjas (1995), Hatton and Williamson (2004) and Chiquiar and Hanson (2005),
the two effect cannot be directly disentangled. From our perspective, however, it is im-
portant to distinguish the difficulties due to poor data availability from the fact that the
model produces untestable predictions or misses crucial ingredients (see the discussion in
Section 4.3).

3.3 Equilibrium Policy

We have seen that in general the relation between cost and \( R \) is not monotonous and
it depends both on self selection and on the source country’s skill composition. This
implies that in general the government’s program gets more complicated. Consider for
simplicity a Cobb-Douglas production function \( F(N_H, N_L) = N_H^{\alpha} N_L^{1-\alpha} \) and remember
that \( R = N_H/N_L = (n_H + x_H^*)/(n_L + x_L^*) \). Then equation (2) becomes:

\[
\max_{\gamma \in \mathbb{R}_+} W(\gamma) = \mu_H \alpha R^{\alpha-1} + \mu_L (1 - \alpha) R^\alpha
\]

We are now interested in seeing how the preferred policy changes by varying our weights
\( \mu_\theta \). First notice that if the government cares about each group of workers (i.e. immigrants
and natives) according to its size, i.e. \( \mu_\theta = N_\theta \), it just maximizes the total output hence,
unsurprisingly, it sets \( \gamma = 0 \).

Now suppose the government cares only about natives, and the weights again depend
only on the size of the group, i.e. \( \mu_\theta = n_\theta \). In this case, \( W = n_H w_H + n_L w_L \) and

\[
\frac{\partial W}{\partial \gamma} = \frac{\partial R}{\partial \gamma} \left[ n_L x_H^* - n_H x_L^* \right] \frac{1}{n_L + x_L^*}
\]

Notice that the function \( W \) is convex and has a minimum at \( R = n_H/n_L \) i.e. when
\( x_H^*/x_L^* = n_H/n_L \). Thus economic benefits from immigration are minimized when immi-
grants replicate, in terms of skills, the native population. Since the government has no
distributional concerns, it acts on costs in order to admit immigrants that complement
natives and so maximize or minimize the skill ratio.

Consider first the case in which the decision to migrate is unaffected by policy changes,
or the difference in skill distribution between sending and receiving country is very large,
so that immigrant quality can be kept fixed. Now, given that we consider only the size
effect, \( \partial R/\partial \gamma > 0 \iff x_H^*/x_L^* < n_H/n_L \) and so \( \partial W/\partial \gamma < 0 \). Hence welfare is maximized
when migration costs are zero.\(^{24}\)

If the quality effect becomes relevant, the sign of \( \partial R/\partial \gamma \), and hence the optimal policy,
depends on self-selection and on the characteristics of the sending country. In general,

\(^{24}\)The result resembles a well known principle in international trade, where gains from trade are higher
the greater the trading countries differ in their factor endowments. A similar point, in a more complicated
setting, is made by Borjas (1995).
when $\mu_\theta = n_\theta$, the optimal policy maximize $R$ if $x_H^*/x_L^* > n_H/n_L$ and minimizes it if $x_H^*/x_L^* < n_H/n_L$. That is, if immigrants are less skilled than natives, the optimal policy is the one preferred by high skilled natives and vice versa. However, the important thing to notice is that now the relation between welfare and cost is not monotonous. Hence, it may be optimal to impose a positive immigration costs, not because of distributional concerns, but rather to take advantage of the possibility to screen immigrants by affecting self-selection.

Changing the weights $\mu_\theta$ typically results in different policy predictions. In particular, a deviation from the above policy can occur if redistribution of the immigration surplus is costly or imperfect, hence the government may want to moderate the burden on the loser from immigration rather than maximize the benefits of those who are gaining. Alternatively, it may be the result of a change in the political power of a group of citizens, as considered below.

### 3.3.1 What drives policy: a special case

As already mentioned, the most common description of South-North migration seems to be that immigrants are positively self–selected but still they have lower skills than natives. We then have $\frac{\partial R}{\partial \gamma} > 0$ and $n_Lx_H^* - n_Hx_L^* < 0$, and thus the optimal cost is zero or, if $\Delta w < \Delta w^*$, the minimal cost that creates positive self-selection. In any case, the two conditions imply that we are at the right of the optimal cost. A more restrictive policy thus comes at the expenses of efficiency and it is driven by distributional concerns towards the low skilled.

