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Crisis in countries of origin and illegal immigration into Europe via Italy

Maria Concetta Chiuri, Giuseppe De Arcangelis and Giovanni Ferri

Department of Economics
University of Bari
Italy

mc.chiuri@dse.uniba.it g.dearcangelis@caspur.it g.ferri@dse.uniba.it

Global Commission on International Migration
1, Rue Richard Wagner
CH:1202 Geneva
Switzerland

Phone: +41:22:748:48:50
E:mail: info@gcim.org
Web: http://www.gcim.org

Global Commission on International Migration

In his report on the 'Strengthening of the United Nations - an agenda for further change', UN Secretary-General Kofi Annan identified migration as a priority issue for the international community.

Wishing to provide the framework for the formulation of a coherent, comprehensive and global response to migration issues, and acting on the encouragement of the UN Secretary-General, Sweden and Switzerland, together with the governments of Brazil, Morocco, and the Philippines, decided to establish a Global Commission on International Migration (GCIM). Many additional countries subsequently supported this initiative and an open-ended Core Group of Governments established itself to support and follow the work of the Commission.

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Introduction[1]

During the 1990s, Italy, once the "land of voyagers, saints and emigrants", became the main gateway into the European Union (EU) for illegal immigrants. Although estimating the clandestine population is a delicate exercise, involving problems of legal definitions and statistical methods, some OECD countries publish official figures for unauthorised immigrants, based on apprehensions at the border. Published data are often discontinuous. Statistics published by EUROSTAT show that 38% of the 54,428 illegal immigrants apprehended in the European Community during the third quarter of 1999 had entered through Italy, followed by France (23%) and Spain (18%). In 1998, 40,201 were apprehended after illegally entering Germany; 16,500 in the UK and about 91,000 in Italy. [2]

As the EU defines its policies on immigration – seeking to strike a balance between the needs of an ageing population no longer willing to accept unskilled work and the challenge of integrating the newcomers – increasing numbers of illegal immigrants reach Western Europe from poorer countries. But little is known about this phenomenon: there is only scant information available on legal immigrants and almost none at all about illegal ones.

The literature generally divides the factors determining immigration into two main groups: 'pull' (or demand-side) factors and 'push' (or supply-side) factors. Among the former, the literature stresses institutional features and policies implemented in the host country, as well as other factors which determine the costs and expected benefits of immigration. These include the presence of social networks and the regulation of the labour market, which if too rigid may foster the growth of the black-market economy. Since Harris and Todaro's (1970) influential study, the literature has emphasised wage differentials between the host country and the home country among push factors. However, political and financial crises, social conflict and famine in the countries of origin may be of major importance for illegal immigration into the EU.

The aim of this paper is to establish whether and to what extent the economic, financial and political crises that have hit countries of origin – particularly those in the neighbouring Mediterranean and the Balkan areas – have indeed intensified (illegal) migratory flows into the EU via Italy. These crises are factors additional to the traditional determinants. Specifically, the paper analyses the trend of illegal immigration over time and by country of origin as approximated by the number of expulsion orders issued by the Italian authorities, which averaged 34,100 between 1991-93 and increased thereafter to reach 130,791 in 2000 and 149,783 in 2002. Besides studying the phenomenon of illegal immigration *per se*, we focus on illegal aliens rather than legal ones for two reasons. Firstly, the former better approximate the migration inflow into Western Europe because many immigrants entering Italy are only in transit towards other EU destinations. Secondly, considering illegal rather than legal immigrants purges the analysis from the distortions that would otherwise arise from the various amnesties granted in Italy over the period under study. The analysis is conducted for the period 1990-2000, which comprises various crises that have erupted in, or close to, the Mediterranean basin (e. g. in the area inhabited by the Kurdish people) and in the Balkans (e. g. conflicts in the former Yugoslavia or the various crises in Albania).

[1] We are grateful to officials at the Immigration and Border Police Service of the Italian Ministry of Interiors for providing us with both data and information essential for our analysis. We wish to thank Marco Committeri and the participants in various seminars for their comments on a previous draft of this paper. We acknowledge financial support from the EC, contract no. SERD–2000–00177, project title: "Economic and Political Re-integration in an Enlarged EU: Implications for Regional Stability". The usual disclaimer applies.

[2] See Delaunay and Tapinos (1998) and Hilderink et al. (2003).

Our findings confirm that generally defined "crises in home countries" significantly amplify illegal immigration into (or through) Italy. To that extent, our econometric estimates detect the occurrence of a quantitatively significant increase in the proportion of illegal immigrants entering Italy from crisis-hit countries. In particular, when a country suddenly moves from a situation of 'moderate risk' to one of 'very high risk' (according to the ICRG Risk Rating System described below), the share of illegal immigrants from that country increases by around two percentage points.

Our results therefore suggest possible consequences of the different future policy directions on immigration control in both Italy and the European Union in the face of crises in neighbouring countries. Specifically, among the options for the EU, an interventionist policy that aims at preventing mass immigration by promptly lessening the effect of crises in the origin country may be more cost-effective than non-intervention accompanied by increased national patrolling and controls on the borders.

Section 2 of the paper synthesises the main tenets of the literature as to the major determinants of illegal migration. Section 3 describes both the legal and illegal migration choice by means of a cost-benefit approach. The bulk of the paper (section 4) features the explanation of the data, discusses some descriptive evidence and presents the results of the econometric estimates. Section 5 gathers the concluding remarks.

The determinants of illegal immigration: a survey of the literature

By definition, an immigrant is illegal if s/he contravenes the law by entering a country without adequate visa (or remaining in it after her/his visa expires), and if s/he does not hold the status of "political refugee". Because of its very nature, therefore, the magnitude of the phenomenon in the EU cannot be accurately measured. Nevertheless, using data from border control authorities on apprehensions, illegal trespassing and detentions, the International Centre for Migration Policy Development (ICMPD) estimated that in 1993 the annual flow of illegal immigrants into the EU was around 350,000; using the ILO's calculation, the irregular foreign population would correspond to 10-15% of the size of the officially recorded resident foreign population, which was around 20 million in 1997. [3]

As Zimmerman (1994) shows, migratory flows can be classified into various historical phases according to their intensity. At the turn of the 19th century, for example, migration flows took place mainly from Europe to the American continent (both South and North). As a consequence, in 1913 around 4% of the populations of Canada and Argentina were first generation immigrants from Europe. Between the 1950s and the early 1970s, migration continued apace, but mainly within the Old Continent: 7%, 8% and 6% respectively of Belgium, France and Germany's labour forces consisted of foreign workers coming mainly from Southern Europe.

Zimmerman further highlights that the data on migration display a sharp reversal of trend from the mid-1970s onwards, with a steep decline in flows. The decline in migration was mainly due to changes in national laws, which became much less tolerant than in previous decades. The oil crisis of 1973 and increased unemployment changed attitudes towards immigration in the Western economies and the rules of admission were tightened.

[3] See Hilderink et al. (2003).

Yet the income gaps between the South and North of the world have not narrowed, while the costs of transport and information have considerably diminished. The 'traditional' incentives for migration from South to North (and subsequently from East to West) have not lost their force. Consequently, migration has constantly increased and, given that it is now legally restricted, migrants increasingly resort to unlawful means of entry.

