GEOGRAPHICAL DISTRIBUTION OF ILLEGAL IMMIGRANTS: THE CASE OF GREECE

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Abstract

A simple model of optimal immigrant community size determination is presented. The optimal size for the immigrant community may be different from that of the national community. The geographical distribution of illegal immigrants among the regions of Greece and its determining factors are examined with data made available after the 1998 legalization program. The results confirm findings in the literature. Independent participation of women in migration is also observed in the literature.

INTRODUCTION

Traditionally, Greece has been a labor exporting country. The most recent significant wave of out-migration occurred from 1958-1972 when more than a million people (exceeding ten percent of Greek population) migrated to Western Europe, mainly Germany (Lianos, 1993). This tradition reversed during the last twelve years. Following the collapse of the Soviet Union and the fall of communist regimes in Eastern Europe, hundreds of thousands of migrants entered Greece illegally mainly from Albania, but also from other Balkan countries, as well as from distant countries such as Ukraine, Georgia, Pakistan, Philippines and India. Various estimates of the number of illegal immigrants have been range from 300 to 600 (Lianos et al. 1996: pp. 449-483). The legalization program of 1998 allowed all immigrants to apply for residence and work permits renewable after five years. More than 371,600 immigrants participated but researchers and Government officials, believe that many immigrants preferred to remain illegal, probably because the risk of deportation was small as long as they stayed out of trouble and also because legalization would mean financial losses in the form of tax payments and contributions to social security.

The applications for residence and work permits were submitted to local government offices. Thus, the submissions of applications provide immediate information about the residence of every immigrant while illegal and therefore of the allocation of immigrants over the area of Greece. This paper uses these data to examine the factors that are related to the immigrants choices of location. We also use a different and less informative set of data to draw information about the mobility of immigrants after legalization.

LITERATURE REVIEW

Literature on the geographical distribution of immigrants in the receiving country, suggests that (Stark 1991: ch. 3, Lalonde and Topel 1997: p. 803, Venturini 1994):

1. Immigrants from a certain origin are not distributed evenly in the receiving country, nor they are concentrated in one single city or area. Rather, they tend to form clusters in major cities.
2. Numbers of immigrants may be large in absolute size but their proportions seem small relative to the size of the national population.
3. The degree of concentration of immigrants may depend on their level of education and skills (more educated people show less concentration) and on their national origin, (e.g. Greek immigrants to USA are more concentrated than British.)
4. The geographical distribution of immigrants in the receiving country does not change easily. Although immigrants move, they tend to move between places where other immigrants of the same origin already exist.

Data analysis below reveals the distribution of illegal immigrants over the region of Greece is consistent with the literature.

This suggests that there is an optimal number of immigrants in relation to the size of the population of a local community, i.e. an optimal proportion of immigrants in each community. The determination of this proportion is examined, in general terms, in the next section.

THE OPTIMAL SIZE OF IMMIGRANT COMMUNITY

The fact that there are people who are willing to migrate, legally or illegally, to other countries and people who are willing to accept immigrants to their own country can be taken as evidence that migration has benefits for both parties — immigrants and local population. The fact that migration flows do not exceed

certain limits can be taken as evidence that at some point the costs of additional migrants for the immigrants already in the country of destination and for the local population exceed the expected benefits. This calculus of costs and benefits apply to both communities, immigrants and local population, but it does not lead to the same optimal size for the immigrant community.

The Immigrants

An individual who decides to migrate may choose the country of destination on the basis of various factors related to expected income, spoken language, cost of transportation, climate, etc. The arrival of the first migrant to the country of destination means certain benefits and costs – economic as well as psychic, for that reason. For the second migrant, benefits are approximately the same (assuming that migrants have similar characteristics), but costs are certainly less. The same is true for the third immigrant and so on. These benefits and costs exist not only for each new immigrant, but also for the community of immigrants being created. New immigrants bring with them "news" and "memories" from the country, renew their culture, bring their own labor which may very useful for productive processes of ethnic character (Greek restaurant owners in America seem to prefer new Greek immigrants as employees in their restaurants) (1), are potential husbands or wives for the daughters or sons of immigrant families, etc. However, as the immigrant community increases in size, benefits (to the community) of new immigrants become less and less important and finally insignificant. For example, one more Greek in the Greek community of New York adds very little on average. On the other hand, costs for the community may increase. Beyond a point, an increasing size may cause negative reactions of an economic, political or social character of the local community against the immigrant community. Such reactions would mean that no more immigrants are desirable and it is in the interest of the immigrant community to limit its size. The immigrant community can do this by discouraging further movements from the origin, by refusing to supply information or even by false information, etc.