To put this in an historical perspective, one may argue that during the last century immigration restrictions have been increasing in most developed countries (see Timmer and Williamson (1998) for pre World War II policies and Mayda (2004) for more recent reforms) since $\mu_L$ has increased. In fact, as shown in standard lobbying models (e.g. Grossman and Helpman (1994)), the policy bias in favor of a group of voters increases with their degree of organization in influential lobbies and with the responsiveness of their support to policy changes. Low skilled workers have become more powerful (e.g. through unionization) and less abundant (i.e. $R$ has increased), hence more sensitive to immigration issues (the elasticity of $w_L$ with respect to $x_L$ increases in $R$) and more influential in the political process. This change may be a major driving force behind immigration restrictions, that are a way to limit the decrease in low skilled wages.

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25The intuition follows directly from the fact that the government is insensitive to the effects of the policy on immigrants, hence it maximizes the benefit for the group of workers where the proportion of natives is larger.

26Similarly, in a median voter approach, one may argue that the increasing participation of the working class in the political process (e.g. extension of the franchise) has decreased the average skill of the median voter.

27By the same reasoning in countries where low skilled natives had less power we should have observed
Proposition 4 When the quality effect is secondary, total welfare is maximized with zero migration costs, and policy restrictions are a way to protect those who lose from immigration. When the quality effect is relevant, it is optimal, even for a benevolent government with no distributional concern, to screen immigrants by imposing positive migration costs.

4 Discussion and extensions

4.1 Returns to Skills

Our formalization of self-selection and of the relation between policy and quality has emphasized wealth and incentive effects. We have argued that in general they have to be considered jointly: beside adding realism to the migration decision, they may have opposing directions. Wealth constraints push towards positive self selection and a positive relation between immigration restrictions and immigrant quality, incentives may push towards the opposite. As we have seen, the latter effect depends on differential returns to skills in sending vs. destination countries, i.e. on the relation between $\Delta w$ and $\Delta w^*$. However, we have not assumed any general pattern: we now argue that as any such generalization is likely to be misleading.

On the theoretical side, with competitive labor markets, everything depends on the production function one assumes for the two countries. The standard approach for aggregate cross-country comparisons is to have output depending on some aggregate measure of human capital. Skills are typically assumed to be perfectly substitutes, and the emphasis goes on Total Factor Productivity, that is much higher in developed countries (see e.g. Lucas (1990), Hall and Jones (1999), and the review in Caselli (2004)). Here, by constructions, returns to skills increase with TFP. Developed countries may be more attractive for high skilled also due to skill complementarity (Kremer (1993)), or skill biased technological differences (e.g. Acemoglu (1998), Caselli and Wilbur (2005)). Other streams of literature instead emphasizes supply factors (skills are scarce in the South and abundant in the North) or labor market institutions (e.g. unions, minimum wage) that compress returns to skills in developed countries (Blau and Kahn (1996) and Leuven, Oosterbeek and van Ophem (2004)).

Going to the data, as a first approximation, one can look at wage gaps conditional on skills. Strictly speaking, we are modeling migration given skills rather than the decision to acquire skills, hence wage differentials rather than Mincerian returns (the coefficient of schooling in a log-wage regression) would be more appropriated in our setting. The standard generalization is that returns to skills decrease with per capita GDP (Psacharopoulos and Patrinos (2002), Bils and Klenow (2000), Caselli and Wilbur (2005)), and also the data on wages in Freeman and Oostendorp (2000) report such a decreasing relation. In higher immigration flows (see the United States vs. the European Union) and lower quality of immigrants (see the United States vs. Canada and Australia).
addition, they show that cross-country variation in wages slightly decreases with skills. This would imply that real gains from migration tend to be higher for low skilled, but these differences are not huge, and generalizations appear weak.28

A second dimensions, equally important, concerns the mapping from skills to jobs. Immigrants do not necessarily have access to the whole spectrum of jobs and wages within the receiving country, hence the wage gap *per se* may not be (fully) informative (see below). This consideration complicates considerably the issue of cross country returns to skills, as variables like skill transferability, labor market segmentation and other "barriers to entry" are not easily measurable and comparable.29

