

Clandestine Migrants: Do the High-Skilled Return Home First?*

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Abstract

In this paper we show that highly skilled clandestine migrants are more likely to return home than migrants with low or no skills when illegality causes “skill waste”, i.e. when illegality reduces the rate of return of individual capabilities (i.e. skills and human capital) in the country of destination. In a simple life-cycle framework, illegality is modeled as a tax on skills that reduces the opportunity cost of returning home, particularly for the highly skilled. This proposition is tested in two different countries: (i) a sample of Mexicans interviewed in the US on their intentions to return in 2005; (ii) a sample of apprehended immigrants that crossed unlawfully the Italian borders in 2003. The estimation confirms that the intention to return to the home country is more likely for highly skilled illegal immigrants for the Italian sample. Evidence is more blurred for the sample with Mexicans. The empirical results of this paper suggests that when a large proportion of immigration flows takes places outside the legal system, the out-migration of irregular migrants is likely to reinforce the negative self-selection at entry since those with relatively higher skills are more likely to return in the home countries.

Keywords: Illegal migration, labor skills, survey data, return migration.

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1 Introduction

The debate on illegal¹ migration in the developed world is capturing a great deal of public attention and has recently triggered the interest of economists (see Hanson, 2006). The mounting dimension of the phenomenon is a direct consequence of the tightening of immigration laws in most OECD countries (see Zimmermann, 1995, De Melo, Faini and Zimmermann, 1999, Venturini, 2003). In fact, instead of decreasing the size of immigration flows, restrictive policies seem to have shifted the balance from legal to undocumented (or illegal) migration. Recently, Passel (2005) estimated an annual net inflow of 500,000 illegal immigrants to the US between 2002 and 2004; according to Hofer et al (2009) the stock of unauthorized immigrants in January 2008 is about 11,6 million. Estimates of the annual illegal migration flows to Europe (EU-15) in 2001 give rise to figures up to 650,000 according to a recent study by Jandl (2004) (100,000 of them in Italy).²

Another feature has characterized in the last two decades international migration flows: a sharp increase in the movement of skilled, rather than unskilled, individuals, as shown by Carrington and Detragiache (1998) and more recently by Docquier and Marfouk (2005).

Illegal migration and the skill content of recent migration flows are related facts. The selective policies of some countries encourage the legal inflow of skilled immigrants (i.e. “brain drain”). However, the adoption of selective policies is confined to a few countries (for instance Canada, Australia, New Zealand). In all the other cases, when skilled migrants enter unlawfully a developed country, illegality conditions significantly affect their future plans, including the possibility of returning back home.

In this paper, we focus on the *return migration of clandestine entrants* by highlighting the role of their skill endowments. Return flows of migrants to their countries of origin are large as several studies have documented (see Borjas and Bratsberg 1996 and Jasso e Rosenzweig 1982 for the US; Dustmann and Weiss 2007 for the UK). The quality and the main reasons for return migration have important economic and social consequences both for origin and destination countries. While the literature has documented and investigated several aspects of legal migrants’ return migration we still know very little - mainly due to lack of data - on return behaviour of illegal migrants. One important dimension on which legal and illegal migrants differ is the ability to fully employ in the country of destination the human capital accumulated at home. As generally acknowledged, the illegal status hinders the migrant’s access to many markets and institutions in the host country (including banks for deposits or financial institutions for other types of savings), which are instead fully available to legal

¹In this paper we will interchangeably use the terms “undocumented”, “illegal” and “irregular”.

²See Tapinos (1999) and Jandl (2004) for an overview of the statistical approaches to measure irregular migration. See Hanson (2006) and the relative cited literature for methods to estimate illegal migration flows and stocks between Mexico and the US.

migrants. Being illegal likely makes individual skills much less effective than in the home country, as the illegal migrant has often to resort uniquely to the shadow economy.³ Hence, illegality can cause *skill waste*, i.e. illegality impinges the positive outcome of skills on both individual income and savings. *Skill waste* is particularly evident for the most skilled and educated among the illegal entrants. Given this, the opportunity cost of returning to the country of origin should be substantially lower for the skilled individuals than for the unskilled ones. Hence, illegality is likely to severely limit the portability of human capital of migrants⁴. This proposition is in sharp contrast with what is usually known for *legal* skilled migrants coming from poor developing countries who tend to overstay because more capable of assimilating in the high-income destination country. Hence, the main message of our paper is that illegality can in fact overturn the common conclusions on the length of stay of skilled (vs. unskilled) migrants .

More specifically, the contribution of this paper is twofold. First, we consider a simple life-cycle framework where skill waste acts like a tax on skills. Here, we find a link between the individual skill endowment and the return decision of illegal migrants. Second, thanks to the availability of an unique data set on Italian undocumented immigrants (SIMI) and a sample on Mexican illegal immigrants in the US (SMM), we find some empirical evidence on the positive relationship between individual skill endowment and intentions to return for clandestine immigrants. The SIMI database allows us to investigate the determinants of return plans for a sample of migrants who just crossed irregularly the Italian border (ie. immigration "at the gate"); thus we focus on initial individual plans based only on the information/expectations which triggered the migration experience (not yet revised on the basis of new information or events which occurs while the migrant is in the destination country). We complement the analysis employing the Survey of Mexican Migrants (SMM) which allows us to investigate the intentions to return of undocumented Mexican migrants who have been living and working in the US for a longer period.

Many studies have emphasized that migrants are not randomly selected but generally represent the upper tail of the skills distribution of the population in the countries of origin (see Borjas et al., 1992, and Chiswick, 1999). Since migration is a particularly costly investment, only the most capable, entrepreneurial

³Kossoudji and Cobb-Clark (1996) and Cobb-Clark and Kossoudji (2000) document the presence of less opportunity for job advancement and the existence of a wage gap between legal and illegal migrants in the US. Moreover, Bratsberg et al (2002), using longitudinal US data on wage immigrants, show that naturalization, in particular for migrants from less-developed countries, is associated with faster wage growth even after accounting for unobserved individual characteristics. Similar findings are presented in a study by DeVoretz and Pivnenko (2004) on the economic effects of Canadian citizenship.

⁴In a recent paper Mattoo, Neagu and Ozden (2008) documents the existence of a large "brain waste" for legal immigrants in the US. The authors find that the probability of "underplacement" in low skilled occupations for immigrants with high levels of formal education is large (and highly heterogeneous across countries of origin). Part of the documented brain waste is explained by international differences in the quality of human capital and the selectivity of immigrants from different source countries.

and risk-prone individuals usually undertake such an investment. The existing empirical research almost unanimously concludes that return migration reinforces the self-selection of the migrants at entry (Borjas et al. 1996; Dustmann 1996, 2003a, 2003b; Reagan and Olsen, 2000). In this paper we contribute to the literature by documenting that the negative self-selection of illegal migrants is likely to be strengthened by out-migration flows.

The paper is organized as follows. *Section 1* presents a theoretical (life-cycle) framework to model the return plans of irregular migrants with heterogeneous levels of skills. *Section 2* describes the main characteristics of the data sets that we employ for estimation both on Mexicans interviewed in the US and Italian undocumented immigrants. *Section 3* reports and discusses the results of the empirical analysis. Lastly, *Section 4* concludes with some general remarks and suggestions for further research.

2 Skills and Return Decisions of Irregular Migrants: A Life-Cycle Interpretation

The main point of our paper is that illegality, by dampening the return on skills of immigrants, leads to a higher incentive to return home for highly skilled migrants, with respect to low-skilled ones. This intuitive point is supported by a very simple life-cycle interpretation, as follows.

Consider a population of illegal migrants with a heterogeneous level of skills from the same source country A who have migrated to the host country B . Migrants' skills are continuously distributed over an interval $[\underline{a}, \bar{a}]$ where \underline{a} and \bar{a} represent respectively the individuals with the lowest and the highest skill level.

Individuals operate in a two-period world and are endowed with a unit of labor which is inelastically supplied in each of the two periods.⁵

The migrants' intertemporal utility function is defined over first- and second-period consumption and takes the following simple logarithmic form:

$$U(c_1, c_2) = u(c_1) + \delta u(c_2) = \ln(c_1) + \delta \ln(c_2)$$

where δ is the discount factor.

In the first period individuals live and work in the host country B .⁶ Consumption of migrant with a skill level j is:

⁵We assume that the individual possesses no capital at the beginning of the first period. In reality, it is often the case that migrants from less developed countries have a negative amount of wealth since they have borrowed from friends and relatives in order to pay for migration costs.

⁶For simplicity we are not modelling the choice to leave the origin country and assume instead that the migrant has already arrived illegally in the country of destination. We recall that Orrenius and Zavodny (2005) instead deal with the issue of whether to leave the origin country or not and reside illegally at destination, but within a different theoretical framework.

$$c_1^j = w_1^j - s^j = a^j \tau w^B - s^j \quad (1)$$

where w_1^j is the first-period wage when working illegally in country B and s^j are savings. Given their status of illegal migrants in the host country B the rewards to human capital cannot be fully exploited: income earned in country B is increasing in the skill level but we assume that the skill premium is compressed because of illegality. More precisely, first period wages are equal to $w_1^j = a^j \tau w^B$ where w^B is the exogenously given “normal” wage for a unit of labor in the host country. Individual wages positively depend on individual skills but the status of illegal migrant makes those skills less effective. The parameter $\tau \in (0, 1]$ captures the magnitude of the *skill waste* effect associated with the status of illegal migrant. As $\tau \rightarrow 0$ illegal migration tends to be less and less rewarding for all illegal migrants and has a ‘squeezing effect’ on the level of human capital, i.e. being uneducated and unskilled rather than having a PhD in engineering does not change the returns from migration.⁷ On the contrary, when $\tau = 1$ there is no skill waste and migrants’ human capital is fully rewarded according to the skill content a^j .⁸ In other words, when $\tau = 1$ we assume that migration is legalized.