Although the literature on the subject continues to grow, the motives for emigration and the effects of the presence of immigrants in the host country have still to be fully explained. Most empirical research on these aspects has concentrated on immigration into the United States (especially illegal immigration from Mexico). This is probably due to the fact that the US has historically been the main migrant receiver due to the higher wages there. Yet European immigration differs from that of the US for various reasons (see Coppel, Dumont and Visco, 2001): net flows into the EU grew during the 1980s, peaking in the 1990s owing to wars and ethnic conflicts. These specific historical events, together with tighter controls at European borders, have reduced the flow of legal immigrants and increased the flow of illegal ones. Therefore, for historical and geo-political reasons, immigrants into the EU have demographic characteristics and expectations that differ substantially from those of immigrants into the United States. Moreover, to a certain extent, European immigration may be temporary in nature.

Little is known about these phenomena, and further and more refined research is required before conclusions pertinent to policies on immigration into the EU can be drawn. The shortage of empirical studies is certainly due to the lack of reliable data on immigration, especially illegal immigration. This is a shortcoming that this paper seeks to remedy by means of the data set available at the Italian Ministry of the Interior on annual apprehensions.

The theoretical and applied literature on immigration necessarily refers to the pioneering work by Harris and Todaro (1970). In their model, the decision to emigrate is caused by wage differences in three distinct labour markets: a competitive agricultural market, an urban market with a wage rate above the equilibrium level, and an informal urban sector which guarantees a subsistence-level income to the unemployed resident in the area[4].

Although the wage rigidity hypothesis is to some extent plausible, especially with reference to Europe, Harris and Todaro's explanation of immigration movements solely in terms of wage differences is too simplistic. Later studies have observed that emigration from poor countries increases as economic development takes place in the country of origin (see Hatton and Williamson, 2002; and others), detecting, in particular, a hump-shaped relationship, although the debate concerning the link between convergence in the source region and labor mobility (see Faini 1996) is still open. In addition, studies have documented and interpreted the importance of close economic interactions between immigrants and their communities of origin (see Lucas and Stark, 1985; Rosenzweig, 1988; Rosenzweig and Stark, 1989; Borjas, 1994). For altruistic reasons or through implicit contracts, families finance migration as a way to diversify income risks, by supplying family labour in various productive sectors in the country and abroad.

Moreover, emigrant workers usually select their final destinations on the basis of relationships formed in their countries of origin, given that social networks reduce the initial costs of job seeking and improve the prospects of evading the underground economy.

[4] Faini and Venturini (1993) document the importance of wage differentials in explaining migrations from the South to the North of the Mediterranean basin.

Factors that are not strictly economic – for instance language, cultural and geographical contiguity, historical and colonial links – also affect the decision to emigrate and the choice of the destination country.

On the demand side, the advanced countries of Europe suffer from a shortage of unskilled labour in the service sector and in traded-goods sectors subject to international competition. They also lack seasonal labour in agriculture. Moreover, since information asymmetries regarding immigrant workers and their productivity may be wider than for domestic ones, employers are induced to fix wages at the level of the group's average productivity. This has considerable incentive effects and triggers a selection mechanism that works in favour of unskilled workers. Conversely, it might well occur that migration to Europe increases with the skill level (i.e. migrants will be positively self-selected) if the return to skills ratio in the destination country is greater than in the source country. [5]

A cost-benefit approach to illegal immigration

Together with the factors discussed above, the choice of illegal immigration is also conditioned by the risks of being apprehended and thereby of seeing all the expenditure to immigrate prove fruitless (see Hanson and Spilimbergo, 1999a and 1999b). Moreover, and this is the aim of this paper, we need to consider the trigger effect that crises may have on the (illegal) migration choice.

To this end, following Hanson and Spilimbergo (1999a), we take a cost-benefit approach to the migration choice based on the life cycle hypothesis and augment their formalisation to account for the occurrence of a crisis in the country of origin.

Let us consider $V_{O,t}$ as the current value of future earnings in the origin country of the illegal migrant and $w_{O,t}$ as the wage for period t (in years). Similarly, $V_{D,t}$ is the current value of future earnings in the destination country, the EU in our case. Let us also assume that there is a fixed cost $C_{O,t}$ of migrating that depends, for instance, on the distance between the origin and the destination country capturing transportation costs. $C_{O,t}$ can also comprise costs of adaptation to the destination country (e. g. periods of unemployment) that have to be "paid" once. Thus, the existence of a well-established network of nationals in the destination country may decrease the emigration cost $C_{O,t}$.

Given these variables and assuming that it takes one period to reach the destination country, an individual will decide to migrate if:

$$w_{O,t} + \frac{1}{1+\rho} V_{O,t+1} < \frac{1}{1+\rho} V_{D,t+1} - C_{O,t} \qquad \textbf{[1]}$$

In other words, the decision to migrate takes place if the life cycle income in the origin country (left-hand side) is lower than the life cycle income at destination after paying for the emigration costs. This represents the choice for legal immigrants.

[5] Such prediction is based on recent literature that focuses on the role of skills in driving migration, see e.g. Borjas (1994) or Hatton and Williamson (2002). Although quite relevant, this strand of literature is not considered here, as the empirical section deals with aggregate migration flows.

For illegal immigrants two additional elements must be added: firstly, the sudden and unexpected occurrence of crises that can trigger the immediate (and illegal) departure from the origin country; secondly, the possibility of being apprehended as an illegal alien once in the destination country.

The unexpected crisis factor affects negatively the left-hand side of eq. [1] and can be modelled as a random variable $\tilde{Z}_{O,t}$. Moreover, the possibility of being apprehended once in the destination country is represented by the probability P_t of being caught and we assume that this probability is the same for any country of origin. If the illegal immigrant is caught at period $(t+1)$, he is immediately sent back home and his discounted life time income is $V_{O,t+1}$. With probability $(1-P_t)$ he settles in the destination country and earns $V_{D,t+1}$. We assume that the probability of being apprehended is an increasing function of the intensity of the border controls, L_t, in the destination country: $P_t(L_t)$ and $\frac{dP_t}{dL_t} > 0$. Hence, equation [1] changes as follows:

$$w_{O,t} + \frac{1}{1+\rho} V_{O,t+1} - \tilde{Z}_{O,t} < \frac{1}{1+\rho} P_t(L_t) V_{O,t+1} + \frac{1}{1+\rho} \left[1 - P_t(L_t)\right] V_{D,t+1} - C_{O,t} \qquad \textbf{[2]}$$

Let us denote with $N_{O,t}$ the number of illegal immigrants coming at time *t* from the origin country *O*. For each one of them Eq. [2] holds. Hence, $N_{O,t}$ is a function of all the variables contained in Eq. [2]:

$$N_{O,t} = N(w_{O,t}, V_{O,t+1}, V_{D,t+1}, \tilde{Z}_{O,t}, C_{O,t}, L_t) \qquad \textbf{[3]}$$

This relationship represents the sort of reduced form of Eq. [2] that will be estimated in our panel-data framework. According to our analysis, we expect that flows of illegal migrants from a specific country $N_{O,t}$ should decrease in $w_{O,t}$, $V_{O,t+1}$, $C_{O,t}$ and L_t whereas it should increase in $V_{D,t+1}$ and $\tilde{Z}_{O,t}$. These hypotheses will be tested in the empirical analysis below.

Migratory flows into Italy: an empirical analysis

The aim of our empirical analysis is the estimation of Eq. [3]. In this section we first describe the main characteristics of our data set. The estimation results follow the general statistical description of the data.