In the immigration literature, accordingly, there is no consensus. As already mentioned (Section 1.1) some models assume that a worker with skill $s$ in country $j$ gets paid $w(s) = k_j s$ hence, by construction, gains from South-North migration increases with skills (Chiswick (1999), Giannetti (2003), Jasso and Rosenzweig (2005)). In our understanding, this formalization appears more suitable to describe self-selection in terms of unobservables (e.g. ability) conditional on observable skills (e.g. education). In a sense, it bypasses the issue of skill premia, without considering that low skilled may have the greatest incentives to migrate. The latter possibility has been instead emphasized by a number of studies, following Borjas (1987), which proxy returns to skills with (wage) inequality within the country (e.g. Hatton and Williamson (2004)), abstracting from the actual jobs immigrants tends to be employed in.

A sensible way out of this comes from detailed micro analysis. Chiquiar and Hanson (2005), for example, look at earnings by skills of Mexican resident vs. Mexican immigrants (rather than Mexican resident vs. US residents) and, building counterfactual wages, they estimate that real wage premia decrease, in absolute terms, with education.30 Similar estimates can be found in the analysis of Palestinians immigrants to Israel (Yashiv (2004)).

They confirm our general point that self selection is in general driven both by differential incentives and differential possibility to migrate: those who can access migration are not necessarily those who have more to gain from it.

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28Banerjee and Du‡o (2004) argue that the common wisdom that returns to skills are higher in developing country is an artifact of low quality data.

29See for example the discussion in Hassler, Rodríguez Mora and Zeira (2003) on cross-country inequality and social mobility and Hassler and Rodriguez Mora (2000) on meritocracy and growth. An interesting aspect here is the relation between returns to skills and growth opportunities, as opposed to GDP levels in the standard empirical literature quoted above.

30They report that "real U.S. wage premium is $4.07 per hour for an individual with 5-8 years of schooling, $3.52 for an individual with 12 years of education, and $2.60 for an individual with 16 or more years of education".

31This study documents negative selection on observable skills (that is what we have modeled) and, conditional on this, positive selection in term on unobservables. It gives support to the idea that unobservable skills are multidimensional and, given that different skills are valued differently in different tasks, the selection into occupation may be non-hierarchical. To put it simply, a guy considered "smart" in a seminar room may appear "dull" if he is observed at work in constructions (and vice versa).
4.1.1 Discrimination

We have just argued that understanding cross country returns to skills requires, in our setting, looking at some measure of "meritocracy" (or, in a dynamic setting, social mobility) together with wage dispersion. It matters for example whether in a given country personal connections or skills are the key to access well paid jobs. In other words, an high wage gap does not necessarily imply that high skilled are those with highest gains from migration, if immigrants have low chances to get well paid jobs.\footnote{To see this, assume that in the sending country high skilled have probability \( p_H^* \) to get a good job (and \( 1 - p_H^* \) to get a bad one). So their expected wage is \( E(w_H^*) = p_H^* w_H^* + (1 - p_H^*) w_L^* \). In the same way, low skilled expect \( E(w_L^*) = p_L^* w_H^* + (1 - p_L^*) w_L^* \), with \( p_H^* \geq p_L^* \) and the country is considered meritocratic the more \( p_H^* \to 1 \) and \( p_L^* \to 0 \). Similarly for the destination country. Now the requirement that returns to skills are higher in the receiving country means \( E(w_H^*) > E(w_L^*) \), i.e. \( (p_H - p_L) \Delta w > (p_H^* - p_L^*) \Delta w^* \). For example, given that in Mexico we wage inequality is higher but social mobility is lower than in the US (as reported by Dahan and Gaviria (2001)), i.e. \( \Delta w < \Delta w^* \) but \( (p_H - p_L) > (p_H^* - p_L^*) \), who should be more likely to migrate?}

For a series of reasons, there are instances where most immigrants are locked into traditional low skilled occupations. The standard literature on self-selection typically avoids any distinction between wages for natives and immigrants in the host country. While convenient, the assumptions that these two groups are perfect substitutes and that immigrants are given the same opportunities to access well paid jobs are clearly problematic. It is not difficult e.g. to observe high skilled immigrants ending up with low skilled occupations, and if good jobs are harder to get for immigrants, incentives would induce negative self-selection. This also implies that labor market competition is hurting only low skilled natives, who then fear immigration even more.