The parameter τ might be interpreted as the effect of the institutional framework within which illegal migration takes place on the individual’s ability to use the stock of human capital accumulated at home. The degree to which it is possible for the migrant to exploit his or her skills might depend, for instance, on the attitude of the immigration authorities in the host country. When some particular skills are required due to an excess demand in the host country labor market, immigration authorities tend to be more tolerant toward illegal migrants possessing those skills (in this case τ may be close to 1).

The skill waste affects also the ability of illegal migrants to fully exploit

⁷Even if $\tau = 0$ is implausible since the brightest and more skilled migrants are more likely to obtain the best opportunities, skills and formal qualification are of little use to an illegal migrant. There is anecdotal evidence that very often migrants employed illegally in highly unskilled and manual jobs – such as agricultural workers in developed countries – are actually highly skilled and educated individuals. Indirect evidence of the skill-waste effect is provided by a series of studies on migrants’ performance after their legalization through amnesties in the United States (such as IRCA). See Rivera-Batiz (1999), Cobb-Clark and Kossoudji (2000 and 2002).

⁸Since all individuals found it profitable to migrate at the beginning of the first period and given that we abstract from differences in preferences for the location of consumption (associated for instance with relatively high preferences for home consumption) for any $a^j \in [\underline{a}, \bar{a}]$ the following inequality is satisfied:

$$\tau a^j w^B \geq a^j w^A \implies \tau w^B - w^A \geq 0$$

where $w^A (< w^B)$ is the exogenously given “normal” wage for a unit of labor in the home country. In other words wage differentials more than compensate for the “skill waste” effect. Moreover, since we assume that illegal migrants have already chosen to live and work in the host country B in period 1, the condition above imposes either a lower bound to the percentage wage gap $\hat{w} \equiv \frac{w^B}{w^A}$ (i.e. $\hat{w} > \frac{1}{\tau}$) or, given w^A and w^B , a lower bound to τ (i.e. $\tau > \frac{w^A}{w^B}$).

financial markets in the host country and therefore the return on savings, which differs depending on the migrant's choice for the second period.

Often the sole motive for migration is the necessity to accumulate assets that will be subsequently employed in productive activities at home.⁹ Here we assume that if the migrant decides to go back to homeland A in period 2, then period-1 savings will be directly used, together with individual skills, in an entrepreneurial project with gross return $a^j R^A$ in the home country A — where $R^A \equiv (1 + r^A)$ is the exogenously given “normal” gross return on savings in the home country. We allow for returns from the entrepreneurial project to differ between migrants. The higher the level of skills of the migrant, the higher the likelihood that she will locate the best investment opportunities and, in turn, the more rewarding will be the allocation of her capital.

Similarly, savings are located in the host country B in case the migrant decides to stay in B during period 2. The exogenously given “normal” return on savings in B is $R^B \equiv (1 + r^B)$. Then, in case of a period-2 stay in country B , savings generate a return $\tau a^j R^B$, which is higher for individuals with higher skills, but is affected by the skill waste.

Hence, the return from savings (e^j) will vary according to the migrant's preferred location choice for the second period:

$$e^j = \begin{cases} e_R^j = a^j R^A s^j & \text{if he or she returns to country } A \\ e_{NR}^j = \tau a^j R^B s^j & \text{if he or she stays in country } B \end{cases}$$

In other words, illegal migrants face constraints which negatively affect not only their ability to fully exploit their labor potential but also their ability to locate and exploit investment opportunities. For instance, although fully aware of the different financial opportunities offered in the host country, the illegal migrant does not have access to them since she does not have a legal permit and must recur to alternative, less rewarding and sometimes illegal, forms of financial investment. Instead, when planning to go back to the homeland, migrants immediately send home their savings, where they start their entrepreneurial project even before returning.

In order to simplify the framework and allow for a simple graphical interpretation (see below), we assume that the “base” rate of return is not different in the two countries, i.e. $R^A = R^B = R$.¹⁰

Therefore, consumption in second period also differs depending on the migrant's second-period's location choice. Labour income and returns from savings in period 2 depends on what the illegal immigrant decides at the end of period 1,

⁹See, for instance, a study on the occupational choice of return migrants in Egypt by McCormick and Whaba (2001) who find that both the spells of periods overseas and overseas savings significantly increase the probability of starting an entrepreneurial project for more literate migrants. Moreover, a recent report by the World Bank (2006) includes a thorough study of the effects of remittances on development that highlights the importance of entrepreneurial activities financed by remittances.

¹⁰A generalization of the model with two different rates of return for the home and destination country is available from the authors upon request.

i.e. whether to go back home to country A or to stay in the destination country B where there is a nonzero probability of becoming legal.

In *case of return*, in period 2 the migrant will be able to be fully rewarded for his/her skills and no illegality skill-waste effect takes place, but in the origin country A the “minimum” wage w^A is lower than in the destination country. Hence the period-2 wage in case of return is given by: $w_{2,R}^j = a^j w^A$, and using the expression e_R^j from above we obtain the following equation for consumption in the second period:

$$c_{2,R}^j = w_{2,R}^j + e_R^j = a^j w^A + a^j R s^j = a^j (w^A + R s^j)$$

where in the home country return migrants are fully able to exploit their human capital as related to both their endowment of labor and the capital saved in the host country.

If migrants decide to *stay in the host country* they face a positive probability of getting legal residence measured by the parameter $\gamma \in [0, 1]$.¹¹ For instance, this might happen in the case of an amnesty granted to all illegal migrants who have been residing and working for a certain period in the host country or in the case of acceptance of an asylum application. One key element which affects the possibility of obtaining legal status is the presence in the country of destination of a dense *network of already established migrants*. In fact, in several Oecd countries lawful permanent residence is mainly granted through family reunification. Networks might play a crucial role also in providing assistance throughout the legalization process also in case of other than family-sponsored category of admission. The main consequence of being granted legal status in terms of our model is the ability to fully make use of individual skills, i.e. the skill waste effect disappears in the second period when the migrant obtains the legal status.

Hence, the expected wage for period 2 in case of no return is the following:

$$w_{2,NR}^j = \gamma a^j w^B + (1 - \gamma) a^j \tau w^B$$

where $a^j w^B$ is the wage (without skill waste) that the j -migrant would get in case she obtains a legal status (with probability γ) and $a^j \tau w^B$ is the wage in case she does not get legal status (like in period 1). We can rewrite more compactly the period-2 wage in case of no return as follows:

$$w_{2,NR}^j = h a^j w^B$$

¹¹For simplicity and without loss of generality we assume that γ does not depend upon skills. While this is probably true for Italy and partly for the US, we acknowledge that in host countries which have selective immigration policies, the probability of obtaining legal status might positively depend upon skills. A version of the present framework taking this aspect into consideration is available from the authors upon request. Intuitively, the effect of such an extension is straightforward (a reduction in the range of the parameters for which the marginal benefit is higher than the opportunity cost of return for highly skilled illegal immigrants relative to the low-skilled ones) and does not affect the main insights presented here.

where $h \equiv \gamma + (1 - \gamma)\tau$.

Consumption in case of no return can be expressed as the expected income in period 2 ($w_{2, NR}^j$) plus the accumulated savings, invested in the host country B (e_{NR}^j):

$$c_{2, NR}^j = w_{2, NR}^j + e_{NR}^j = a^j (hw^B + \tau Rs^j) \quad (2)$$

To sum up, the problem of the illegal migrant is then to maximize her utility U under two different budget constraints that depend on whether she returns to the home country A or stays in the destination country B .

In the case of *return* the lifetime utility function of an illegal migrant with skills a^j is:

$$U_R^j(c_1, c_2) = \ln [\tau a^j w^B - s^j] + \delta \ln [a^j (w^A + Rs^j)] \quad (3)$$

And the intertemporal budget constraint is:

$$c_1 + \frac{1}{R}c_2 = W_{\text{Return}}^j \quad (4)$$

where $W_{\text{Return}}^j = a^j \tau w^B + \frac{1}{R} a w^A$ represents the present value of expected lifetime income when the migrant decides to return after one period in country A (i.e. temporary migration).

Whereas in the case of *no return* the lifetime utility function and the associated intertemporal budget constraint of an illegal migrant with skills a^j are:

$$U_{NR}^j(c_1, c_2) = \ln [\tau a^j w^B - s^j] + \delta \ln [a^j (hw^B + \tau Rs^j)] \quad (5)$$

$$c_1 + \frac{1}{R}c_2 = W_{no_return}^j \quad (6)$$

where $W_{no_return}^j = a^j \tau w^B + \frac{1}{R} h a^j w^B$ represents the present value of expected life-time income when the migrant decides to remain in the destination country B (i.e. permanent migration).

2.1 Optimal Savings, Return Decisions and Skills

The optimal level of savings s^{*j} for an individual with skills j is conditional on her location decision for the second period.

In the case of return migration the level of savings which maximizes the individual's intertemporal utility function (3), is given by:

$$s_R^{j,*} = \frac{1}{R(1 + \delta)} [\delta R w_1^j - w^A] = \frac{[\delta \tau a^j R w^B - w^A]}{R(1 + \delta)} \quad (7)$$

If the illegal migrant decides to stay in the host country, then the optimal first-period savings will be determined by the maximization of the utility function (5). Hence, the optimal savings in case of no return is the following:

$$s_{NR}^{j,*} = \frac{1}{\tau R(1 + \delta)} \left[\delta \tau R w_1^j - a^j h w^B \right] = \frac{w^B [\delta \tau^2 a^j R - h]}{\tau R(1 + \delta)} \quad (8)$$

where $h \equiv [(1 - \gamma)\tau + \gamma]$.