A formalization of these changes are present in Figure 1 which is self-evident. The OI_m curve shows the net gain to the community of immigrants from each new immigrant as their numbers increase. The optimal size of the immigrant community perceived by the community itself is M_1. The net gain from any additional immigrant is negative after that point at I_M.

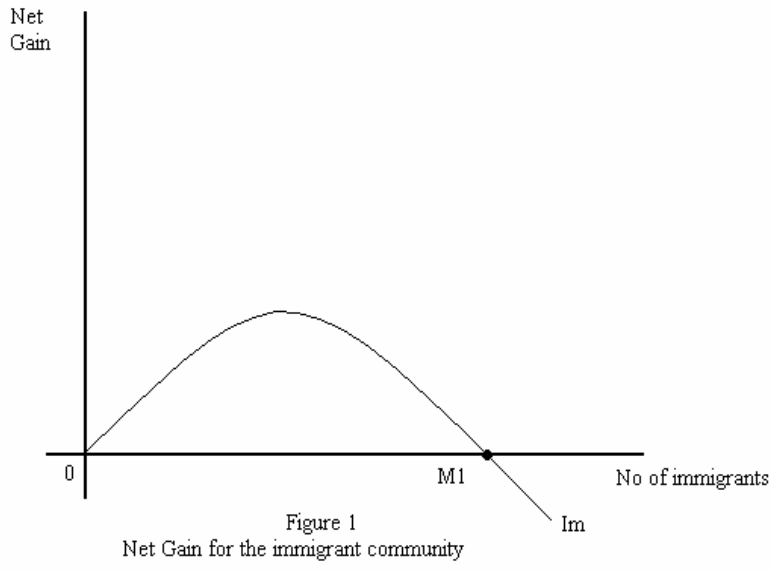

Figure 1
Net Gain for the immigrant community

The Local Community

A similar analysis applies to the costs and benefits of immigration for the local community. The first immigrants may bring economic benefits, such as elimination of labor shortages in various sectors, without serious costs, such as overuse of capital infrastructure, social services, etc. Thus the local community's reaction to the inflow of new immigrant's may be mild and positive. However, as the number of immigrants increases, benefits are less and costs increase economically as well as socially – xenophobia for example. Part (a) of Figure 2 shows that at point M_2 total benefits to the local community (BM) equate to total cost (CM). At that point net gain from each additional immigrant are zero. Part (b) of Figure 2 shows how the net gain from each additional immigrant changes. At point M_2 total net gain is maximized and thus the local community considers OM_2 as the optimal size of the immigrant community.