One way to approach the issue is to assume that barriers to entry are more severe for well paid jobs, hence high skilled immigrants are (partially) prevented the access to them. This may come from immigrants inability to assimilate (language, country-specific skills) or from a discriminatory labor market.\footnote{These effects, to my knowledge, have not been explored in a formal model before (as recognized by Borjas (1994), footnote 30). Moreover discrimination can be thought partly as a policy variable (e.g. anti discrimination laws, recognition of foreign qualifications...), thus one may replicate in this setting what we have just done with migration costs.}

In our model, we can introduce a measure of the relation between immigrants'skill and wages or, equivalently, a probability for an high type immigrant to get \( w_H \). If we denote this measure with \( \tau \in [0,1] \), type \( H \) immigrants (expect to) earn \( w_L + \tau \Delta w \), where \( \tau = 0 \) corresponds to full discrimination and \( \tau = 1 \) to full integration.

The new quality of immigrants is defined by:

\[
\frac{x_H^*}{x_L^*} = \frac{\left[ 1 - \Omega_H(\gamma) \right]}{\left[ 1 - \Omega_L(\gamma) \right]} \frac{\Psi[(w_L + \tau \Delta w) - (w_L^* + \Delta w^*) - \gamma] n_H^*}{\Psi[w_L - w_L^* - \gamma] n_L^*}
\]
while the new skill ratio is:

\[
\frac{N_H}{N_L} = \frac{n_H + \tau x_H^*}{n_L + x_L^* + (1 - \tau)x_H^*}
\]

Consider \(\tau = 0\), i.e. immigrants are treated as an homogeneous group of low skilled and there is no opportunity for them to access good jobs. High skilled foreigners have now less incentive to migrate and the quality of immigrants decreases. Moreover discrimination creates a negative spill-over on low skilled market. Thus it is bad news for all foreigners and migration flows also decrease.

High skilled natives thus always gain from immigration, since immigrants are prevented to compete with them; while low skilled natives bear all the costs. Thus high skilled natives are greatly in favor of immigration while low skilled natives strongly oppose it.

**Proposition 5** Discrimination reduces size and quality of immigration and reinforces the positive correlation between natives skills and "pro-immigration" attitudes.

### 4.2 Migration costs and immigration policies

Taken literally, our model makes some important simplifications. Migration costs are essentially money, and immigration restrictions only act on costs, unconditionally on type. These assumptions are obviously not realistic, and we now discuss to what extent other elements can be incorporated without affecting the basic logic of the model.

What migrants have to forsake is definitely not only money. And it is not even obvious that they are always the most significant component of migration costs. An important stream of literature has emphasized that migration cannot be fully understood at the level of the single individual. Family ties matters (e.g. Mincer (1978)), and other network effects may be a major component of the migration decision (e.g. Massey, Arango, Hugo, Kouaouci, Pellegrino and Taylor (1993)). The access to networks of previous migrants may considerably facilitate migration by decreasing its costs (e.g. Carrington, Detragiache and Vishwanath (1996)) or improving its benefits (e.g. Munshi (2003)), while on the other hand the prospect of losing networks at home may deter migration (e.g. Banerjee and Newman (1998)). In this sense, the access to networks does not appear to be systematically correlated with skills, hence it may not be of first order for the analysis of self selection.\(^{34}\) However, networks introduce a series of other dimensions which can drive migration (or the lack of it) without directly being monetary costs or wage differentials. Consider for example insurance motives. These are typically more salient for low skilled, hence they are potentially very important for understanding self-selection. Nonetheless, it is not clear whether abstracting from them may be a serious bias for our reasonings.

\(^{34}\)This does not mean that they are irrelevant in our analysis, but that they may not have an explanatory power in addition to the mechanisms already analyzed. For example, networks may relax credit constraints and allow low skilled to migrate (as reported e.g. in McKenzie and Rapoport (2005)).
Some literature considers these motives to explain positive self-selection: low skilled cannot migrate and give up the support of their family or community, in terms of access to credit (e.g. Munshi and Rosenzweig (2005)) or unemployment insurance (e.g. Cuelcuecha (2005)). Another stream of literature uses similar arguments to support negative self-selection: since low skilled cannot get formal insurance at home, migration and remittances are a way for them to smooth family consumption (e.g. Stark and Bloom (1985); Taylor (1986)). Hence, at this level of generality, the strength and direction of the bias is ambiguous. The lack of explicit formalization of network effects, and e.g. their inclusion in the individual specific component $\varepsilon_{it}$, may not be such a fundamental limitation for our purposes.