It is easy to show that savings in case of return are higher than saving in case of no-return when, as we assumed in our simple model, the wage gap between the host country B and the origin country A is positive — that is $\widehat{w} \equiv \frac{w^B}{w^A} > 1$.¹²

Several authors have emphasized that a positive probability of return induces migrants to save and remit more (see Galor and Stark, 1990; Stark, 1992; Mesnard, 2004). This result is in accordance with the life-cycle theory of consumption since individuals who plan to re-emigrate in a relatively poor country will save more in order to smooth their consumption path over the life-cycle.¹³

By substituting the optimal level of savings (7) and (8) in the respective utility functions (3) and (5), we obtain the indirect utility in case of return ($U_R^{j,*}$):

$$U_R^{j,*}(\delta, \tau, a^j, w^A, w^B, R) = (1 + \delta) \ln \left[\frac{1}{1 + \delta} (R \tau a^j w^B + w^A) \right] - \ln(R) + \delta \ln(\delta a^j) \quad (9)$$

and in case of no-return ($U_{NR}^{j,*}$):

$$U_{NR}^{j,*}(\delta, \tau, a^j, w^B, R) = (1 + \delta) \ln \left[\frac{w^B}{1 + \delta} (R \tau^2 a^j + h) \right] - \ln(\tau R) + \delta \ln(\delta a^j) \quad (10)$$

Let us define the net indirect utility derived from returning $U^{j,*}$ for an illegal migrant with j level of skills as the difference between the two optimal levels of utility. Hence:

$$\begin{aligned} U^{j,*}(\delta, \tau, a^j, w^A, w^B, R^A, R^B) &\equiv U_R^{j,*} - U_{NR}^{j,*} \equiv \\ &\equiv (1 + \delta) \ln \left[\frac{R \tau a^j w^B + w^A}{R \tau^2 a^j w^B + h w^B} \right] + \ln \tau \end{aligned} \quad (11)$$

¹²More precisely, $s_R^{j,*} > s_{NR}^{j,*}$ when:

$$\tau (w^B - w^A) + w^B(1 - \gamma)\tau > 0$$

which is always satisfied if $w^B > w^A$ and $\tau, \gamma \in (0, 1]$.

¹³Higher incentives to save could also be motivated by a higher marginal utility of consumption in the home country, for instance due to higher purchasing power in the home country or strong preferences for home varieties or by the necessity to overcome higher uncertainty (see Dustmann 1997).

The derivative of the net indirect utility $U^{j,*}$ with respect to a^j is the following:

$$\frac{\partial U^{j,*}}{\partial a^j} = \frac{(1 + \delta)\tau w^B R}{(R\tau^2 a^j w^B + hw^B)(R\tau a^j w^B + w^A)} (hw^B - \tau w^A)$$

Proposition 1 shows that under general conditions on the relative wages \hat{w} and under the assumption of equal gross returns from savings ($R = R^A = R^B$), relatively more high- skilled illegal migrants are more likely to return.

Proposition 1 *If the “normal” (percentage) wage gap $\hat{w} \equiv \frac{w^B}{w^A}$ is strictly higher than 1, (and more generally if $\frac{\hat{w}}{R} \equiv \frac{\frac{w^B}{w^A}}{\frac{R^B}{R^A}} > 1$) then, net utility from return migration — therefore the probability of returning in the home country — is an increasing function of the individual level of skills.*

Proof. When taking the first derivative of the net utility from return migration, we obtain:

$$\frac{\partial U^{j,*}}{\partial a^j} = \frac{(1 + \delta)\tau R}{(R\tau^2 a^j + h)(R\tau a^j w^B + w^A)} (hw^B - \tau w^A)$$

The net utility is then strictly increasing in the skill level a^j if and only if:

$$hw^B > \tau w^A$$

or:

$$\hat{w} \equiv \frac{w^B}{w^A} > \frac{\tau}{[(1 - \gamma)\tau + \gamma]}$$

Notice that, since γ is a probability, then h is a linear combination between τ (which is lower than 1) and 1. Hence, the fraction on the right-hand-side is certainly lower than 1.

As a consequence, the condition:

$$\hat{w} \equiv \frac{w^B}{w^A} > 1$$

is sufficient to assure that $U^{j,*}$ is increasing in a^j . ■

This result is particularly important since it highlights how the effect of illegality as a skill waste, in both the labor market and the accession of financial markets, might induces highly skilled migrants to leave the host country first.

As expected the net utility is a decreasing function of the probability of legalization, as the first derivative of $U^{j,*}$ with respect to γ proves:

$$\frac{\partial U^{j,*}}{\partial \gamma} = -\frac{(1 + \delta)(1 - \tau)w^B}{\tau R a \tau w^A + h w^B} < 0 \quad (12)$$

Intuitively expected, better prospects for period 2 increase the expected income from staying in the host country and reduce the incentives to return. Note also that the cross partial derivative is positive:

$$\frac{\partial U^{j,*}}{\partial \gamma \partial a^j} = \frac{(1 + \delta)(1 - \tau)w^B w^A \tau^2 R}{(\tau R a \tau w^A + h w^B)^2} > 0 \quad (13)$$

This implies that an higher probability of legalization (for instance thanks to the presence of a dense network of established migrants) increases the probability of staying in the destination country but the effect is weaker for the more-skilled workers.

2.2 A Graphical Intuition

The main intuition stemming from the simple model outlined above, i.e. that the probability of return for illegal migrants is increasing in the level of skills, is presented in this section using a straightforward graphical representation. In Figure 1 we report the continuous budget constraints under the assumption that neither return nor “no return” are revealed-preferred, i.e. that the two budget constraints intersect in the first quadrant for a migrant with skill level $a^j \in [a, \bar{a}]$. The intercepts of the two budget constraints 6 and 4 depend on the endowments under each migrant’s choice, whereas the slopes vary when the skill parameter a changes.

FIGURE 1 - About here

Let us then consider the case of a migrant with a special value of the skill parameter, a^* , for which the indirect utility from “return” and “no return” is equal.¹⁴ We name as “marginal return migrant” the individual with such a skill endowment for which it is indifferent returning home in the second period or staying in the host country.

In the Figure 1 the utility level is identified by the indifference curve labeled $U(a^*)$.

When we consider an individual with skill level $a' > a^*$, the new budget constraints will tilt and move outwards, as shown in the Figure 1 by the dashed lines. The movement outwards is due to the increase in the life-time income, whereas the tilting is caused by the fact that the rates of return depend on the individual skill level. However, the rate of return is reduced by the skill waste effect when the migrant remains in the destination country; hence, the tilting will be lower. In other words, an increase in individual skill level increases the

¹⁴See the appendix A for details on the conditions which guarantee that the return and non return budget constraints for the marginal return migrant with skill level a^* cross in the first quadrant as shown in the figure above.

marginal benefit from staying in the host country but, given the skill waste effects, relatively less than the increase in the opportunity cost of remaining in the host country (ie the value of the return option).

As a consequence of Proposition 1 the new intertemporal bundles E'_R will lay on a higher indifference curve with respect to the bundle E'_{NR} . Hence, the return option will be chosen by more skilled individuals since it assures a higher welfare.

In both cases of return and “no return” the increase in the skill level induces a price effect and an income effect. Whether or not the individual decides to go back home, the latter effect is the same, as also shown by the shift of the intercepts from $\bar{C}^R(a^*)$ to $\bar{C}^R(a')$ and from $\bar{C}^{NR}(a^*)$ to $\bar{C}^{NR}(a')$. Instead, the price effect (associated with the slope change) is stronger in case of return because of the (absence of the) skill waste effect.

3 Undocumented Migration: Two Original Micro Datasets

When dealing with irregular migration, as for other phenomena which take place "in the shadow", the most challenging task is the measurement of the quantitative and qualitative aspects of the phenomenon (see Hanson, 2006, for an overview of methods in the US-Mexico case). In terms of flows and stocks, only indirect estimates of the illegal migrant population are available for both Europe (Jandl, 2004, and International Centre for Migration Policy Development, 2006) and the US (Passel, 2005; Hoefler et al 2009). The unique way to investigate the qualitative aspects of undocumented migration, such as the intentions to return in the home country, is that of using reliable micro-level (survey) data. While several data sources are available on legal migrants — for instance, the German Socio-Economic Panel (Dustmann, 2003a), Census data in France, several surveys from the Pew Hispanic Center for the US — only few dataset, to our knowledge, are available for undocumented migrants. In fact, the scarcity of data on illegal migrants is a direct consequence of the practical and methodological difficulties encountered in collecting information on a population that, for obvious reasons, has strong incentives to escape official statistics. Two micro-level surveys which contains information on undocumented migrants in the US are, the well-known data from the Mexican Migration Project and the recent Survey of Mexican Migrants (SMM) by the Pew Hispanic Center.¹⁵

In this paper we use this latter Survey of Mexican Migrants (SMM) and we also rely on data coming from a field survey that has been conducted in Italy in 2003 on illegal immigrants (Survey of Illegal Migration in Italy, SIMI). In the next sections a description of the two surveys is provided followed by a brief discussion on similarities and differences.

¹⁵The survey is downloadable at the web site <http://pewhispanic.org/datasets/>.

3.1 The Survey of Mexican Migrants

In 2005 the PEW Hispanic Center has organized an extended survey (called Survey of Mexican Migrants, SMM) on Mexican individuals that were applying for a *Matricula Consular*, i.e. a Mexican ID, at seven major consulates in the US (Los Angeles, New York, Chicago, Fresno, Atlanta, Dallas and Raleigh). The questionnaires were offered to the Mexican ID applicants while they were waiting in the consulates and they could fill them up on their own or with some assistance, especially in case of illiteracy. The sample contains information on 4,836 adults.