The data

To examine each determinant mentioned above, we used the Italian Ministry of the Interior database for the years 1990-2000. This contains a time series of the flows of illegal immigrants into Italy distinguished by country of origin and approximated by the number of

expulsion orders. [6] The total number of expulsion orders issued in each year is taken as a proxy for $N_{O,t}$. More precisely, this was calculated as the sum of the illegal immigrants that were: (i) refused entry at the border; (ii) refused entry by the police authorities; (iii) expelled with escort; (iv) readmitted by countries with which Italy has a readmission agreement; (v) expelled by the judicial authorities; (vi) expelled on injunction (see Appendix 1 for a detailed description).

According to Eq. [3] the explicative variables can be grouped into three categories: income variables $(w_{O,t}, V_{O,t+1}, V_{D,t+1})$, immigration costs $(C_{o,t})$ and intensity of border controls (L_t). In addition, we want to focus on the effect of the crises, i. e. $\tilde{Z}_{O,t}$.

Income variables include both the current flow of income and the expected future earnings in the origin and at the destination country. Since the destination country is Italy or other European countries and the per capita income of these countries changed slightly during the decade 1990-2000, we considered only income in the different origin countries. This has been approximated with "net per capita national income" as reported by World Bank's World Development Indicators.

Immigration costs are assumed to depend (negatively) on the geographical distance between Italy and each one of the origin countries (capital-to-capital geodetic distance). However, as stressed in the literature, we also assume that a "social network effect", i. e. the presence of an already numerous community from the country of origin at destination, may alleviate immigration costs (for instance, by reducing job search costs). Hence, as an approximation of the pre-existence of social networks, we also considered the number of legal immigrants resident in Italy by country of provenance at the beginning of each year, as reported in the official Italian statistics (ISTAT Annual Report). We expect this variable to be positively related to migration flows.

With regard to proxies for the intensity of border control, data are secreted and only very general statistics are available from official sources. However, in our panel-data framework the "between" dimension may help to implicitly identify the effect of border controls. On the assumption that border controls are not different depending on the country of origin, they are represented by a time effect (common to all "individuals", i.e. countries of origin, but changing over time). [7]

Finally, as the main objective of this analysis, we focus on the effect of crises occurring as a push factor. For this scope we use a measure of the political, economic and financial risk in the country of origin as rated by international statistical sources with the ICRG index (see Appendix 2 for a description): when a sudden and intense drop in the ICRG indicator occurs, then we assume that a crisis has occurred.

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[6] We would stress that the indicator used is only an approximation of the actual inflow of illegal immigrants. On the one hand, it is an under-approximation because only a proportion of illegal immigrants are effectively intercepted and expelled; on the other, the indicator may give rise to over-estimation of the phenomenon if, as was possible under the Italian immigration law for that period, an expulsion order was not enforced and the illegal alien was stopped more than once; in this case, the same illegal immigrant may have been the recipient of more than one expulsion order.

[7] We also considered specific country and time dummies capturing the effect produced by re-admission agreements that the Italian government has signed with some countries of origin of illegal immigrants since 1996. As a result of these agreements, migrants coming from those countries and apprehended in Italy, are immediately repatriated on arrival, without any need of identification. However, the lack of encouraging evidence persuaded us not to model them explicitly.

Descriptive evidence

The total number of expulsion orders issued to illegal immigrants in Italy increased markedly between 1990 and 1994 (from 10,000 to 57,000), stabilized in 1995, fell in 1996-97 (to 35,000 and 49,000), almost doubled in 1998 (91,000), and then rose sharply again, reaching a peak of 131,000 in 2000 (Fig. 1). Of course, as Hanson and Spilimbergo (1999b) also point out, the proportion of illegal immigrants intercepted depends on the stringency of border enforcement – that is, the amount of resources (police and judicial) allocated for the purpose by the authorities – but it also depends on the effectiveness of the legal framework. Hence, the number of expulsion orders increased sharply in 1998, which was the year in which a new law on immigration was enacted, just as the decrease in expulsion orders in the previous two years was probably due to uncertainty about what changes would be made to the legal framework and because a significant amnesty took place in 1996.

Analysis of the main motives for migration cannot be based solely on temporal trends in the aggregate series. It must also examine the cross-sectional dimension of the data, or in other words, the home countries of intercepted illegal immigrants. Our empirical analysis therefore considered 118 countries of origin,[8] all those for which (a) details were available from the Ministry of the Interior database and (b) the data were systematically different from 0 for the majority of the years between 1990 and 2000.[9]

Table 1 illustrates the first 15 countries of origin (in terms of quantitative importance) of illegal immigration into Italy between 1990 and 2000. It shows the averages (and, in brackets, the standard deviations) of the main variables used in the empirical analysis. The home country with the highest number of illegal immigrants is Albania, which has an annual average value of 11,800 units, followed by Morocco (6,600), Yugoslavia and Romania (3,600) and Tunisia (2,400). The highest average number of legal immigrants comes from Morocco (73,500), followed by Albania (44,200), Tunisia (36,500) and Yugoslavia (31,000).

The effect of possible distortions due to amnesties and changes to immigration law can be attenuated by considering the *share* of illegal immigrants by country of origin (see Figure 2). Two countries had the highest shares during the 1990s: Morocco from 1990 to 1994 (with values between 18. 6% and 23. 9%) and Albania between 1995 and 2000 (with shares varying from 20. 5% in 1995 to 33. 7% in 1998). During the period considered, the share of illegal immigrants grew in the case not only of Albania but also of Romania, while it displayed a seesaw pattern for Yugoslavia and a U-shaped one for Morocco and Tunisia (see again Figure 2).

[8] Namely Afghanistan, Albania, Algeria, Angola, Arab Emirates, Argentina, Bahamas, Bahrain, Bangladesh, Belarus, Benin, Bolivia, Bosnia-Herzegovina, Botswana, Brazil, Bulgaria, Burkina-Faso, Burma, Cameroon, Chile, China, Colombia, Congo, Costa Rica, Croatia, C.I.S./Russia, Cuba, Cyprus, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Estonia, Ethiopia, Gabon, Gambia, Ghana, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Iraq, Israel-Palestine, Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lebanon, Liberia, Libya, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Namibia, Nicaragua, Niger, Nigeria, North Korea, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Romania, Rwanda, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, Saudi Arabia, Somalia, South Africa, South Korea, Sri Lanka, Sudan, Suriname, Syria, Taiwan, Tanzania, Thailand, Togo, Trinidad-Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Venezuela, Vietnam, Yemen, Yugoslavia, Zaire, Zambia, Zimbabwe.

[9] We excluded 18 countries (Barbados, Burundi, Centro-African Republic, Cambodia, Cape Verde, Chad, Comoros Islands, Dominica, Djbuti, Kirghizstan, Laos, Lesotho, Nepal, Seychelles, Swaziland, Tajikistan, Tonga, Uzbekistan) from which there were no migrants for at least 4 years in a row.

Since the aim of our research is to establish whether and to what extent the various pull and push factors are influential (in particular the crisis factor), we then consider the numbers of illegal immigrants (as shown in Figure 1) and their bivariate statistical relations with three main factors (apart from differences in per capita income): (i) distance from Italy, which approximates the cost of migration; (ii) the extent to which there are social networks of co-nationals (legally resident immigrants) in Italy, which is likely to alleviate immigration costs; (iii) political/economic/financial crises in the country of origin.

Figure 3 confirms that there is a negative relationship (expressed by the downward slope of the fitted line) between the distance of the country of origin from Italy and the share of illegal immigrants from the same country. We shall see below that a gravity model widely used in the literature on international trade is also confirmed as regards illegal immigration (see Venturini, 2003, for a survey of the literature on the use of the gravity approach to legal migration).