Also the policy space is definitely more multifaceted. Receiving countries can act on many dimensions rather than only on $\gamma$, and they can do so trying to impose different restrictions to different type of immigrants. Of course if the receiving country could perfectly contract on immigrant skills and enforce restrictions conditional on them, it would directly select the desidered size and type of immigration and our analysis would be (almost) pointless. However, as discussed further below, this does not seem to be the case and, in this imperfect world, our formalization may be of some use. On one hand, it is a way to highlight that even a policy independent on type has some screening power. On the other, it may be a starting point to complicate the policy space. For example, one can consider direct screening mechanisms. Even if types are not observable, a country could offer different types of entry permits. Visa at price $\gamma_\theta$ allows to be employed only in type $\theta$ jobs. Beside the issue of enforcement, incentive compatibility requires $\gamma_L \leq \gamma_H$, otherwise low skilled would pretend to be high skilled, enter and at worst get a low skilled job. Hence this mechanisms is viable only if one need to encourage low skilled migration. Alternatively, one can think of indirect ways to affect immigrant quality. For example, a country offering generous welfare benefits may attract lower skilled immigrants (as this can be seen as a decrease in returns to skills) or, as considered below, a country offering entry visa for an high fee and no bureaucracies is likely to attract a pretty different type of applicants than a country asking for no fees but imposing a lot of red tape.

4.2.1 Time and money

Migration costs include also the time immigrants have to spend in filling out forms and waiting for documents, and this may represent a relevant monetary entry in terms of foregone earnings. What may change our previous analysis is that the value of time also differs according to skills, e.g. high skilled may value their time more. To keep the analysis simple assume that each migrant has to invest the same amount of time in bureaucracies, and this time is worth $\beta w^*_b$. Hence, in absolute terms, bureaucracies $\beta$ are more harmful for high skilled.\textsuperscript{35}

\textsuperscript{35}One could think that skills also affect efficiency in complying with bureaucracy: If the value of foregone earning would then be smaller for high skilled, the analysis in the previous sections would apply (see
Introducing bureaucracies, the average skills of immigrants looks as follows:

\[ Q := \frac{x_H^*}{x_L^*} = \frac{[1 - \Omega_H(\gamma)]}{[1 - \Omega_L(\gamma)]} \cdot \frac{\Psi[(w_L - w_L^*) + (\Delta w - \Delta w^*) - (\gamma + \beta w_H^*)]}{\Psi[w_L - w_L^* - \gamma - \beta w_H^*]} \cdot \frac{n_H^*}{n_L^*} \]

Notice first that bureaucracies matters to the extent that incentives matter. As it seems intuitive, time affects constraints equally across immigrants. Then we can see that the conditions for positive self-selection become harder to satisfy. When only incentives matter, we would now need \( \Delta w > (1 + \beta)\Delta w^* \), i.e. differential returns to skill in the receiving country are sufficiently high to compensate also for the loss of time, that increases with \( \beta \Delta w^* \).

To see the effect of an increasing in the amount of time to be spent in bureaucracies, notice that

\[ \frac{\partial Q}{\partial \beta} \geq 0 \iff w_L^* \psi(L) \Psi(H) - w_H^* \psi(H) \Psi(L) \geq 0 \]

Once again, without any further assumption, the sign is ambiguous. Roughly, we need the relative gain to be larger for high skilled than for low skilled (while in the basic framework we had the same condition with absolute gains). With respect to increasing the cost \( \gamma \), however, we can clearly say that increasing bureaucracies is more likely to reduce immigrant quality. Now it is necessary but no more sufficient that immigrants are positively self-selected in terms of incentives for having a positive effect on quality.