The Survey of Mexican Migrants (SMM) was designed to collect information about all types of undocumented Mexican immigrants, independently of their previous length of stay. The main advantage of this survey is that it gives a detailed socio-economic picture of undocumented Mexican migrants in the US. One important shortcoming of the survey is the fact that the migrants are interviewed at the consulates which likely implies a sample bias towards migrants who need a Mexican document.¹⁶

In terms of gender, age, year in the US and education, the SMM seems to offer a picture of undocumented migrants that is not that different from other measures of illegal Mexican immigration in the US (as in Passel et al., 2004). In SMM there is an expected over-representation of young migrants (age bracket 18-29) and a more surprising over-representation of elders (over 55). SMM comprehends relatively fewer individuals on the two sides of the spectrum in terms of formal educational attainment, i.e. with primary education (or less) or with at least a college degree. This may be due to a possible bias created by the way the sample has been naturally detected. Indeed, it is likely that illiterate or undocumented migrants be not interested to any Mexican ID, as well as the well-educated since they may have it already or applied already for a US ID.

In Table 1 we present the main relevant descriptive statistics of the SMM total sample and the subsample that we chose for estimation, i.e. all the individuals in SMM that declare to not possess photo ID of any kind issued by a US government agency and are aged between 18 and 60. As discussed by the PEW researchers these sub-sample - composed by 2439 individuals - is with a very high degree of confidence composed only by undocumented immigrants.

Focussing only on the sample employed in the estimates - which is only marginally different from the entire sample - the median age 28.2 and is composed of migrants earning weakly about 300 \$. On average migrants have spent 6 years in the US and a large number of individuals intend to return (45.5%). Only 9.1% of the sample is composed by individuals who have a very good knowledge of english while 11.2% on the basis of their job qualification in Mexico can be considered as highly-skilled. Most of the migrants have primary and middle education; 23,6% have an high-school diploma and 5.4% a university degree.

¹⁶According to some authors, the matricular consular is almost exclusively needed by undocumented migrants.

As expected, migration takes usually place within a network of established migrants: on average the migrants in the sample have 8.6 relatives who already reside in the same US destination. And access to some services that could be interpreted as a proxies for the individual willingness / ability to assimilate into the US economy and society is limited: only 13.6% of have a US bank account and 16.8 % prefers to watch on TV US english stations rather than more "ethnic" ones. A large share of the migrants comes from the Centre and Centre-west of Mexico.

Basically, the estimation sample does not differ much from the total sample except for the intentions to return that are much higher for the subsample. Other significant differences comprehend the number of children per person in the US, migration duration and English proficiency. this data confirms the importance of networks for mexican migrants in the US.

Table 1 - about here

3.2 The Survey of Illegal Migration in Italy

The Survey of Illegal Migration in Italy (named SIMI) is a field survey on apprehended undocumented immigrants for the year 2003 (see Chiuri, De Arcangelis, D'Uggento and Ferri, 2004 and 2008).¹⁷ The survey has been conducted with personal interviews that have been taken at meeting points for illegal immigrants (e.g. public canteens, etc.), as common to other studies. Some of the interviews have also been collected at special hosting centers that the Italian law prescribes for apprehended and undocumented aliens. More exactly, since identification after apprehension is required by the law, all apprehended and undocumented immigrants are hosted for at most thirty days in special residence centers (Centers of Temporary Residence or *Centri di Permanenza Temporanea*) to ascertain their origin. Part of the survey was conducted on illegal immigrants during this identification period.

The survey collected individual data by means of a questionnaire regarding the migrant's demographic and socio-economic situation in the country of origin (school degree attained, job qualification, location of the village of origin, family characteristics etc.), the cost and financing of the migration trip, intentions to return and to remit, as well as motivations and future income expectations from the (at least temporarily aborted) migration project.

To be more precise, the "illegal immigrant" in SIMI is defined as an adult clandestine or asylum seeker (at least 18-year old) that has been in Italy for a period no longer than 6 months.¹⁸ This short period minimizes the measurement error when interviewees are asked to recall previous events. One of the aims of the survey was to obtain an accurate recollection of earnings and expenditures before migration, as well as future expectations.

¹⁷For the statistical and methodological issues related to sampling see Chiuri and D'Uggento (2004).

¹⁸See Appendix ?? for a thorough definition.

This is also one major difference with the Survey of Mexican Migrants that included also long stayers.

The sample included 920 individuals that were interviewed in the period January–September 2003 in the four border regions mostly concerned with the phenomenon of illegal entrance.¹⁹ The total number of individuals interviewed represented 10.82% of all the 8,502 illegal migrants that were hosted in the selected centers in the same period between January and September 2003.²⁰

Fifty-five different nationalities are represented in the sample, the six largest fractions coming from: Iraq (9.6%), Liberia (9%), Sudan (5.4%), Morocco (5.1%), Senegal (4.8%), Turkey (4.8%).

Table 2 summarizes the main social and economic characteristics of the total sample and of the subsample used in the estimation of Section 4. Indeed, there are four sub-groups of undocumented immigrants: clandestine immigrants, asylum seekers, individuals waiting for a rejection decree and individuals waiting for an expulsion decree (see Appendix B). Given the blurred definition of the latter two categories, in the econometric analysis of Section 4 we only focus on clandestine migrants and their characteristics are reported in the second column of Table 2.

Table 2 - about here

According to our data, the average illegal migrant entering Italy is young (about 27 years old). The declared family monthly income in the country of origin was on average around (2003-current) US\$ 218. The high variance of the data can be explained by the extreme heterogeneity of the socio-economic conditions of the interviewees. It is noteworthy that interviewees, once settled down in the country of final destination, expected to earn about four times the income at home, i.e. an average monthly wage of (2003-current) US\$ 877.

Migration is a major investment for the family: on average the cost of the trip is equivalent to about eight months of individual earnings in the country of origin.

Illegal immigrants into SIMI have a non-negligible level of skills that we measure in three different ways. First, we use the declared attained school degree and we notice that the degree of illiteracy is not very high – only 13.2% declared they cannot read and write. In terms of schooling, 5% of the migrants in the sample have a university degree, while 13.9% and 7.8% have respectively a secondary education degree and vocational education (i.e. 21.7% with attained high-school degree in the table). Other two indirect measures of skills are (i)

¹⁹These are: Apulia, Calabria, Friuli Venezia Giulia and Sicily.

²⁰The size of illegal migration is relevant in Italy as a consequence of a particularly restrictive immigration policy accompanied by a large informal economy and extensive and porous borders. In the regularization programme of 2002, there were approximately 700 thousands applicants most of them already residing illegally in the country in the four years since the previous regularization (see Chiuri, Coniglio and Ferri, 2008, for a discussion of the characteristics, causes and economic consequences of irregular migration in Italy).

the degree of host-country language proficiency²¹ and (ii) the type of declared job qualification. Over a quarter of the migrants has a basic knowledge of the destination country's language and another 20% declare to have a good knowledge of it. A very high percentage of interviewed immigrants declared to have knowledge of one or two foreign languages; in particular, over 70% in the whole sample and about 68% in the estimation sample of the clandestine immigrants only. A significant share of the migrants (18.2%) can be classified as high-skilled on the basis of the job qualifications in the country of origin, although the majority of the migrants are low-skilled.

The level of skills and formal education attainments of the legal migrants seems to be substantially higher if compared with our sample. Although not directly comparable, the 2001 census data reveals that only 2.5% of the foreigners residing in Italy were illiterate, while 12.1% were literate but without formal education. It is interesting to note that 12.1% of the legal migrant population in 2001 had a university degree and 27.8% attained an high-school degree. Finally 32.9 and 12.6% had a middle and primary school diploma. Although not directly comparable, formal educational attainments of the sample of irregular migrants in SIMI seems to be significantly lower than those of the foreign population in Italy in 2001.

Only 19% of the individuals within our sample migrate within a network of already established migrants ("relatives and friends") from the same community of origin. This is a distinctive and important feature of our data if compared to other surveys on illegal migrants (such as for example the Mexican Migration Project) which are by construction highly skewed toward individuals who migrate within a network.

About 60% of the interviewees declared to have the intention to return home.

3.3 A Brief Comparison

While the two surveys share the common aim of gathering information useful to shed lights on illegal migrants they differ in several important dimension. The *first* important difference between SIMI and SMM is in the destination country of the irregular migrants, respectively Italy (and other european destinations) for the former and the US for the latter. Characteristics of the destination countries (for instance the immigration policy) affects both the quality (selectivity) and quantity of immigration flows and have important consequences on the behaviour of immigrants. While the US has a long tradition as a country of immigration (in particular for mexican migrants), Italy has a relatively short experience as a destination country; this implies, among other things, a weak presence of established migrant networks. A corollary element of this difference is given by the fact that the interviewed Mexicans have a higher number of children than the interviewees in SIMI and especially most of them are already in the destination country, i.e. the US. This does not occur in SIMI.

²¹Bleakley and Chin (2004) show the positive relationship between knowledge of the host-country language and the level of wages.

Second, while the focus of SMM is on mexican undocumented migrants, SIMI covers a sample of representative undocumented migrants from several countries of origin.

A *third* key difference is in the duration of the migration experience. SIMI was specifically designed with the aim of capturing information on illegal migrants as they enter the destination country, ie "*at the gate*". This approach allows the researcher to collect information on the push and pull factors which triggered the migration decision and on the (initial) plans/expectations of the migrants. On the other hand, the Survey of Mexican Migrants (SMM) collects information (and plans/expectations) of migrants who already live and work in the destination country; we expect that the experience and knowledge accumulated in the US plays a significant role in shaping migrants' return plans.

Fourth, the two surveys largely differ in the way migrants can rely on a network of established migrants (family and friends from the same country of origin). For the reasons outlined above, mexican migration in the US is often channelled through dense networks. This characteristics is not shared by SIMI which boasts a large number of "front runner" migrants. As many studies have emphasized, migrants networks play an important role in shaping the migration experience and in determining the selectivity of the incoming flows (McKenzie and Rapoport 2007; Munshi 2003) and most likely of return migration.