Next, Figure 4 relates the share of illegal immigrants (vertical axis) to the numbers of foreign citizens residing in Italy at time (t-1) (horizontal axis). The data are averages between 1993 and 2000, years for which more statistics on legal immigration into Italy are available. The graph shows a positive relation between the extent of the social network of co-nationals from the home country and the flow of illegal immigrants from that country.

Finally, we consider the crisis index. Figure 5 considers the relation between the occurrence of a crisis in a country of origin and the flow of illegal immigrants from the same countries. Specifically, a country's risk is measured every year by the ICRG index (on a scale from 0 to 100), as described in Appendix 2. When the ICRG risk indicator falls (rises) for a country, then its political, financial and economic risk increases (decreases). In particular, Figure 5 considers the relation between a negative change in the country of origin's rating (i. e. the occurrence of a "crisis") and the percentage change in the number of illegal immigrants. In order to construct Figure 5, we selected all major crisis episodes: that is, ones in which a country's rating decreased by at least 5% from one year to the next. For those pairs "year - country of origin", the graph shows that the drop in the rating (expressed in absolute value on the previous year on the horizontal axis) and the annual rate of change of illegal immigrants entering Italy (vertical axis) are negatively related. In other words, the steeper the fall in the rating (i. e. the more severe the crisis), the greater the increase in illegal immigration.

Although the descriptive evidence supports our *a priori*, this is certainly not definitive and a multivariate econometric analysis is necessary. The results are set out in the next section.

Econometric analysis

When choosing the dependent variable of our study, we faced the problem of the potentially large measurement error affecting the number of illegal immigrants as proxied by the number of expulsion orders. As a consequence, we decided to consider the share of illegal immigrants by country of origin out of the total number of expulsion orders. We assume that the potential measurement error would affect both the numerator and the denominator of our dependent variable in a similar way. Regarding the explanatory variables, we can group them into the three categories discussed above: variables representing income differences as a push factor, variables representing immigration costs and social network effects and finally variables representing the crisis effect. All the data are log-transformed, except for the

dummies and the dependent variable. The data used and the relative sources are described and reported in Appendix 3.

The estimation of the panel has been performed for the 118 nationality shares and for the ten years 1990-2000. Both the Breusch-Pagan and the Hausman tests confirm the validity of the random-effect-model approach.[10] The results are reported in Tables 2 and 3.

All the variables representing the traditional push factors have the expected signs. Population and per capita income have been both inserted in order to allow National Income to be a possible explanatory variable. Actually, the variable "population" is never significant (at the usual confidence levels) and only "per capita income" in the country of origin shows the expected negative sign: when per capita income in the country of origin increases, the share of illegal immigrants coming from that country decreases.[11]

Regarding the immigration costs, four variables have been included: distance, squared distance, a language dummy and a religion dummy. In other words, we want to consider not only the physical distance, but also the "cultural" distance between Europe/Italy and the various countries of origin, as also stressed in the estimation of gravity models in international trade. Both distance regressors are significant, but the linear distance has a negative effect, whereas the squared distance has a positive effect. This evidence shows a non-negligible nonlinear effect. Among the religious conviction dummies, the "Christian religion" one is statistically significant with a negative sign, taking as reference categories Islam, Animism, Buddhism and Hinduism; this is probably due to (although not exclusively) the massive presence of Muslim countries among the origins of many illegal immigrants.

The social network effect is represented by the number of male legal immigrants from the same country of origin who were present in Italy in the previous year. The network effect is significant and has the correct sign.

Finally, different crisis variables are introduced and they are discussed in further detais below. The estimation also included a time dummy in some specifications in order to take into account the change in the border controls during the period analysed here.

Regarding the crisis factor, all the different specifications point to its significant role. The simple risk measure of the country of origin is not always significant. However, the interaction of the risk measure with its change appears to be much more important.

The variable *ICRG* is first interacted with a dummy representing a nonlinear effect of its change. In other words, *Dcrisis* is a dummy variable that takes value 1 when the drop in ICRG during the current year is strong enough to pull down the risk factor into the high risk region (i. e. below the value of 49. 5). Hence, the interaction *Dcrisis ×ICRG* indirectly represents the effect of a crisis: when a crisis is so intense to increase the risk associated to the country to the "high-risk" bracket, then the risk level becomes important. As Table 2 shows, such non-linear effect is significant in all the specifications and has both a contemporaneous and a lagged effect (see also Table 3).

[10] The Hausman test had to be performed on a more reduced specification, due to the lack of identification of time invariant variables in a fixed effect model. Results of the test are not reported, but are available upon request from the authors.

[11] We did not find any evidence of a non-linear impact of the income variable in the source country, as was found by previous literature for legal migration.

A further important piece of evidence is represented by the effect of a geographically widespread crisis. We constructed a *macro ICRG*, i. e. for each country we considered all the border countries and computed a simple average of the ICRG indexes. Similarly to the country-specific ICRG and the dummy variable *Dcrisis*, we constructed the analogous dummy variable but referred to the area-wide ICRG. The dummy *D-macro-crisis* then takes the value 1 when the area wide ICRG drops below the threshold of 49. 5 and the macro area is ranked as "highly risky" on average. Although the sign of the interaction *D-macro-crisis ×macro-ICRG* shows the correct sign, its coefficient is not significant even at the 10 percent level.

When considering types of crises other than political or economic ones, we included dummy variables for the years in which there have been natural disasters, conflicts and famine in the country of origin. Only the "famine" dummy result was found to be significant at the 5 per cent level.

In order to consider possible dynamic effects, Table 3 shows the same regression 3 from Table 2, but with lagged regressors. The interaction between the occurrence of a crisis and the final high-risk situation of a country is still significant at 1- and 2-year lags, whereas the insignificant contemporaneous effect of the risk level of the country of origin becomes significant at the 1- and 2-year lag (the latter only at the 10 per cent level). In other words, when the country falls into the high-risk bracket, the impact of this on emigration is persistent through time.

The whole analysis is based on the idea that the ICRG measure is exogenous with respect to our dependent variable (i.e. the share of illegal immigrants by country of origin into the total of illegal immigrants). We cannot however exclude the possibility that the causality may run the other way around or that residents of countries hit by crises may anticipate the crisis, and leave it, possibly aggravating the crisis. In such cases, our estimates would be biased and inconsistent and we would need resort to instrumental variable estimation.

The recent paper by Alesina et al. (2002) has shown that ethnic fractionalization is a good measure of the economic performance of a country. They found that ethnically more homogeneous countries exhibit better performance. Ethnic fractionalization is then a valid instrument, because it is an exogenous variable with respect to the flow of migrants and because it is correlated with the ICRG index. As a matter of fact, a simple bivariate regression of the ICRG on the ethnic fractionalization (as measured by the data provided in Alesina et al. , 2002) cannot reject the presence of positive correlation between the two variables. Hence, we decided to estimate again equation 3 of Table 2, but employing an IV approach, using ethnic fractionalization to instrument ICRG. The results, contained in column 4 -Table 2, confirm the same findings as in the rest of Table 2 and in Table 3.

Conclusions

To what extent do crises in countries of origin intensify migration from the poor countries to the rich ones? This paper has sought to provide a preliminary answer to this question by analysing, for the last decade, the determinants of migration by illegal immigrants subject to expulsion orders in Italy, the country which has become the main gateway for illegal entrants into the European Union.

In analysing the phenomenon, we also considered other indicators representing the costs and expected benefits of emigration. We focused on illegal immigrants because illegality has become the main mode for migrants seeking to enter the EU as the regulation of the legal flows of migrants grows increasingly restrictive.