### 4.3 Immigration policy preferences

The analysis of preferences in receiving countries has assumed fully rational agents who care only about their wages. The "fully rational" approach may be questioned: given that immigration policies do not change so often, and when they do, it is typically very hard to distinguish their effect from other concurrent factors, people may not be able to account for the somewhat subtle "quality effect" and learn what is the optimal policy for them. We have already discussed some arguments of the huge debate between economic vs. non-economic motivations (Section 1.1), and, while probably of particular relevance here, these objections are by no means limited to the literature on immigration preferences. A more specific concern is whether the labor market effect is the central element to explain the relation between individual characteristics and preferences over immigration. Our approach is in line with recent studies like Scheve and Slaughter (2001), Mayda (2004), O'Rourke and Sinnott (2004), reporting that once one restricts the sample to people out

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36To see this let \( \varepsilon_i \) be uniformly distributed. Condition (12) would become \( \frac{w_H - w_L - \gamma}{w_H^*} > \frac{w_L - w_L^* - \gamma}{w_L^*} \), i.e. relative gains increase with skills.
of the labor force, the correlation between education and pro-immigration preferences disappears.\textsuperscript{37}

Moreover, we have adopted a "partial equilibrium" approach in analyzing the effect of immigration, abstracting from at least two other important issues: fiscal policy and political economy. On fiscal policy, one may argue that high skilled immigrants are always preferred since they pay higher taxes and probably receive less welfare benefits. Hence, this would lead high skilled natives trading off the reduction in wages and the benefit in transfers on accepting high skilled immigrants.\textsuperscript{38} Not many empirical studies have looked at how this may drive preferences, and again the issue is controversial.\textsuperscript{39} One answer may come by looking at high skilled preferences in areas with high skilled immigration: these should be more supportive towards immigration if the impact on public budget was the major concern, and less supportive if instead labor market competition was the major concern. The only study that has done this is, to my knowledge, Hanson et al. (2005b), who documents that across U.S. states the latter happens, i.e. the labor market effect seems to be of first order.

On political economy issues, we have not given immigrants any political power in the receiving country. Giving them voting rights may change the analysis: for example high skilled natives may want to avoid getting too many low skilled foreigners as this would increase their wages, but also, modifying the political equilibrium, change the policies in favor of low skilled people (like in Ortega (2005)). One concern, at least in this setting, is whether immigrants would vote according to their skills, hence protecting their wages, or they would remain "loyal to their roots" and oppose restrictions to immigration anyway. Lowell, Bean and de la Garza (1986) and Goldin (1994) report that immigrants lobbied and voted for pro-immigration policies and a number of survey studies (e.g. Espenshade and Hempstead (1996) and Scheve and Slaughter (2001)) report that immigrant have in general more favorable attitudes towards immigration, irrespective of their economic condition. Thus it seems that accounting for this long run political economy effect would actually strengthen the standard result, i.e. low skilled may oppose immigration even more.

In conclusion, our focus on $R$ appears general and robust. It may not be the only argument of the utility function, but it is relevant as long as natives for some reasons (labor market, fiscal policy, political economy) care about the impact of immigration on

\textsuperscript{37}A similar finding was already in Jones and Lambert (1959). Still, the debate is very much open. For example Hainmueller and Hiscox (2004) find the opposite result: high skilled natives are less opposed to immigration irrespective of their economic conditions. Being part of the labor force is irrelevant, education works through cultural values and beliefs.

\textsuperscript{38}The simplest way to introduce fiscal issues here is to think that the government collects $tw_\theta$ and distributes the revenues with a lump sum transfer to every worker. Now high skilled utility is a convex combination (with weight $t$) of $w_\theta$ (negatively dependent on $R$) and the transfer (that depends positively on $R$).

\textsuperscript{39}The findings by Mayda (2004) seem to suggest that this effect is actually negligible; the ones by Hanson, Scheve and Slaughter (2005a) suggest the opposite.
5 Conclusion

The paper has developed a simple and, we believe, useful framework for analyzing the interaction between self-selection and immigration policy determination. We have shown that, since the marginal effect of any policy is greater on those with less incentive and fewer resources to migrate, immigration restrictions change immigrants’ average skill. We have then analyzed the implications of this observation for the receiving country, that may face a tension between the effect of the policy on size and on quality, since encouraging immigration when it is high skilled, or equivalently restricting when it is low skilled, typically decreases its quality. We have characterized conditions under which the latter effect becomes predominant, implying that natives may prefer a more (less) restrictive policy even though immigrants complement (compete with) them. Finally, we have analyzed the implications of this trade-off for the "optimal" policy design.