Besides these important diversities, there are important similarities in the two samples. The median age is very similar and the distribution of skills is not very different apart from the higher percentage of illiterate immigrants in SIMI.

The fundamental differences between SMM and SIMI - in particular with respect to the different "maturity" of the migration experience and to the role of networks - make, in our opinion, a comparative analysis particularly interesting.

4 Empirical Investigation

4.1 Model specification

Our simple model suggests that the level of skills (parameter a) affects positively the return plans of illegal migrants. In order to test this implication we specify a probit model for the individual *intentions to return* of the irregular *clandestine* migrants interviewed in SIMI and of the Mexicans in SMM that have no official US photo ID (ie undocumented migrants). In other words, regarding the data in SIMI we consider only a subsample of the data set described in Section 2 by excluding the asylum seekers, whose intentions to return are biased by political factors. The subsample in SMM is instead selected in order to have better representation of the undocumented population of mexican immigrants.

The dependent variable is equal to 1 if the individual clandestine migrant has stated that he/she would return home, zero otherwise. Exact definitions and basic statistics of the explanatory variables, as well as the relative data sources, are presented in Appendix C.

Our main task is to test whether individual skills are positively related with the intentions to return. In order to capture the multiple dimension of individual skills and abilities (i.e. schooling, job experiences and qualifications, knowledge of foreign languages etc.) we employ three different measures: (i) *years of schooling* in SIMI and a dummy for Mexican with a school degree higher than the secondary level in SMM (*School (>2ndary)*), which captures the level of formal education undertaken by the migrant; (ii) a dummy for *skilled workers*, i.e. for individuals who declared to be employed in the country of origin in occupations which require more advanced skills and qualifications; (iii) a measure of knowledge of the destination-country language.²²

More precisely, in SIMI we use two different measures for language knowledge: (a) the level of individual proficiency in the language of the country of destination (*host-country language proficiency*), which proxies the abilities to fully access the job market in the specific country of intended destination (not necessarily Italy); (b) the number of foreign languages known with at least a basic level of proficiency (*language proficiency*), which is a more general measure of foreign-language abilities. In the case of Mexicans in SMM we consider the good knowledge of English.

We expect all these variables measuring high skills to have a positive effect on the probability of returning to the country of origin. However, we ought to notice that, given the fact that Mexicans in SMM have been staying in the US much longer than the immigrants in SIMI, the language variable may also take another interpretation. A good knowledge of English for a Mexican residing in the US for some time may actually be the consequence of a longer duration of the migration spell (and/or an higher attitude to assimilate in the US society and labor market) and may not be interpreted solely as a measure of skills as in SIMI. In addition, the fact that an illegal overstayer Mexican knows English well may be revealing that he or she is in a network that may decrease his or her costs of migrating and lessen the effect of the skill waste. So, some caution should be applied in the interpretation of the sign of this coefficient.

Besides the migrant's skill level, individual intentions to return depend on many other variables. We sort them out into three different sets, one common to SIMI and SMM and two survey-specific. More exactly, pure *individual covariates*, which refer to the personal situation of the clandestine migrant, are used in the estimation for both samples. Then, we use *country-level variables* to refer to the characteristics of the various countries of origin in SIMI. For SMM instead we have measures of *social integration* since the interviewed migrants have been in the US for relatively long time.

- *Individual covariates.* The intensity of the skill waste might be affected by the presence of social networks, i.e. *migration networks*, in the destination country. On the one hand, networks of established migrants may provide both personal support and more accurate information on the destination country; hence, they can affect positively the expectation of obtaining a

²²For summary statistics on the variables employed in the empirical analysis see Table 1 for SMM and Section C for SIMI.

good job (see for instance Munshi, 2003). Also, as remarked in Section 2, migration within a network might enhance the probability of obtaining a legal permit to reside. A network is often essential for sustaining the migrant while working and living in the shadow waiting for an opportunity (such as family-sponsored legalization) to become a permanent legal resident. On the other hand, a migration network might increase temporary migration. Indeed, the existence of networks may reduce the perception of risks associated with the migration experience. As a consequence, this safety net might induce some individuals - in particular target-savers migrants who would have not migrated in the absence of a network since highly risk-adverse or highly attached to the home country - to migrate temporarily. Hence, a higher turnover and therefore higher rates of return home could be observed for individuals migrating within a network. In our specification the migration network is represented in SIMI by a dummy variable (*Migronetwork*) equals to 1 when the migrants declare that relatives (or friends) already live in the final destination and in SMM by the *number of relatives in the same US location* and its expected sign on the probability of return depends on whether the former effect (cost-reducing) or the latter one (turnover-increasing) prevails.

The decision of whether to return to the home country or stay in the destination country depends also on the individual opportunities in the country of origin in case of return. These are closely related to the previous job experiences at home. Thus, in SIMI we include a dummy variable for being *unemployed in the home country* before migrating, which is expected to have a negative influence on the probability of returning.

Moreover, together with business and entrepreneurial motivations, the migrant might decide to return because of family and cultural ties with the home country (see Dustmann, 2003a).²³ We therefore include a proxy for close family ties: a dummy for the presence of *children left at home* in SIMI and in general *family in Mexico* (meaning spouse and children) in SMM. They are expected to have a positive effect on the return choice.

Furthermore, since a previous migration experience generally lowers the non-monetary and psychological costs of subsequent migrations, we include the dummy variable *past migration* in SIMI for individuals that had such an experience in our sample. The expected sign is negative on the return choice.

- *Characteristics of the country of origin in SIMI.* In this category we include both economic and social variables. It is widely acknowledged that return intentions are affected by the expected economic opportunities in the country of origin (i.e. the “minimum” wage w^A in Section ??). Return migration will be generally higher in countries that are at an intermediate level of development and would offer opportunities to migrants who have

²³More broadly these factors might also proxy for the psychic cost of migration and may be modeled as a fixed disutility flow for each period the migrant is far away from the family.

accumulated human and financial capital. Hence, we introduce as a general proxy for the level of development the (*log of*) *per capita GNI* (2001) for the country of origin, which is expected to have a positive effect on return intentions.

The SIMI data set contains information about various push factors at the individual level and allows to distinguish between the occurrence of *social conflicts* and that of financial or *economic crises* in the village/city of origin.²⁴ They are included as dummy variables and separately in order to capture a possible different effect.

Moreover, we include the (*log of*) geographical *distance* as a proxy for the monetary and psychological cost of migration. A shorter geographical distance means lower cost of migration and this may have two different implications, similarly to the effect of migration networks. On the one hand, a lower cost means higher probability of integration and lower probability of return. On the other hand, a lower roundtrip cost to go home might imply less incentive to permanent migration, hence higher turnover and a revealed higher probability to return.

- *Measures of social integration in SMM.* Since Mexicans interviewed in SMM have an heterogeneous length of the migration spell in the US, it is important to control for the degree of assimilation/social integration. The use of some services might be a revealed measure of the individual's ability and willingness to become more socially and economically included in the host country. In the analysis, we consider a dummy variable equal to one when the migrant holds a US bank account and another dummy equal to one if the migrants declares preference toward *US english television stations*. We expect that a higher degree of social integration decreases the migration costs and the skill-waste effect, hence discouraging the return.

Other controls are also included in the estimation. For SIMI, regarding cultural ties with the country of origin, it is widely accepted that the cost of residing in a foreign country increases with the degree of cultural and social diversity between the origin and destination country. A different religion is an important dimension on which such diversities are expressed. Hence, we include a dummy variable, *Muslim*, that aims to capture the – generally greater – psychological cost of migration faced by individuals of Islamic religion. This variable is supposed to have a positive effect on the return intention. Still in SIMI we include macro-area dummies in order to capture the unobservable characteristics of the geographical areas of origin (due to the limited number of observations and the high number of represented countries of origin, we could not use single country dummies).

For the SMM sample, we also include macro-area dummies in order to capture the unobservable characteristics of both the area of origin (meso-regions of Mexico as defined by Oecd 2003) and for the city of residence in the US.

²⁴In terms of the model, they may be related once more to the “minimum” wage in the country of origin w^A , although the two variables will prove to have a different effect.

4.2 Estimation Results (SIMI): return intentions "at the gate"

Let us recall that the model estimates the probability of returning home through the intentions of the clandestine migrants. Table 3 shows the estimates of different specifications of the probit model in order to check for the robustness of the results.²⁵ In particular, in Models (1)–(4) we use the four different measures of skills one at a time. Although each measure captures a different dimension of individual abilities, some of them are expected to be highly correlated among each other. Notwithstanding this correlation, in Model (5) *years of schooling* and *skilled worker* are contemporaneously included, while in Model (6) we consider *skilled worker* together with *language proficiency*. Lastly, Model (7) includes the dummy *skilled worker* together with the more specific *host-country language proficiency*.

Table 3 - about here

Table 4 - about here

Table 4 reports only the marginal effects of the last specification – Model (7) – but all the others are available upon request.

Results are generally in line with our expectations. Skills, education and, interestingly, also host-country specific abilities – such as the knowledge of the language – affects positively the intention to return to the home country, as shown in the top part of Table 3 where all the measures of skills are significant at the 5% probability level²⁶ for all seven models.

We find that the knowledge of the language of the intended destination countries has a positive and significant effect on the intentions to return either when considered singularly (Model 4) and when considered together with a measure of job qualification (Model 7). Moreover, the probability of return of skilled individuals is higher than the probability of return of an individual with no job qualification or experience: according to Table 4, having some skills increases the probability of return by more than 17%.