The main findings of our analysis confirm that crises in the countries of origin significantly increase influxes of illegal immigrants into (and through) Italy. The econometric estimates show that this effect gives rise to a sizeable quantitative increase in the number of illegal immigrants originating from a country in crisis. For example, when the ICRG indicator falls by twenty percentage points, as it did in the case of Albania in 1997, there is a whole 38% increase in the number of illegal immigrants. That is to say, on the basis of the expulsion orders issued in 2000 for Albania alone, the crisis in that country increased the number of illegal immigrants from that country by around 11,700 units per year; a number which may be significantly underestimated, in fact, given that only a minor proportion of the illegal immigrants entering Italy are intercepted.

Our findings therefore provide indications for future policy-making in both Italy and Europe. They can be used to disentangle the effects implicit in the various policy options that the European Union and, more in general, the international organizations may have to face with future crises. Our estimates allow the comparison between the economic consequences of an interventionist policy (which may prevent mass migrations with large-scale aid) and a non-interventionist policy which allows the push factors activated by crises to generate such mass migrations. Usually a non-interventionist policy must become a post-interventionist policy with increasing costs in terms of (strict) immigration-law enforcement and intense border controls. Even on economic grounds only, given the quite high elasticity that was estimated, we doubt that such post-interventionist policy would require fewer resources than a pre-emptive interventionist approach.

On the other hand, the political and economic scope of intervention in the form of economic and financial aid is restricted by the risk of moral hazard in the economic policies adopted by the countries of origin. The challenge of the years to come will be to strike an appropriate balance between active intervention in situations of economic crisis, to discourage mass emigration, on the one hand, and closely conditioned interventionism which limits the effects of moral hazard on the other.

REFERENCES

Alesina, A., A. Devleeschanwer, W. Easterly, Kurlat S. e Wacziarg R. (2002) "Fractionalization", *NBER* Working Paper n. 9411, December.

Borjas, G.J. (1994)**,** "The Economics of Immigration", *Journal of Economic Literature*, 32: 1667-1717.

Coppel, J., J.C. Dumont and I. Visco (2001), "Trends in Immigration and Economic Consequences", *OECD* WP no. 10.

Delaunay, D. and Tapinos, G. (1998), La mesure de la migration clandestine en Europe. Vol.1 : Rapport de synthèse, *EUROSTAT* Working Paper, March.

Faini, R. (1996), "Increasing Returns, Migrations and Convergence", *Journal of Development Economics*, vol. 49(1): 121-36.

Faini, R. and A. Venturini (1993), "Trade, Aid and Migration. Some Basic Policy Issues", *European Economic Review*, vol. 37: 435-42.

Hanson, G. and A. Spilimbergo (1999a), "Illegal Immigration, Border Enforcement and Relative Wages: Evidence From Apprehensions at the US- Mexico Border", *American Economic Review*.

Hanson, G. and A. Spilimbergo (1999b)**,** "Political Economy, Sectoral Shocks and Border Enforcement" *NBER* WP no. 7315, August.

Hatton T. and J.G. Williamson (2002) "What fundamentals drive world migration?" *CEPR* W.P. n. 3559, September.

Hilderink H., N. van der Gaag, L.van Wissen, R. Jennissen, A. Romàn, J. Salt, J. Clarke, C.Pinkerton (2003) "Analysis & Forecasting of International Migration by Major Groups- Part III" *EUROSTAT* W.P. 3/2002/E/n°17, Luxembourg.

ISTAT (2000)**,** *La Presenza Straniera in Italia: Caratteristiche Demografiche*, Roma.

Harris, J. R. and M. Todaro (1970), "Mining, Unemployment and Development: A Two-Sector Analysis", *American Economic Review*, 60.

Lucas, R. E. B. and O. Stark (1985)**,** "Motivations to Remit: Evidence from Botswana", *Journal of Political Economy*, 93.

Rosenzweig , M. R. (1988), "Risk, Implicit Contracts and the Family in Rural Areas of Low-Income Countries", *Economic Journal*, 98.

_____ and O. Stark (1989), "Consumption Smoothing, Migration, and Marriage: Evidence from Rural India", *Journal of Political Economy*, 97.

Venturini, A. (2003), *Post-War Migration in South European Countries*, Cambridge University Press.

Zimmerman, K. (1994), "Tackling the European Immigration Problem", *Journal of Economic Perspectives*, 9: 45-62.

Appendix 1

The flow of illegal immigrants by country of origin

The measures on the basis of which we approximated the number of illegal immigrants in Italy were the following:

Refused entry at the border: foreigners turned away at the border due to their non-fulfilment of the requirements prescribed by law (23.6% in 2000);

Refused entry by the police (since 1998): foreigners who have entered Italian territory by evading border controls and have been apprehended on entry or shortly afterwards (8.7% in 2000);

Expelled under escort (11.5% in 2000), including:

- foreigners expelled for reasons of public order or public security by order of the Ministry of the Interior;

- foreigners expelled by order of the Prefect because (a) they have unlawfully remained on Italian territory beyond the term set by the injunction (see below); (b) they are deemed a threat to public safety and morality because suspected of belonging to Mafia-style organizations, and where the Prefect decides that there is a significant likelihood that they will not comply with an injunction; (c) they have entered Italian territory by evading border controls and have not been ejected by the Police because they do not possess a valid identity document and the Prefect decides that there is a significant likelihood that they will not comply with an injunction.

Readmitted by a country under a readmission agreement: foreigners returned to their country of origin or provenance under a specific readmission agreement (6.5% in 2000);

Expelled by the judicial authorities: foreigners expelled by order of the judicial authorities (0.3% in 2000) because they have been (a) convicted of offences and are deemed socially dangerous; (b) sentenced to a term of imprisonment of not more than two years which the judge has substituted with an expulsion order;

Expelled on injunction (49.5% in 2000): foreigners expelled with an injunction to leave Italian territory within 15 days issued by the Prefect because: (a) they have remained on Italian territory without applying for a stay permit within the period prescribed, or if the stay permit has been revoked or annulled or has lapsed for more than 60 days with no application made for its renewal; (b) they have entered Italian territory by evading border controls but are in possession of a valid identity document and/or if the Prefect does not decide that there is a significant likelihood that the foreigner will not comply with the injunction; deemed dangerous to public security and public morality being suspected of belonging to Mafia-style organizations and where the Prefect does not decide that there is a significant likelihood that the foreigner will not comply with the injunction.

Appendix 2

The risk indicators[12]

The ICRG Risk Rating system assigns a numerical value to a predefined group of risk components, according to a pre-set scale of values and for a large number of countries, the aim being to allow for comparability among country risk levels. Each scale is defined by awarding the highest value to the lowest risk, and the lowest value to the highest risk.
The index used in this paper is a composite indicator of political, financial and economic risk. The indicator of political risk makes up 50% of the composite indicator, while the indicators of financial and economic risk each account for 25% of it.
The scale of values is as follows:

Very high risk	00.0 to 49.5
High risk	50.0 to 59.5
Moderate risk	60.0 to 69.5
Low risk	70.0 to 79.5
Very low risk	80.0 to 100.