Our perspective has been positive and qualitative, and a number of simplifications and limitations have emerged. However, with a large set of caveat in mind, one may draw some very tentative policy implications. A prime motivation for this discussion is that the quality of immigrants matters: while the literature on the impact of immigration is divided in almost any respect, a general consensus is that, considering the effect both on the labor market and on fiscal spending, high skilled immigrants create net benefits for host countries (see e.g. Borjas (1995), Lee and Miller (2000) Storesletten (2000), Chojnicki, Docquier and Ragot (2005), Chiswick (2005)). Hence, improving the ability to screen would represent a clear gain for receiving countries.

We have shown that any policy, even if independent on type, affects different migrants in a different way. Hence, in general, it has some (indirect) screening power, that can weaken its intended effect, but also represents an additional instrument. If direct screening mechanisms are difficult to implement and do not seem so powerful (see e.g. Jasso and Rosenzweig (1995) and Jasso, Rosenzweig and Smith (1998) on US immigrants, Miller (1999) on the Australian point system, Antecol, Cobb-Clark and Trejo (2003) and Jasso and Rosenzweig (2005) on Canada and Australia vs. the US), one can act on costs in order to influence the migration decision, exploiting ex-ante self-selection mechanisms rather than impose restrictions ex-post.

In this sense, our model do not deliver any absolute policy prescription. Instead, we have seen how things may change dramatically according to whether migration is driven by wealth constraints or economic incentives, and in general on the source country characteristics. If those who migrate are simply those who can afford it, immigrants tend to be positively self-selected and issues like labor market discrimination or red tape may not have a crucial effect on their skill composition. In this case, increasing the migration cost (e.g. through a head tax on entry) is likely to increase immigrant quality, thus it may
be a viable way to screen the migration flows.\textsuperscript{40} Instead, as economic incentives become the main argument of the migration decision, the effect of these policies depends on differential returns to skills and thus it is in general more difficult to predict. Discrimination and bureaucracies push immigrants towards negatively self-selection and in this case a more restrictive policy is likely to lead to even less skilled immigration.

The most general conclusion coming out from our exploration is probably that self-selection matters. That is, the way different potential migrants respond to policy changes in receiving countries is a central element to consider when thinking about immigration policy. There is nothing terribly surprising in this statement. The amount of literature showing how different types of agents respond differently to changes in prices (being borrowers with interest rates, workers with wages or policyholders with insurance premia) is huge and fundamental (see e.g. Stiglitz and Weiss (1981)). For some reason, the issue has been generally overlooked by the literature on immigration policy, and, under this perspective, the paper may be a step towards bridging the gap.

References


\textsuperscript{40}Of course one concern with this kind of measures is that they tend to encourage illegal immigration (that is more attractive for low skilled). However the issue is common to any intervention (e.g. setting quotas or entry requirements) directed to regulate legal migration and it reveals once again that restricting entry cannot be the only dimension of a sound immigration policy.


Chiquiar, D. and Hanson, G. H. (2005), ‘International migration, self-selection, and the
distribution of wages: Evidence from mexico and the united states’, *Journal of Po-


Chiswick, B. R. (2005), ‘High skilled immigration in the international arena’, Institute
for the Study (IZA) Discussion Paper No. 1782.


Chojnicki, X., Docquier, F. and Ragot, L. (2005), ‘Should the u.s. have locked the heaven’s
doors? reassessing the benefits of the postwar immigration’, Institute for the Study
of Labor (IZA) Discussion Paper No. 1676.

Citrin, J., Green, D. P., Muste, C. and Wong, C. (1997), ‘Public opinion toward immigra-
881.

from, and why?’, NBER Working Paper No. 8998.

Cuecuecha, A. (2005), ‘The immigration of educated mexicans: The role of informal social
insurance and migration costs’, mimeo: Instituto Tecnológico Autónomo de México.

Dahan, M. and Gaviria, A. (2001), ‘Sibling correlations and intergenerational mobility in

Epstein, G. S. and Nitzan, S. (2005), ‘The struggle over migration policy’, Institute for
the Study of Labor (IZA) Discussion Paper No. 1533.

Espenshade, T. and Hempstead, K. (1996), ‘Contemporary american attitudes toward

Facchini, G. and Willman, G. (2005), ‘The political economy of international factor mo-
bility’, *Journal of International Economics* **forthcoming**.

Filmer, D. and Pritchett, L. (1999), ‘The effect of household wealth on educational attain-
120.