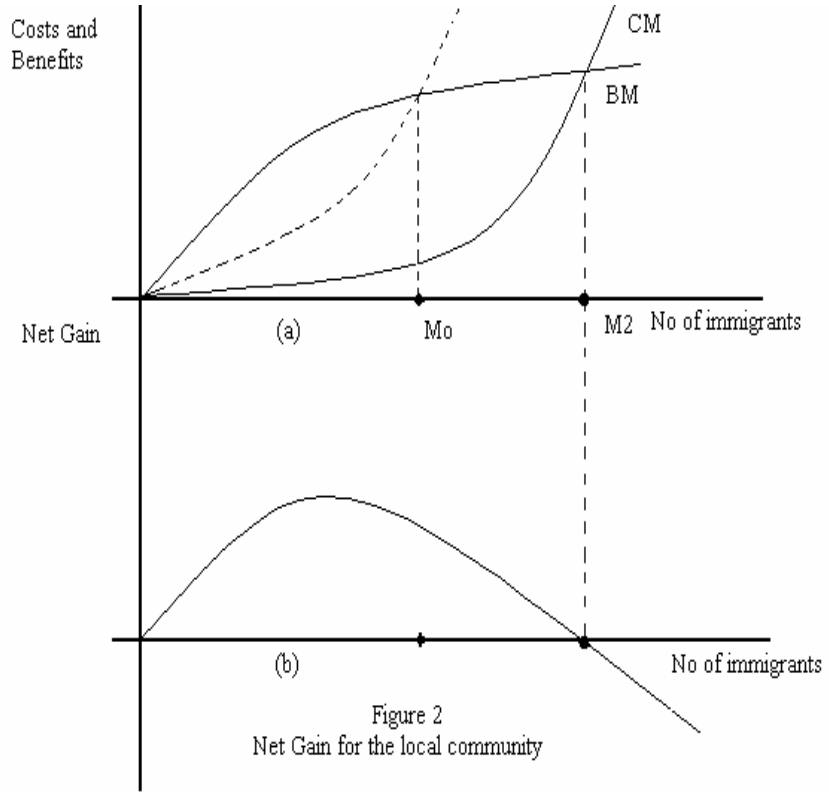

Figure 2
Net Gain for the local community

Analysis above shows that there are two optimal sizes, one for the local community and one for the immigrant community. Obviously, the size that will be actually realized is the lesser of the two. Figure 3 shows together Part (b) of Figure 2 and Figure 1 upside down. In this figure, the actual size of the immigrant community will be M_2 since it is smaller than M_1. Total net gain for the local community is the area under the OL curve from point O to M_2 and for the immigrant community the area under OI_m over the same points. However, it is interesting to see that if the two community could be viewed as one, the optimal number of immigrants would be between M_1 and M_2 at point M_3 at the intersection of the two curves. In this case, the net gain increases by the area between the two curves from point M_2 and M_3.

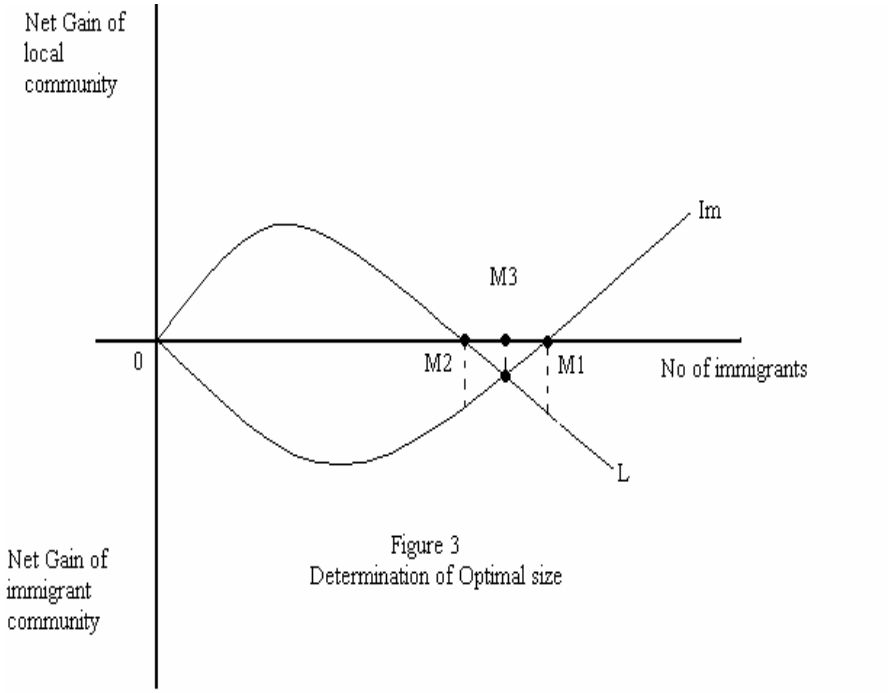

Figure 3
Determination of Optimal size

Of course, the optimal size of the immigrant community may vary from country to country and from region to region. For example, optimal size from the point of view of the local community may depend on various factors that determine the "receptivity to immigration" (2). It is conceivable that a local community of Christians would be more sympathetic and tolerant to Christian immigrants than to Muslims. If the cost curve CM of Part (a) of Figure 2 refers to Christian immigrants, the dotted curve may refer to Muslims showing a smaller optimal size.