The *political risk* indicator is an average of various indicators of political stability. These indicators include political stability in the strict sense (measured by assessing government unity, legislative strength and popular support), socio-economic conditions (e.g. unemployment and the poverty level), the investment profile (measured by delays in payment and expropriations), internal and external conflicts (civil wars, terrorism, civil disorder, external pressure, cross-border conflict), corruption, the presence of the military in politics, the involvement of religion in politics, 'law and order', ethnic tensions, democracy (alternating democracy, autarchy, the *de facto* or *de jure* presence of only a one-party state), the quality of the bureaucracy.
The *economic risk* indicator is derived from an assessment based on per capita GDP, the growth of real GDP, the annual inflation rate, and the balance of payments as a percentage of GDP.
The *financial risk* indicator is based on foreign debt as a percentage of GDP, the foreign debt as a percentage of exports, net international liquidity, exchange rate stability.

[12] In the case of 9 out of the 118 countries considered, for which ratings are not calculated by ICRG, we imputed ratings calculated according to the following formulas : (i) Afghanistan=(Iran+Pakistan)/2; (ii) Republic of Benin=(Niger+Nigeria+Togo)/3 ; (iii) Bosnia-Herzegovina=(Croatia+Yugoslavia)/2 ; (iv) Eritrea=(Ethiopia+Somalia)/2; (v) Macedonia=(Albania+Yugoslavia)/2 ; (vi) Mauritania= (Algeria+Mali +Morocco+Senegal)/4; (vii) Mauritius=(Madagascar+Mozambique)/2; (viii) Ruanda=(Tanzania +Zaire)/2. For more details on the index, see http://www.countrydata.com.

Appendix 3.

Other variables used and data sources

Per capita income: World Bank, Development Indicators, various issues.
Population: World Bank, Development Indicators, various issues.
Distance: geodetic distance between Rome and the capitals of all the countries of origins; sources:

- http://www.infoplease.com/ipa/A0001769.htm
- http://www.mindspring.com/~jackkarnes

Language - indoeuropean: dummy variable equal to 1 when the language in the country of origin of the illegal immigrants has an Indo-European root; source: Atlas 2004 Zanichelli.
Main religion – Christian: dummy variable equal to 1 when the main religion in the country of origin of the illegal immigrants is Christian, 0 otherwise; source: Atlas 2004- Zanichelli.
Male legals(t-1): number of male legal immigrants present in Italy in the year before; source: Italian Institute of Statistics (ISTAT), Annual Report, various issues.
ICRG: see Appendix 2
Macro ICRG: simple average of the ICRG index values of the country *i* and all its border countries.
Dcrisis: dummy variable that takes a value of 1 when the change in the ICRG index pulls down the index below 49.5, i.e. the upper threshold for the "high risk" range.
D macro crisis: same as *Dcrisis* but referred to *macro ICRG*.
Disaster: dummy variable that takes a value of 1 when natural disasters occurred in the year in the country source: OFDA/CRED International Disaster Database (http://www.cred.be/emdat - Université Catholique de Louvain - Brussels – Belgium)
Conflict: dummy variable that takes a value of 1 when conflicts occurred in the year in the country source: OFDA/CRED International Disaster Database.
Famine: dummy variable that takes value of 1 when famine occurred in the year in the country source: OFDA/CRED International Disaster Database.

Figure 1: Expulsion orders issued to illegal immigrants in Italy: 1990-2000 (thousands)

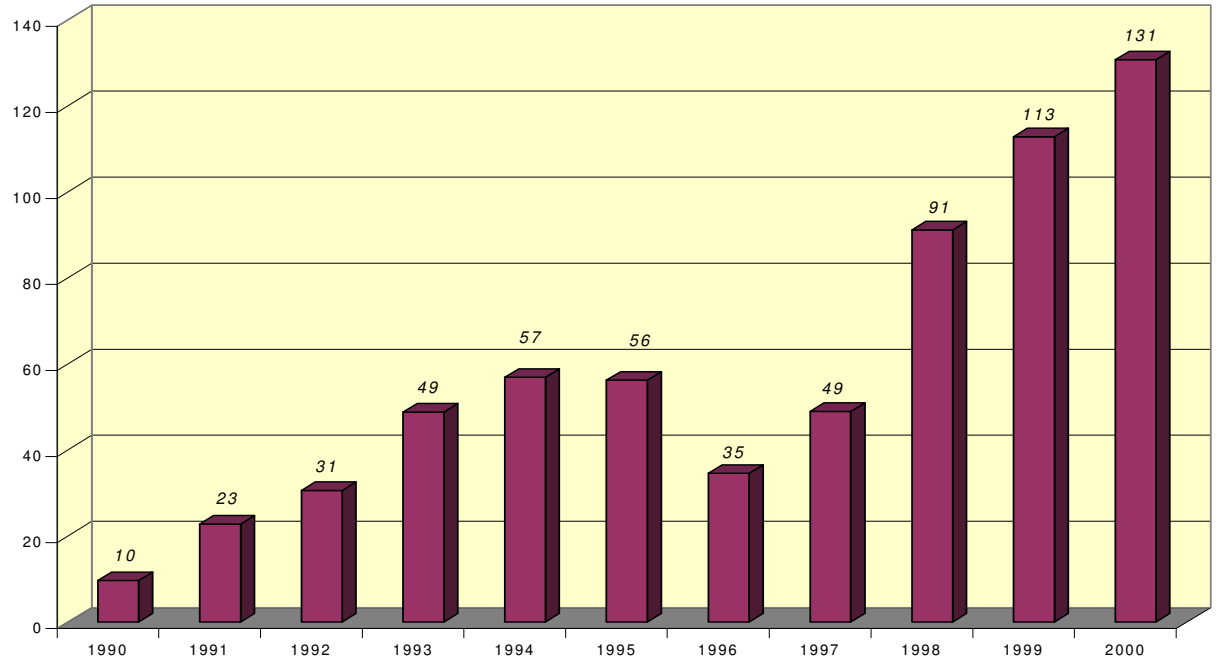

Figure 2: Shares of illegal immigrants by selected countries and year

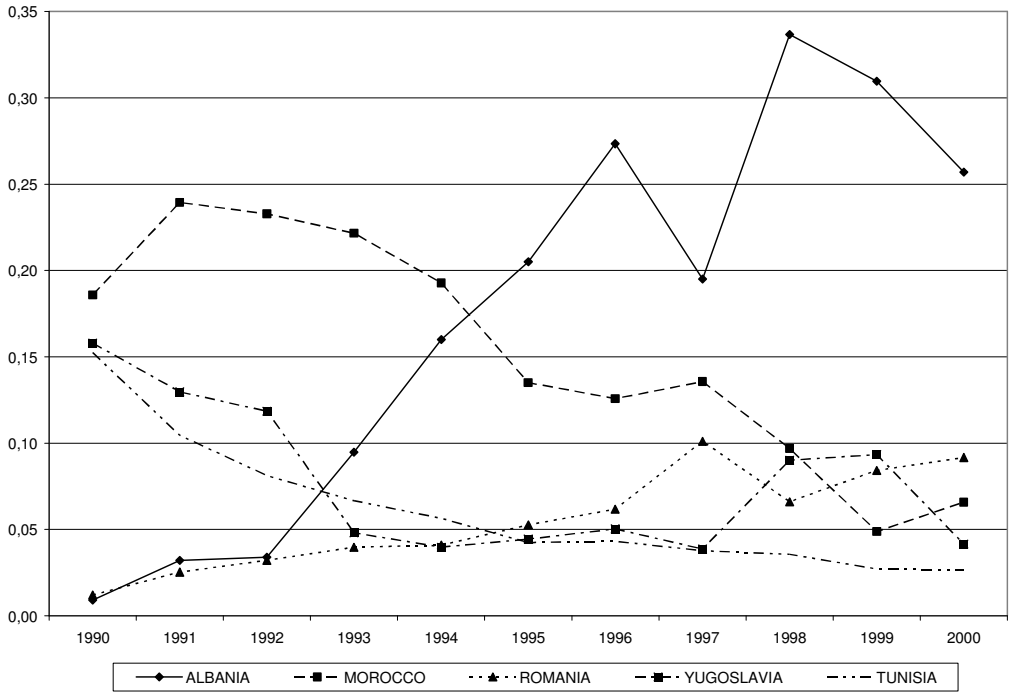

Figure 3: Relation between the share of illegal immigrants (averages 1990-2000) and the distance (in thousands km) between Italy and the country of origin