Most existing studies on return migration and return intentions of *legal* migrants highlight a generally lower propensity to return for highly skilled individuals. Besides dealing exclusively with legal migrants, these studies do not disentangle the effects of migrants networks on the likelihood of returning in the host country. Using data from the German Socio-Economic Panel, Dustmann (1996, 2003b) finds a negative effect of years of schooling on the intention to return to the home country. He also finds that for those who intend to return, schooling has a negative impact on the duration of the migration spell. This is

²⁵As mentioned at the end of Section 3, the estimation has been conducted only on the major categories of undocumented immigrants.

²⁶Henceforth, “significant” means “significant at the 5% probability level” unless differently specified.

explained by the fact that higher schooling, guaranteeing higher salary, reduces the time needed to achieve a pre-determined saving target. In a related study on the factors that affect the return migration of a cohort of foreign-born in the US, Reagan and Olsen (2000) find no evidence of skill bias in return migration. Instead, our results seems to be consistent with Zhao (2002). In his analysis on rural to urban migration in China, Zhao finds that better educated and skilled rural migrants are more likely to return to their village of origin. The explanation offered by the author fits our interpretation: both the strong segmentation in the urban labor market and the tight migration regulatory system in China prevent the full participation of skilled workers to the local labor market when coming from rural areas. This imposes heavy costs on skilled migrants in terms of rewards to education and work experience.

Also the other covariates included in our estimation (mainly for control) show the expected signs.

We find evidence of relevance of family and cultural ties. In our estimations, an individual with children left in the home country is more likely to return than in the case where she has no children left home. Our evidence is in accordance with Dustmann (2003a) where the presence of children in the host country negatively affects the return intention of parents.

Interestingly, *migration within a network* has a positive effect on the intention to return. As argued above, this result might be explained by the positive externalities provided by the social network in terms of reduction of risks and help in locating good opportunities to individuals who would have not migrated absent these forms of support.²⁷

Moreover, it is widely acknowledged that previous migrating experiences reduce the psychological cost of further moves. This is confirmed by our analysis as the dummy variable *past migration* is negative and highly significant. The status of being unemployed in the country of origin before departure, i.e. a proxy for lack of opportunities at home, shows a negative sign on the intentions to return although it is not statistically significant in our estimates.

Furthermore, illegal migrants are also found to be more willing to return when their countries of origin are relatively more developed. Countries that have an above average level of *per capita GNI* are more likely to attract illegal migrants back home.

Our estimates also point out that *social conflicts* and *economic crisis* have different effects on the return choice. Having experienced an economic or financial crisis in the village of origin seems to have a temporary effect on the choice of leaving the country of origin, whereas social conflicts have a more permanent effect on migration. In fact, while social conflicts or civil wars may be perceived

²⁷We also find a weak support on the hypothesis that the presence of a network has a heterogeneous effects on the probability to return according to the level of skills. The interaction effect between network and years of formal education is positive and significant in some empirical specification (not reported here but available upon request). These seems to suggest that individuals with lower level of formal education are more likely to stay in the host country if they can rely on a more dense network of already established migrants.

as long-term shocks and induce permanent emigration, economic or financial crises may lead to temporary emigration that is subsequently reversed when economic conditions improve again.

Finally, the coefficients on the proxies for monetary and psychic cost of migration, namely *distance* and *Muslim*, are both significant and positive. Note that in Borjas and Bratsberg (1996) the effect of distance on out-migration of foreign-born in the US is found to be negative. The different result might be explained by the fact that Italian immigration is a more recent phenomenon hence, unlike in the US, distance from the home country is not very strongly (inversely) correlated with the presence of a large stock of established migrants from the same country of origin (network effect).

4.3 Estimation Results with the US-Mexico dataset SMM

The intentions to return for Mexicans in SMM are measured by considering the interviewed individuals that declared to go back to Mexico and not remain in the US indefinitely.²⁸ Similarly to the estimation for SIMI, we fit a probit model whose results are reported in Table 5. The last column of Table 5 presents the marginal effects of the variables for model(4).

Table 5 - about here

The results on the relationship between individual human capital and return intentions is less clear-cut than in the case of the illegal migrants in Italy (SIMI). Undocumented migrants with higher formal educational attainment (Mod 1) are less likely to return in Mexico, while if we consider job qualification as a proxy for skills the effect is positive (and in line with the prediction of the simple theoretical model in Section 2). A good knowledge of English lowers the probability of returning home. As mentioned in the presentation of the model (Section 4.1), a good knowledge of English may capture a higher degree of integration and a higher available social network to rely on. As a consequence, this will lower the skill-waste effect and the migration costs. It is important to note that the effects of schooling on the intention to return depends on the acquired experience in the US. In Mod 4 we report the estimates with a differential effects of schooling for migrants who reside in the US since less than 6 months (like our sample in SIMI). The coefficient of the interaction effect (*school(>2ndary)*Less than 6 months*) is positive and significant. These finding seems to suggest that return plans by more skilled individuals are subsequently revised and/or undocumented skilled migrants tends to be underrepresented at high maturity of the migration experience because the outmigration of skilled individuals takes place earlier than for the unskilled.

²⁸This refers to question 23 of the PEW questionnaire and we considered as choosing to return all the interviewees that did not declare to remain in the US “All your life” and “As long as you ar/can”. Estimation on the intended duration of stay have also been performed and confirm the main results presented here (available frmo the authors on request).

The somehow different behaviours of the sample might be (at least partly) explained by the different environment within which migration takes place. On one hand, Italy with a highly restrictive immigration policy which severely constrains the opportunities of irregular migrants (the opening of a bank account for an irregular migrant in Italy would be simply impossible). These should imply a relatively high skill waste. On the other hand, the US with a relatively less restrictive policy where immigrants are able to access some key services and opportunities in particular thanks to a consolidated and large networks of immigrants from previous cohorts.

With respect to the other controls, we find that the measures of social/economic integration employed in the analysis are significant determinant of return intentions and have the expected sign. Indeed, possessing a US bank account or preferring US english television station over mexican or US spanish stations seem to be associated with a negative effect on the intentions to return. The number of relatives in the US, our proxy for the size of the network, also decreases the probability of return in Mexico.

Among the individual characteristics, no contradictory signs appears in the estimates. The presence of family in Mexico, as also the presence of children back home in SIMI, affects positively the intentions to return. Being a male increases the probability of going back, these might be due to the fact that female immigrants are more likely to be tied migrants. Older individuals are more likely to return and the duration of migration spell in the US is associated with a lower intention of return.

5 Conclusions

In this paper we argue that since the status of illegal migrant hinders the full utilization of individual skills, as a consequence, the opportunity cost of returning home is lower for highly skilled illegal migrants rather than individuals with few or no skills. This evidence contrasts the common findings that legal skilled migrants tend to stay longer, especially due to their higher ability to assimilate in the host country.

This result has been shown theoretically and supported empirically. In a simple two-period model illegality is modeled as a tax on skills (but without generating any tax revenue and therefore causing *skill waste*) and the return-home choice is more likely for the most skilled migrants. A probit model on the intentions to return has been estimated for a sample of clandestine immigrants in Italy and for a sample of undocumented Mexican immigrants. The endowment of personal abilities affect the intentions to return home in the predicted direction. The italian sample has the key characteristic of measuring "expectation at the gate" since the irregular migrants just crossed the border or have a very short migration experience (less than 6 months in the destination country). For this sample the result is robust to four different measures of skills (years of schooling, foreign language ability, host-country language proficiency, level of

skills on the job at home) after controlling for several individual and country-specific covariates in the case of the Italian sample. For the Mexico-US sample, which contains information on individuals with a longer migration experience and who can rely on a more dense network of established migrant, our hypothesis is not rejected by the data only when measuring skills with job qualification. The results are in line with our expectation if we consider those irregular migrants who had resided in the US for less than 6 months (as for the Italian sample). These findings seem to suggest that return plans by more skilled individuals are subsequently revised and/or undocumented skilled migrants tend to be underrepresented at high maturity of the migration experience because the outmigration of skilled individuals takes place earlier than for the unskilled. This hypothesis needs to be confirmed by more in-depth analysis.

To our knowledge, this is the first study which investigates return plans of irregular migrants in the home country and relates plans with individual characteristics such as the level of human capital.

Our findings point out one theoretical consideration and one policy conclusion if the intentions to return that we considered here reveal actual behavior of the individuals.

First, since skilled illegal migrants are more likely to return home, this study does not imply that illegal – vs. legal – migration is more beneficial for the origin countries (since, for instance, it may alleviate the brain drain). On the contrary, by reversing the argument of the recent literature on beneficial brain drain (Mountford, 1997), the skill waste associated with the status of illegal migrant would strongly reduce the incentive for migrants to invest in their human capital both before and during the migration spell. This would significantly decrease human-capital formation in current emigration countries, as well as the overall flows of human capital and knowledge brought back by migrants.

Secondly, our paper provides indirect support to skill-selective immigration policies. Since the Italian legal system does not show any kind of skill selection for immigrants and the US system has recently turned more tough on all kinds of immigration, the conclusions may present a strong argument in favor of skill-selective policies rather than a generic ban to migration. Indeed, the results presented in this paper point out that a generic ban is not neutral and is strongly biased against skilled migrants.