THE GEOGRAPHICAL DISTRIBUTION OF IMMIGRANTS TO GREECE

Immigrants to Greece are distributed over all the fifty-two countries. According to the 2001 Census of Population, on the average there are 72.3 immigrants per thousand nationals but the differences among counties are substantial and vary from 14.3 (County Euros) to 135.4 (County Zakynthos) immigrants per thousand nationals. The percentage-wise distribution among

counties shows the number of counties within certain ranges of immigrant numbers (Figure 4). The highest frequencies occur in nine counties with 50-60 immigrants per thousand, but the spread is high. The number of immigrants per thousand of nationals in each county does not seem to be related to the size of the population. Figure 5 is a scatter diagram, which suggest that small and large counties can have small and large proportion of immigrants.

It is not only the proportion of immigrants, in general, which differ among counties but also the proportion of each nationality of immigrants which differs greatly. Table 1 shows, for each of the ten more numerous nationalities, the proportion of immigrants in the counties where most of these immigrants reside. County Attiki (including Athens) attracts far more immigrants from all nationalities. However, impressive differences exist. Proportions of Albanians, Bulgarians, Georgians and Romanians (35.9%, 31.7%, 31.6% and 43.6%, respectively) are much lower than those of Pakistanis, Poles, Egyptians and Philippines (92.7%, 85%, 81.4% and 91.9%, respectively).

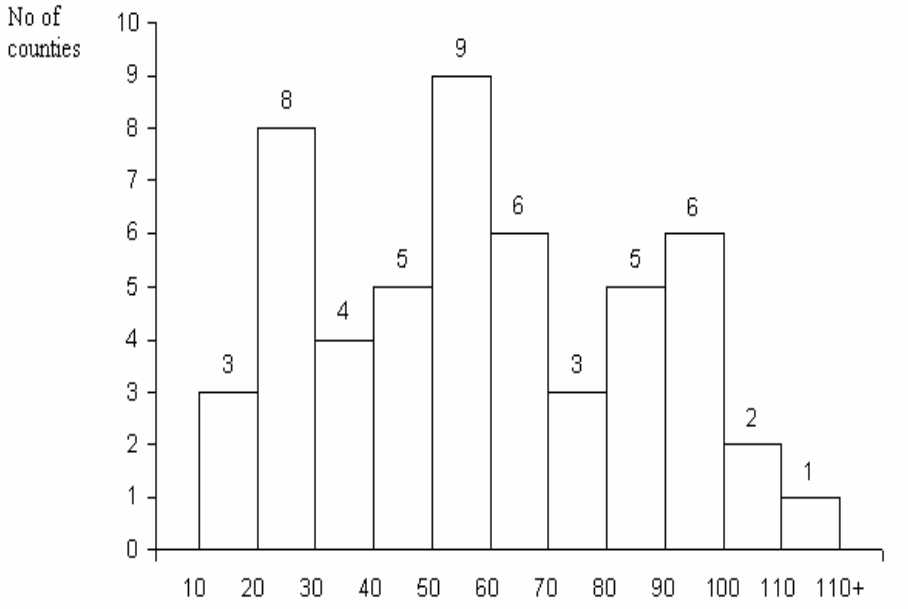

Figure 4
Distribution of Immigrants over Counties

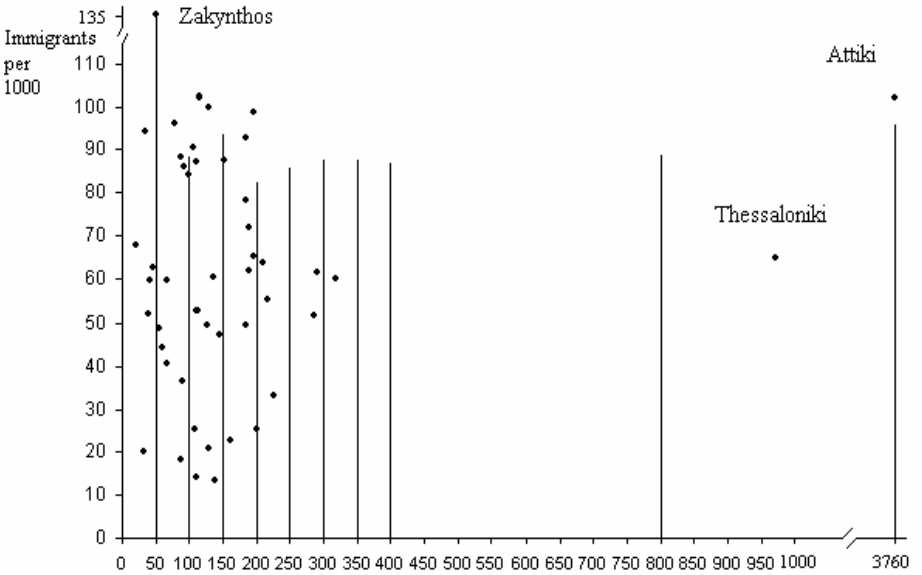

Figure 5

Table 1
Percentage of migrants residing in various countries by country of origin