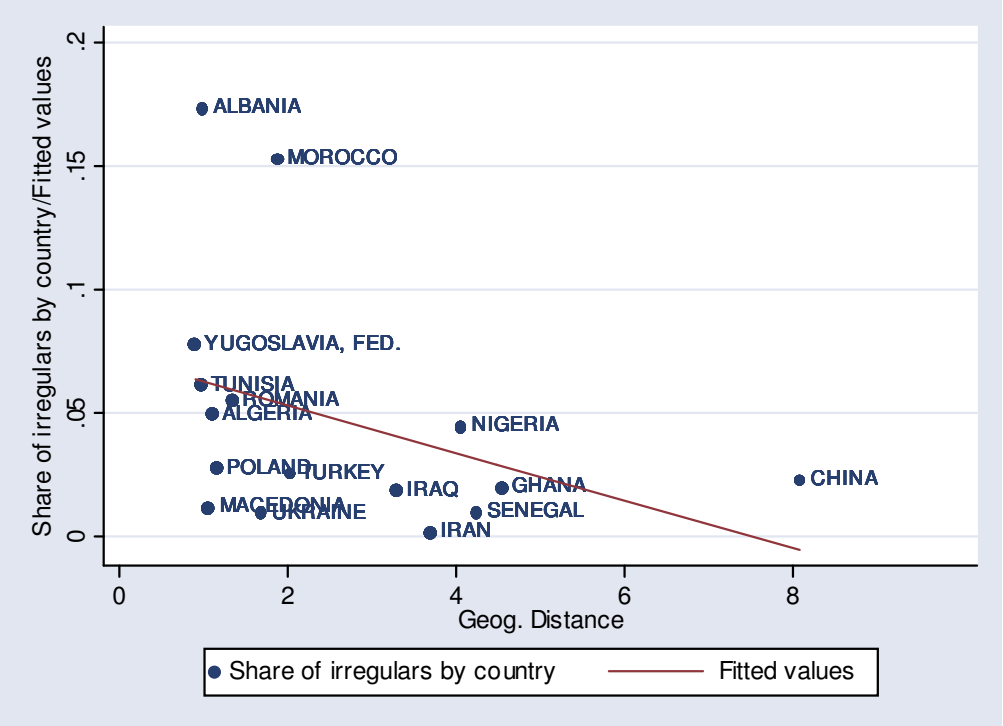

Figure 4: Relation between the share of illegal immigrants and the stock of resident foreign population (in thousands) by country of origin (averages 1993-2000)

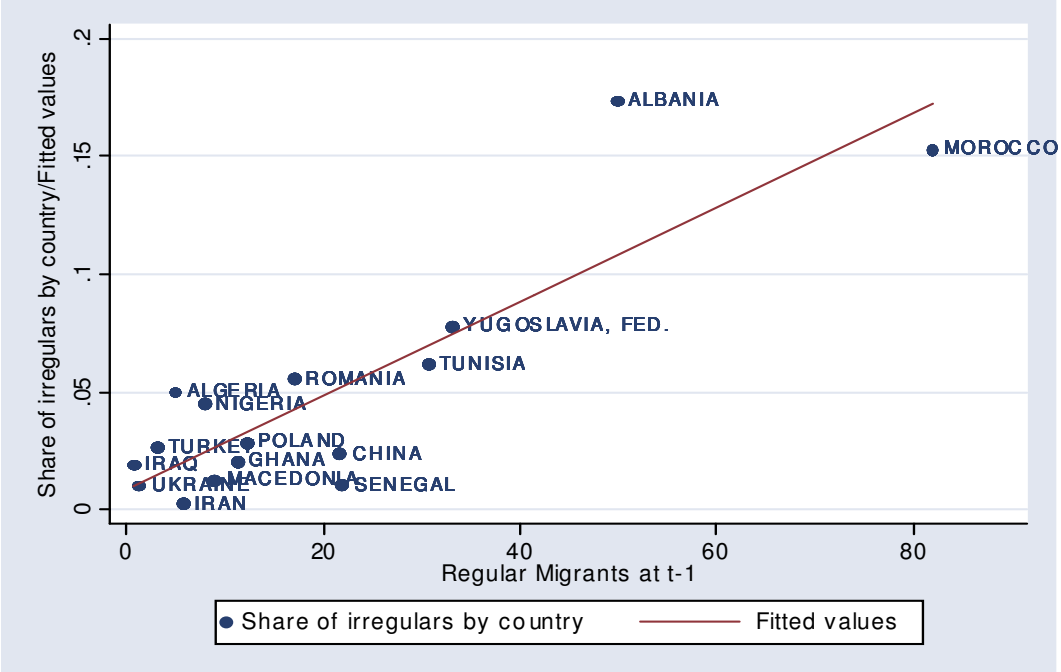

Figure 5: Change in illegal immigrant share by country of origin and "crises" in the source country (i.e. fall in the rating)

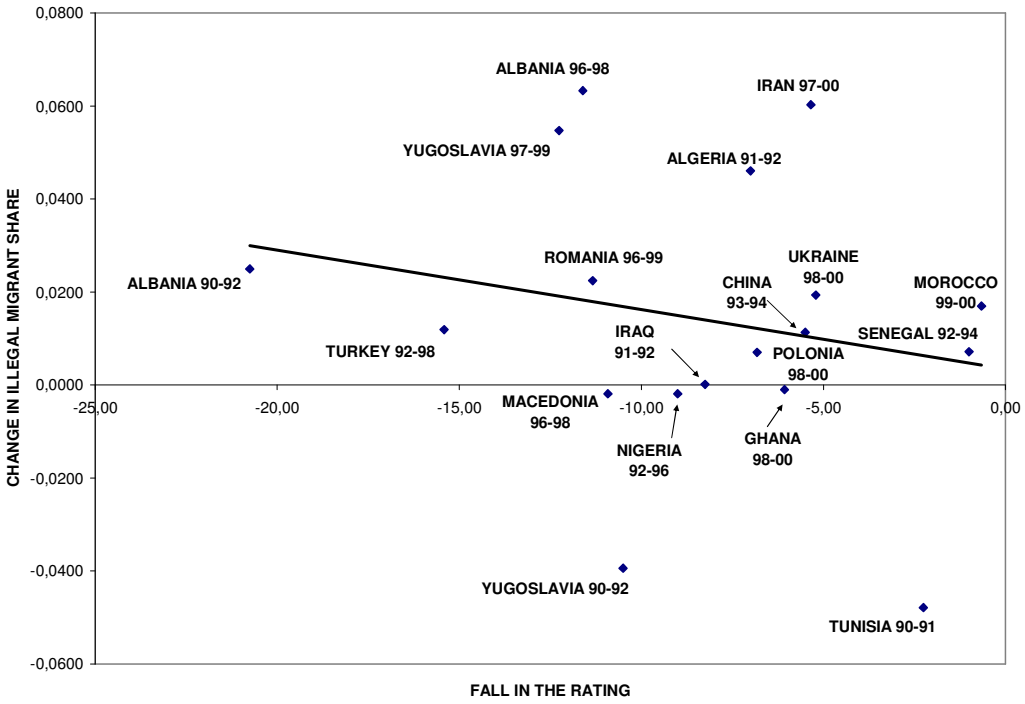

Table 1

Data description

The table shows the averages and, in brackets, the standard deviations of the principal variables used in our empirical analysis of the first 15 countries of origin of immigrants into Italy from 1990 to 2000. The averages and standard deviations of the numbers of illegal immigrants and the relative quotas have been obtained from the Ministry of the Interior database, while those relative to legal immigrants resident in Italy have been taken from ISTAT statistics (2000).