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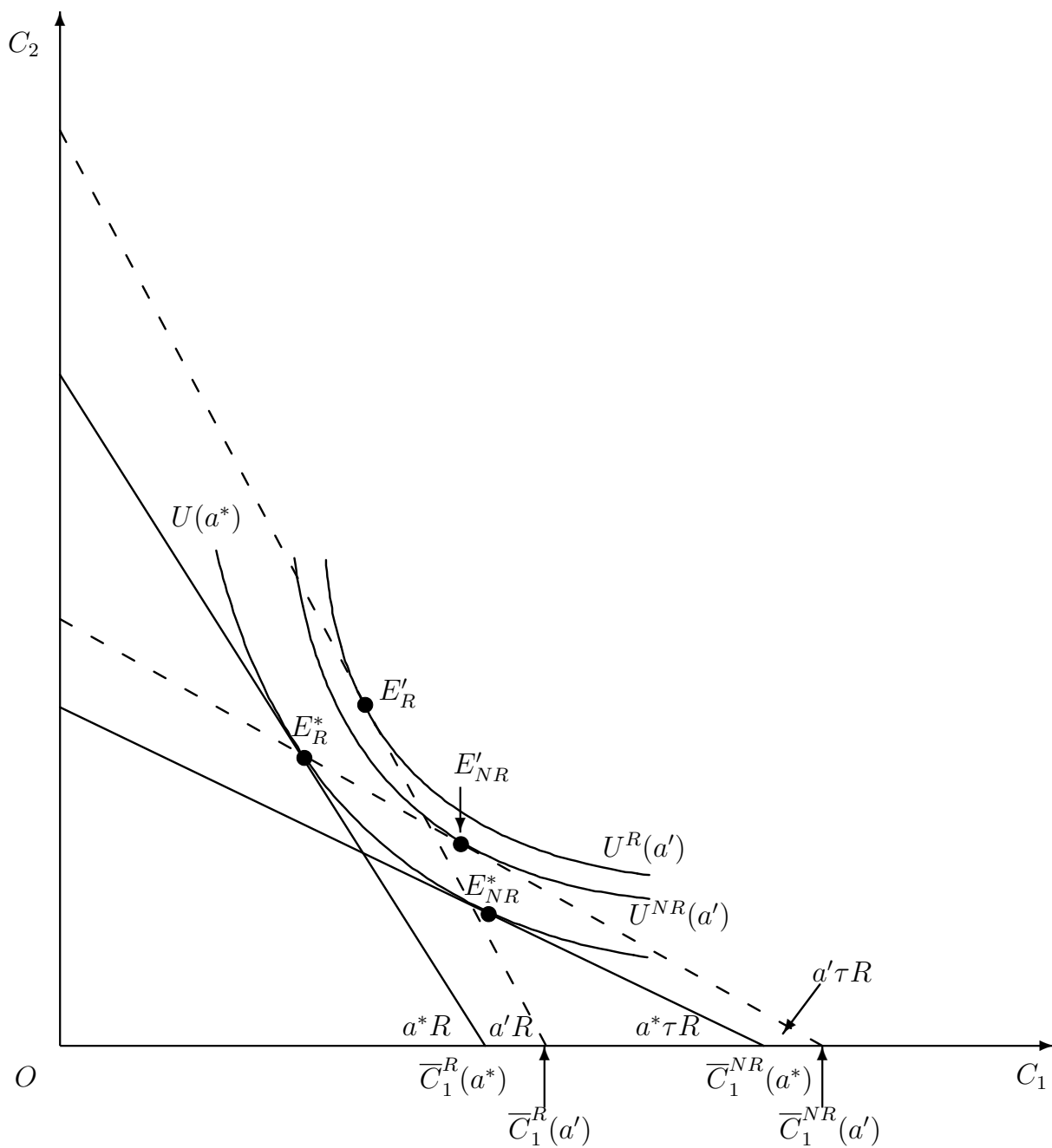


Figure 1: The welfare effect of skill variation in both cases of return and no return.

Table 1: Summary Statistics of SMM 2005, Survey of Mexican Migrants
Entire dataset and sub-sample used for the estimation (undocumented; age 18-60)

Variables	All	Subsample
General		
Observations	4836	2439
Median age (in years)	31 (10.63)	28.2 (8.1)
Weekly individual earnings declared (median, in 2005 current US\$)	340 (192)	305.9 (164.2)
Number of children (mean)	1.85 (1.65)	1.53 (1.49)
children in the US	1.40 (1.55)	1.02 (1.3)
Intention to return home	37.4%	45.5 %
Intended length of stay (in years)	4.34 (4.28)	3.88 (3.71)
US location	Los Angeles, CA (35.6%); New York, NY (10.8%); Chicago, IL (19.5%); Atlanta, GA (7.7%); Dallas, TX (20.2%); Raleigh, NC (6.2%)	Los Angeles, CA (29.7%); New York, NY (11.2%); Chicago, IL (20.9%); Atlanta, GA (8.6%); Dallas, TX (20.4%); Raleigh, NC (5.2%)
Mexican meso-state	Centre: 29.8%; Centre-West: 43.4%; North-East: 4.1%; North-West: 5%; South-Southeast: 17.7%;	Centre: 35.8%; Centre-West: 36.3 %; North-East: 3.5%; North-West: 4.5%; South-Southeast: 19.9%;
Skill characteristics		
Illiteracy	2.0 %	1.5 %
School degree		
primary	32.3 %	29.5 %
middle	37.1 %	40 %
high-school	22.3 %	23.6 %
university	6.3 %	5.4 %
Good proficiency in English	13.6 %	9.1 %
Job qualification (a)		
high-skilled	11.2 %	11.2 %
Migration network / social and economic integration in the US		
Number of relatives (people cohabiting) already in the destination	12.7 (14.8)	8.6 (11.9)
Migration spell (months in the US)	112.9 (99.8)	71.4 (66.4)
Owns a US bank account	29.8	13.6
Prefers US english stations	18.9	16.8

(a) High-skilled qualification is considered for the following (declared) jobs: owner/proprietor of a business; administrator/manager of a business; professional

Table 2: Summary Statistics of SIMI 2003, Survey on Illegal Migration in Italy: Entire Sample and Subsample of Clandestines used for the Estimation (standard errors in parentheses).

Variables	All	Estim. Sample
<i>General</i>		
Number of sample units	920	482
Median Age (in years)	27.2 (6.20)	26.6 (5.78)
Family monthly income at home (median, in 2003 current US\$)	218 (232)	196 (170)
Expected monthly income at destination (median, in 2003 current US\$)	877 (550)	906 (409)
Number of children per head (mean)	0.57 (1.09)	0.59 (1.12)
children left home per head (mean)	0.45 (0.95)	0.48 (0.99)
Cost of the trip (median, in 2003 current US\$)	1,645 (1,417)	1,527 (1,316)
Intention to return home	58.9 %	71.6 %
Intended length of stay (in years)	6.0 (3.7)	6.3 (3.4)
<i>Sample composition</i>		
Clandestines	53.5 %	100 %
Asylum Seekers	34.4 %	–
Others	12.1 %	–
<i>Skill characteristics</i>		
Illiteracy	13.2 %	12.0 %
School degree		
primary	27.1 %	25.0 %
middle	30.8 %	34.0 %
high-school	21.7 %	21.2 %
university	5.0 %	4.2 %
Good host-country language proficiency ^a	20.2 %	16.0 %
Basic host-country language proficiency	26.6 %	34.0 %
Knowledge of 1 or 2 foreign languages	70.75 %	68.24 %
Job qualification ^b		
high-skilled	18.4 %	13.1 %
low-skilled	71.7 %	76.2 %
no qualification	9.9 %	10.6 %
<i>Migration network</i>		
Number of relatives (people cohabiting) already in the final destination per head	0.19 (0.39)	0.25 (0.43)

^a Percentage of migrants with declared good proficiency in the language of the intended destination country (“good” and “very good” level in the original questionnaire).

^b High-skilled qualification is considered for the following (declared) jobs before migration: translator, secretary, financial advisor, doctor or chemist, lawyer, teacher, manager, consultant, entrepreneur.

Table 3: Estimates of the Probit Model for the Intention to Return:
Some Specifications

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Skills							
<i>Years of schooling</i>	0.106 ⁺ (0.059)				0.099 ⁺ (0.059)		
<i>High-Skilled worker</i>		0.553* (0.23)			0.42 ⁺ (0.242)	0.467* (0.236)	0.507* (0.234)
<i>Knowledge of foreign languages</i>			0.198** (0.075)			0.173* (0.077)	
<i>Host-country language proficiency</i>				0.295** (0.107)			0.275** (0.108)
Individual covariates							
<i>Migronetwork</i>	0.312 ⁺ (0.177)	0.352* (0.176)	0.288 (0.178)	0.332 ⁺ (0.183)	0.310 ⁺ (0.178)	0.293 (0.179)	0.337 ⁺ (0.184)
<i>Unemployed in the home country</i>	-0.175 (0.15)	-0.125 (0.153)	-0.203 (0.15)	-0.207 (0.152)	-0.118 (0.154)	-0.128 (0.154)	-0.127 (0.157)
<i>Children in the home country</i>	0.418* (0.177)	0.396* (0.177)	0.434* (0.177)	0.405* (0.178)	0.384* (0.178)	0.395* (0.179)	0.359* (0.180)
<i>Past migration</i>	-0.385* (0.164)	-0.43** (0.163)	-0.412* (0.164)	-0.422** (0.165)	-0.412* (0.165)	-0.436** (0.165)	-0.451** (0.166)
Country of Origin							
<i>GNI per capita (log, 2001)</i>	0.497** (0.139)	0.530** (0.138)	0.471** (0.140)	0.489** (0.140)	0.513** (0.139)	0.493** (0.140)	0.511** (0.141)
<i>Social conflict</i>	-0.775** (0.181)	-0.758** (0.178)	-0.717** (0.179)	-0.695** (0.181)	-0.791** (0.182)	-0.740** (0.180)	-0.721** (0.182)
<i>Economic crisis</i>	0.524* (0.227)	0.561* (0.227)	0.441* (0.230)	0.463* (0.234)	0.552* (0.228)	0.476* (0.231)	0.496* (0.235)
<i>Distance(in log)</i>	0.233** (0.077)	0.257** (0.077)	0.268** (0.078)	0.249** (0.080)	0.239** (0.077)	0.273** (0.078)	0.261** (0.081)
<i>Muslim</i>	0.379** (0.159)	0.318* (0.157)	0.354* (0.159)	0.303 ⁺ (0.160)	0.372* (0.160)	0.349* (0.159)	0.301 ⁺ (0.160)
<i>Asia</i>	-0.746** (0.254)	-0.769** (0.250)	-0.691** (0.256)	-0.730** (0.256)	-0.758** (0.255)	-0.725** (0.258)	-0.763** (0.259)
<i>South America</i>	-2.65** (0.164)	-2.837** (0.163)	-2.707** (0.164)	-3.049** (0.165)	-2.74** (0.165)	-2.818** (0.165)	-3.171** (0.166)