County of residence	Albania	Bulgaria	Romania	Pakistan	Ukraine
Attiki	35.9	31.7	43.6	92.7	62.1
Boeotia	2.3	-	4.5	2.8	-
Euboea	1.6	1.5	0.9	2.4	1.0
Phthiotis	2.8	3.8	3.7	-	-
Larissa	3.5	-	2.5	-	-
Argolis	1.0	3.4	3.7	-	3.0
Korinthia	2.0	1.0	2.8	-	1.7
Messinia	1.5	5.9	4.1	-	1.3
Thessaloniki	8.2	5.6	2.1	-	2.2
Pieria	1.6	1.4	1.7	-	1.3
Halkidiki	1.7	1.3	-	-	1.0
Dodecanesos	1.0	1.6	-	-	2.2
Iraklion	1.8	4.9	5.1	-	2.2
Lasithi	0.9	5.7	1.0	-	-
Chania	1.2	5.0	3.8	-	2.7
	63.5	72.8	77.0	97.9	80.7
Total migrant population	240.150	24.906	16.802	10.866	9.800

County of residence	Poland	Georgia	India	Egypt	Philippines
Attiki	85.0	31.6	59.6	81.4	91.9
Boeotia	-	-	17.2	-	-
Euboea	-	-	11.6	1.8	-
Phthiotis	-	-	-	-	-
Larissa	-	-	-	-	-
Argolis	2.6	2.1	2.9	3.4	-
Korinthia	1.0	-	1.2	-	-
Messinia	2.0	-	-	-	-
Thessaloniki	-	31,2	-	1.4	2.1
Pieria	-	-	-	-	-
Halkidiki	-	3,6	-	-	-
Dodecanesos	-	1,3	-	1,8	1.1
Iraklion	-	2.1	-	-	-
Lasithi	-	1.5	-	-	-
Chania	-	6.9	-	2.1	-
	90.6	80.3	92.5	91.9	95.1
Total migrant population	8.618	7.537	6.402	6.225	5.382

Source: Cavounidis (2002)

It is natural to expect immigrants from a given origin to disperse over a greater number of counties as their numbers increase. Table 2 shows that this is the case with immigrants to Greece. According to this table, 75% of Albanians, 66.4% of all immigrants, reside in 15 counties, and 90% of them in 28 counties. For Bulgarians, the corresponding number of counties is 10 and 16 respectively. There are some exceptions to this tendency, notably Pakistanis, Egyptians, Poles and Philippines who are concentrated in one or a few counties, and Moldovans, Russians and Yugoslaves who, although few in numbers, are dispersed in many counties.

No judgment can be made about whether immigrant communities in the various counties of Greece have reached optimal size. If anything, they have not because these immigrants were illegal with limited opportunities for mobility among cities and counties.

Table 2

Country of origin	Percent of all immigrants	Number of Counties for Concentration of	
		75%	90%
Albania	66.4	15	28
Bulgaria	6.9	10	16
Romania	4.7	8	15
Pakistan	3.0	1	1
Ukraine	2.7	6	18
Poland	2.4	1	4
Georgia	2.1	4	13
India	1.8	2	4
Egypt	1.7	1	5
Philippines	1.5	1	1
Moldova	1.2	7	17
Syria	0.9	1	3
Russia	0.9	8	21
Begladesh	0.8	1	1
Irak	0.8	1	1
Armenia	0.8	2	12
Yogoslavia	0.6	7	16
Nigeria	0.5	1	1
Ethiopia	0.3	1	1
Sri Lanka	0.2	1	1
Total	99		

Source: Cavounidis (2002)