	Albania		**Algeria**		**China**	
No. Illegals	11827,00	(11611,00)	2235	(1124,39)	1512,64	(1423,34)
Share Illegals	0,17	(0,12)	0,05	(0,02)	0,02	(0,01)
Geog. Distance.	972,58		1099,2		8076,1	
ICRG index	56,1	(7,03)	55,61	(2,61)	70,21	(5,68)
No. Legals	44159,00	(26,75)	6961,33	(4782,03)	22840	(12019,87)
	Ghana		**Iran**		**Iraq**	
No. Illegals	815,18	(478,95)	801,82	(2171,80)	1374,00	(1862,10)
Share Illegals	0,02	(0,01)	0,008	(0,018)	0,02	(0,02)
Geog. Distance.	4532,1		3682,60		3280,7	
ICRG Index	60,80	(2,74)	63,53	(8,54)	32,85	(7,05)
No. Legals	11800,73	(2968,07)	5847,18	(365,20)	1176,91	(393,78)
	Yugoslavia		**Macedonia**		**Morocco**	
No. Illegals	3551,73	(2527,57)	819,09	(853,61)	6640,09	(2649,40)
Share illegals	0,08	(0,04)	0,01	(0,01)	0,15	(0,07)
Geog. Distance.	888,27		1057,3		1864,6	
ICRG Index	43,67	(6,16)	49,89	(5,91)	68,11	(6,21)
No. Legals	31009,91	(5665,53)	11640,75	(5657,97)	73526,36	(48850,81)
	Nigeria		**Poland**		**Romania**	
No. Illegals	1921,27	(851,25)	1396,18	(738,07)	3625,18	(3492,85)
Share illegals	0,04	(0,03)	0,03	(0,01)	0,06	(0,03)
Geog. Distance.	4045,4		1143,6		1337,5	
ICRG Index	54,89	(3,15)	72,52	(7,98)	59,96	(4,92)
No. Legals	7699,30	(4462,90)	15951,09	(5810,28)	17489,09	(10943,45)
	Senegal		**Tunisia**		**Turkey**	
No. Illegals	1286,64	(1067,99)	2412,27	(660,03)	1611,46	(1730,53)
Share illegals	0,03	(0,02)	0,06	(0,04)	0,03	(0,02)
Geog. Distance.	4233,9		963,38		2018,8	
ICRG Index	59,87	(3,06)	68,59	(5,61)	56,95	(7,05)
No. Legals	26061,64	(1781,63)	36532,18	(6307,97)	3769,73	(924,99)
	Ukraine					
No. Illegals	816,91	(1284,36)				
Share illegals	0,01	(0,01)				
Geog. Distance.	1672,3					
ICRG Index	61,34	(3,55)				
No. Legals	-					

Table 2

The push and pull factors of mass migration to Italy: panel analysis with random effects

	Dependent var.: share of irregulars by country of origin			
	1	***2***	***3***	***4***
Constant	**0.0640**	**0.0647**	–	**0.0621**
Std.err.	0.0086	0.0087	–	0.0093
Population	0.0149	0.0146	0.0148	0.0145
Std.err.	0.0096	0.0092	0.0093	0.0100
Per capita Income/1000	**-0.0007**	**-0.0007**	**-0.0006**	*-0.0006*
std.err.	0.0003	0.0003	0.0003	0.0004
Distance/1000	**-0.0129**	**-0.0128**	**-0.0127**	**-0.0128**
Std.err.	0.0019	0.0018	0.0018	0.0019
(Distance/1000)^2	**0.0009**	**0.0009**	**0.0009**	**0.0009**
Std.err.	0.0002	0.0001	0.0002	0.0002
Language: indo-european	0.0024	0.0023	0.0025	0.0025
Std.err.	0.0037	0.0035	0.0036	0.0039
Main religion: Christian	**-0.0096**	**-0.0095**	**-0.0094**	**-0.0099**
Std.err.	0.0034	0.0032	0.0033	0.0035
Male Legals(t-1)/1000	**0.0002**	**0.0002**	**0.0002**	**0.0002**
std.err.	0.0001	0.0001	0.0001	0.0001
ICRG/100	*-0.0207*	**-0.0221**	*-0.0203*	*-0.0180*
std.err.	0.0110	0.0113	0.0122	0.0122
Dcrisis ×ICRG/100	**-0.0125**	**-0.0125**	**-0.0127**	**-0.0131**
std.err.	0.0056	0.0056	0.0057	0.0057
D macro crisis ×MICRG	–	-0.0012	-0.0029	–
std.err.	–	0.0048	0.0051	–
Disaster	-0.0027	-0.0026	-0.0026	–
std.err.	0.0027	0.0027	0.0028	–
Conflict	-0.0001	-0.0002	-0.0002	–
std.err.	0.0013	0.0013	0.0013	–
Famine	**-0.0083**	**-0.0083**	**-0.0083**	–
std.err.	0.0033	0.0034	0.0034	–
Year Dummies	*No*	*No*	*Yes*	*Yes*
No. of observations	970	970	970	950
Between groups R^2	0.306	0.327	0.336	0.309

Note:
Bold=significant at 95%
Italics =significant at 90%
Normal=not significant at 90% and 95%

Table 3
Persistence of the crises effect through time (panel with random effects)

	4	*5*
Population	*0.0165*	*0.0168*
Std.err.	0.0096	0.0107
Per capita Income/1000	*-0.0005*	*-0.0006*
std.err.	0.0003	0.0004
Distance/1000	***-0.0132***	***-0.0134***
Std.err.	0.0019	0.0021
Distance/1000^2	***0.0009***	***0.0009***
Std.err.	0.0002	0.0002
Language: indo-european	0.0030	0.0044
Std.err.	0.0037	0.0042
Main religion: Christian	***-0.0094***	***-0.0094***
Std.err.	0.0034	0.0038
Male Legals(t-1)/1000	***0.0002***	***0.0002***
std.err.	0.0001	0.0001
ICRG (t-1)/100	**-0.0310**	_
std.err.	0.0117	_
Dcrisis ×ICRG(t-1)/100	**-0.0127**	_
std.err.	0.0053	_
ICRG (t-2)/100	_	*-0.0199*
std.err.	_	0.0118
Dcrisis ×ICRG(t-2)	_	***-0.0105***
std.err.	_	0.0052
Disaster(t-1)	*-0.0046*	_
std.err.	0.0028	_
Conflict(t-1)	-0.0004	_
std.err.	0.0012	_
Famine(t-1)	***-0.0074***	_
std.err.	0.0033	_
Disaster(t-2)	_	-0.0026
std.err.	_	0.0027
Conflict(t-2)	_	-0.0002
std.err.	_	0.0012
Famine(t-2)	_	*-0.0051*
std.err.	_	0.0032
Year Dummies	*Yes*	*Yes*
No. of observations	960	861
Between groups R^2	0.323	0.316