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Table 3: continued

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Europe</i>	(0.950) -0.012 (0.329)	(0.947) 0.048 (0.326)	(0.942) 0.310 (0.336)	(0.967) -0.038 (0.336)	(0.951) -0.042 (0.330)	(0.945) 0.243 (0.338)	(0.959) -0.0005 (0.338)
<i>North Africa</i>	-0.128 (0.379)	0.009 (0.374)	-0.034 (0.378)	-0.070 (0.383)	-0.116 (0.380)	-0.034 (0.378)	-0.067 (0.384)
<i>Constant</i>	-3.70** (1.000)	-4.195** (1.026)	-3.70** (0.996)	-3.47** (1.009)	-4.188** (1.044)	-4.238** (1.039)	-4.104** (1.058)
<i>Observations</i>	430	438	436	427	430	436	427
<i>Pseudo R²</i>	0.168	0.173	0.176	0.181	0.174	0.183	0.190
<i>Log likelihood</i>	-214.9	-219.6	-217.5	-211.4	-213.5	-215.5	-209.1

Standard errors in parentheses / Probability of return (baseline) = 0.754

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 4: Marginal Effects of Model (7) for SIMI

Regressors	Marginal effects
<i>Highly skilled worker</i>	0.178** (0.088)
<i>Host-country language proficiency</i>	0.087*** (0.03)
<i>Migronetwork</i>	0.100* (0.051)
<i>Unemployed in the home country</i>	-0.040 (0.049)
<i>Children in the home country</i>	0.106** (0.050)
<i>Past migration</i>	-0.152*** (0.058)
<i>GNI per capita (log, 2001)</i>	0.161*** (0.044)
<i>Social conflict</i>	-0.214*** (0.048)
<i>Economic crisis</i>	0.173** (0.088)
<i>Distance(in log)</i>	0.082*** (0.025)
<i>Muslim</i>	0.096** (0.053)
<i>Asia</i>	-0.268*** (0.096)
<i>South America</i>	-0.754*** (0.041)
<i>Europe</i>	-0.001 (0.106)
<i>North Africa</i>	-0.021 (0.124)
<i>Observations</i>	427

Probability of return (baseline) = 0.757 0.633

Note: for dummy variables the marginal effect is referred to change from 0 to 1

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Estimates of the Probit Model for the Intention to Return in SMM

Regressors	(1)	(2)	(3)	(4)	(5)
Dependent variable: Intentions to return					Marg. Effects
Skills					
School (> 2ndary)	-0.177** (0.077)			-0.217*** (0.077)	-0.085*** (0.031)
Highly skilled		0.319*** (0.116)			
Good English			-0.466*** (0.147)		
School (> 2ndary) * Less than 6 months in US				0.467*** (0.141)	0.185*** (0.055)
Social Integration / network in the US					
US Bank account	-0.281*** (0.100)	-0.303*** (0.107)	-0.278*** (0.101)	-0.262*** (0.100)	-0.099*** (0.037)
US Television programs	-0.163* (0.095)	-0.174* (0.105)	-0.1 (0.098)	-0.155* (0.094)	-0.059* (0.036)
Number of relatives in the US	-0.008** (0.003)	-0.007** (0.003)	-0.008** (0.003)	-0.008** (0.003)	-0.003** (0.001)
Other covariates					
Family in Mexico	0.351*** (0.073)	0.348*** (0.078)	0.347*** (0.074)	0.331*** (0.073)	0.129*** (0.029)
Age (years)	0.012*** (0.004)	0.008* (0.005)	0.01** (0.004)	0.011*** (0.004)	0.004** (0.002)
Male	0.514*** (0.071)	0.518*** (0.075)	0.503*** (0.071)	0.521*** (0.071)	0.200*** (0.026)
Migration duration	-0.006*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.006*** (0.001)	-0.002*** (0.0002)
US location: Los Angeles, CA	-0.173 (0.116)	-0.211* (0.125)	-0.168 (0.116)	-0.183 (0.116)	-0.071 (0.045)
US location: Chicago, IL	0.167 (0.121)	0.116 (0.131)	0.153 (0.12)	0.151 (0.121)	0.059 (0.047)
US location: Atlanta, GA	0.301** (0.148)	0.288* (0.160)	0.289** (0.147)	0.293** (0.148)	0.116** (0.058)
US location: Dallas, TX	0.016 (0.128)	0.038 (0.138)	0.009 (0.127)	0.014 (0.128)	0.005 (0.049)
US location: Raleigh, NC	0.278 (0.171)	0.236 (0.179)	0.312* (0.169)	0.295* (0.171)	0.117* (0.067)
Mexican State: Centre-West	-0.157* (0.085)	-0.199** (0.090)	-0.15* (0.085)	-0.146* (0.085)	-0.056* (0.033)
Mexican State: Northeast	-0.137 (0.188)	-0.207 (0.202)	-0.143 (0.189)	-0.100 (0.186)	-0.038 (0.071)
Mexican State: Northwest	-0.252 (0.172)	-0.354* (0.187)	-0.24 (0.171)	-0.231 (0.171)	-0.088 (0.062)
Mexican State: South-Southeast	-0.063 (0.095)	-0.088 (0.101)	-0.049 (0.095)	-0.045 (0.095)	-0.017 (0.037)
Constant	-0.192 (0.185)	-0.24 (0.183)	-0.291* (0.171)	-0.222 (0.185)	
Observations	1658	1442	1661	1658	1658
Pseudo R2	0.16	0.157	0.16	0.165	0.165
Log likelihood	-954.7	-836.8	-956.5	-948.8	-948.8

Column (5): marginal effects based on column 4 (discrete changes for dummy variable (baseline prob.: 0.421
Robust standard errors in parentheses / * significant at 10%; ** significant at 5%; *** significant at 1%

C Variables Description on the SIMI Estimation

	Description	Exp. sign	Mean	St. Dev	Type	Source
<i>Years of schooling</i>	number of years the individual attended school (categorical variable: 0 none, 1 from 1 to 5 years, 2 from 6 to 8 years, 3 from 9 to 11 years, 4 more than 12 years)	+	3.37	1.21	categorical	Questionnaire
<i>Host-country language proficiency</i>	equals 2 if the migrant has good or advanced knowledge of the language of the intended destination country, 1 if she has a basic knowledge and 0 otherwise	+	0.58	0.74	categorical	Questionnaire
<i>Knowledge of foreign language</i>	equals the number of foreign languages known with at least a basic level of proficiency	+	1.87	1.04	categorical	Questionnaire
<i>Highly skilled worker</i>	equals 1 if the individual possesses highly qualified job skills (translator, secretary, financial advisor, doctor or chemist, lawyer, teacher, manager, consultant, entrepreneur) and 0 otherwise	+	0.19	0.39	dummy	Questionnaire
<i>Migro-network</i>	equals 1 if the individual has relatives and friends in the intended country of destination, 0 otherwise	+/-	0.18	0.39	dummy	Questionnaire
<i>Unemployed in the home country</i>	equals 1 if the migrant is not employed before departure, 0 otherwise	-	0.56	0.5	dummy	Questionnaire
<i>Social conflict</i>	equals 1 if the migrant declares that there was a social conflict in the village or city of origin (residence) in the last 5 years, 0 otherwise	-	0.68	0.46	dummy	Questionnaire

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	Description	Exp. sign	Mean	St. Dev	Type	Source
<i>Economic crisis</i>	equals 1 if the migrant declares that there was an economic or financial crisis in the village or city of origin (residence) in the last 5 years, 0 otherwise	+/-	0.86	0.34	dummy	Questionnaire
<i>Children in the home country</i>	equals 1 if one or more children are in the home country, 0 otherwise	-	0.06	0.24	dummy	Questionnaire
<i>Relatives in the home country</i>	number of relatives that are left in the country of origin	-	5.17	3.98	continuous	Questionnaire
<i>Past migration</i>	equals 1 if the individual has already done a migration experience (internal or international), 0 otherwise	-	0.27	0.44	dummy	Questionnaire
<i>Distance</i>	distance in 1000 Km (Geographical co-ordinates where used to calculate distance; rounded latitude and longitude figures were used for the purpose of finding the approximate geographic center of the origin and destination countries)	+/-	3.62	2.04	continuous	Gazetteer of Conventional Names, Third Edition, August 1988, US Board on Geographic Names and on other sources.
<i>Muslim</i>	equals 1 if the individual declares to be a Muslim; 0 otherwise	-	0.59	0.49	dummy	Questionnaire
<i>Europe</i>	equals 1 if the individual country of origin is in Europe, 0 otherwise	+	0.25	0.43	dummy	Questionnaire
<i>North Africa</i>	equals 1 if the individual country of origin is in North Africa (African Mediterranean countries), 0 otherwise	+	0.13	0.34	dummy	Questionnaire
<i>Asia</i>	equals 1 if the individual country of origin is in Asia, 0 otherwise	-	0.27	0.44	dummy	Questionnaire

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	Description	Exp. sign	Mean	St. Dev	Type	Source
<i>South America</i>	equals 1 if the individual country of origin is in Central and Latin America, 0 otherwise	-	0.014	0.12	dummy	Questionnaire