MOBILITY OF IMMIGRANT AMONG REGIONS

The mobility of immigrants among cities or regions cannot be directly assessed due to lack of data. However, there are data from which indirect information can be derived. Table 3 presents the number of immigrants over 14 years of age in the thirteen regions of Greece for 1998 and 2001. The total number of immigrants between 1998 and 2001 increased by 33,676 people. The sum of the absolute values of the differences is 47.148. Therefore only 13,472 (47,148-33,676) moves have occurred between regions. Since every move is counted twice, with a plus in one region and a minus in another, only 6,736 individuals appear to have moved. This number certainly underestimates true mobility for two reasons. First, there may be moves among counties and within a county which are not recorded, because a region contains many counties. Second, opposite moves of an equal number between any two regions will be cancelled out, and thus, only net mobility among regions is shown above.

It is difficult to judge extent of mobility as low or high since we have no comparable data. However, the above estimate corresponds to 2.75% of the immigrant average population of the two years, whereas the same estimate for the population of nationals is 1.83%.

Table 3

Region	1998	2001	Differences 2001-1998
East Macedonia and Thrace	4,458	8,038	3,580
Central Macedonia	28,005	23,906	-4,099
West Macedonia	2,149	2,162	13
Epirus	2,314	2,573	259
Thessaly	6,667	8,883	2,216
Ionian Islands	4,678	3,716	-962
West Greece	7,556	7,235	-321
Central Greece	2,687	6,661	3,974
Attiki	152,598	180,704	28,106
Peloponese	5,730	5,698	-32
North Aegean Islands	951	584	-367
South Aegean Islands	1,864	4,138	2,274
Crete	8,665	7,720	-945
Total	228,322	262,018	33,696

FACTORS DETERMINING GEOGRAPHICAL DISTRIBUTION

In this section we examine the geographical distribution of immigrants by regressing the number of immigrants in each county on various independent variables. It should be mentioned that at the time of data collection (first quarter of 1998) recorded immigrants were without residence and work permit. Their illegal status may have influenced their choice of location within Greece, in the sense that they would avoid places where the risk of detection and where deportation was high. However, the common view is that this risk was very small so long as they stayed out of trouble. This may not be so for the counties in the northern border of Greece which were more effectively policed in order to prevent the inflow of illegal immigrants.

The variables used in the regression analysis including:

– *Per Capita Gross Domestic Product* (GDP). This is used as a measure of the availability of incomes in each county. Of course migrant, and more so illegal migrants, do not know the level of per capita GDP in each county. However, they can obtain information about prosperous regions of high GDP per capita. Migrants may believe that their chances of obtaining high incomes are better in prosperous counties.

– *Unemployment. Rate* (UN). The rate of unemployment may be considered as an index of the probability of finding a job. Of course, unemployment rates differ among professions and skills, and also among counties for given professions and skills. One important feature of the illegal migrant labor supply is that they are not covered by national wage agreements or by labor union employment restrictions. They can therefore offer their labor at low wages and thus be unaffected by the unemployment rate to an important extent.

– *Agricultural Production* (AGR). The importance of agriculture (including livestock and forests) is significant for three reasons. First, it is a productive activity in which many unskilled and manual workers find employment. Second, employment in agriculture does not involve signing contracts or other legal procedures particularly in case of seasonal or circumstantial jobs. Third, the cost of living, mainly for food and shelter, is lower in agricultural areas relative to urban. In fact, many employers provide minimal living quarters to migrants without an equivalent reduction in wages.

– *Urbanization* (URB). Urban center -- areas with population above a certain size, act as poles of attraction for migrants for several reasons. First, urban centers offer employment opportunities for a wide variety of jobs from simple manual work (construction workers, movers, cleaners, etc) to jobs requiring skills (bar tenders, dancers, nurses, etc). Since migrants come from a variety of professional

backgrounds, an urban center is a rational choice. Second, in an urban center it is more likely that other migrants from the same country, with the same language, will be found and some assistance will be obtained from them. In fact, flow of information from migrants already in an area to friends and relatives back home reinforces existing movements to urban centers. Third, the life style in urban centers may, *ceteris paribus*, be a factor favoring migration to big cities, particularly for migrants from rural areas. The fact that these migrants are illegal may be an additional factor for choosing urban centers as a place of destination, since there they may be less visible and can avoid detection. However, the inability and/or unwillingness of authorities to enforce the law may eliminate the effects of the illegal status of migrants on their choice of destination.

– *Distance* (DIST). Cost of moving increases with distance traveled and therefore affects migration inversely. In the case of illegal migration, the negative effect of distance is reinforced because traveling longer distances increases the risks of detection even if the law is not applied regularly and consistently (as was the case in Greece). One would expect migrants, particularly illegal migrants, to avoid moving to distant places unless it was is necessary for finding employment or meeting friends and relatives.

– *Intercity of Policy*. More than 82% of all immigrants come from countries north of Greece. Thus, the entrance points are in any of the thirteen counties in the northern border. These counties are better policed and thus illegal immigrants would avoid staying in these counties longer than necessary. In the regression analysis a dummy variable D is used to capture this difference, with D=1 for the border counties and D=0 otherwise.

The variables used in the regression analysis are measured as follows. The total *number of migrants* (MT) in a county is the number of migrants who have applied for residence and work permit in that county. Data are available for male (MM) and female (MF) migrants. It will be seen that in some respects the choice of location differs between males and females. Level of *gross domestic product per capita* (GDP) is that of 1998. *Rate of unemployment* (UN) in each county is available only for the month of December 1998. This may misrepresent employment opportunities since the productive structure differs between counties and therefore seasonal factors may be important. The extent of *agricultural production* (AGR) in each county is measured by the percentage of agriculture, livestock, forestry and fishing in the GDP of that county in 1996. The degree of *urbanization* (URB) of each county is measured by the size of the population living in urban areas, i.e. with population exceeding 10,000. Measurement of *distance* (DIST) that migrants travel within Greece is impossible to calculate since we do not know the points of entry or the routes they follow. However, 80% of all

migrants come from countries to the north of Greece and 65% come from Albania. Thus I measure distance by the number of county borders one must cross to reach the county where one stays.

The results of the regression analysis are presented in Tables 4 and 5. Dependent variables appear in Table 4 as the total number of immigrants in each county (M), male immigrants (MM) and female immigrants (MF). The proportion of agricultural production and urbanization are statistically significant factors in determining the geographical distribution of migrants. The other factors are insignificant with the exception of distance with a unexpected positive sign in the case of women. The results presented on Table 5 are different from those in Table 4 in two ways. First, the dependent variable refers to Albanian immigrants only. Immigrants from other countries have been excluded so that the dependent variable consists of a more homogeneous group of people. Second, the county of Athens has been excluded because it attracts approximately 40% of all migrants and its relative weight is very high. According to regressions 1-3 in Table 5 urbanization is very significant factor for both males and females. The proportion of agricultural production is significant for men but not for women. In addition, per capita GDP is marginally significant for men but not for women. Distance appears to have a negative and significant affect for men, but again a positive effect for women. The dummy variable introduced to differentiate the counties in the northern border of Greece is negative and significant for males but insignificant for females. Finally, rate of unemployment is insignificant is all cases, as in Table 4. Excluding Athens (regressions 4-6) introduces two changes in the case of women. The coefficient of distance is still positive, but now it is insignificant, and the coefficient of per capita GDP is now positive and significant.

From the above results the following conclusions can be drawn.

First, the rate of unemployment does not have any significant effect on the geographical distribution of illegal immigrants. This may be attributed to their illegal status in the sense that they are willing or pressed to work for sufficiently low wages to obtain employment. Second, the degree of urbanization is a very strong factor in all cases. Third, the proportion of agricultural is significant for men but not for women. Probably, this result is related to the different work characteristics of male and female immigrant (Lianos, 2001: pp. 3-28). Fourth, distance is an important factor but in a different direction for men and women. Men avoid traveling in distant places whereas women do the opposite. By comparing regressions 3 and 6 of Table 5 it appears that for women this is mainly the effect of the metropolitan area of Athens which is a place where women can easily find jobs in the service sector. Fifth, per capita income has a positive effect for both, men and women, but its significance is marginal. Finally, it appears that men tend to

avoid residing in areas close to the border, where the risk of arrest and deportation is higher than in other areas.

SUMMARY

In this paper we have attempted two things. First, to emphasize the need for understanding the factors that determine the optimal size of immigrant communities in each city, or region or country. A simple model that contains the basic ideas is presented in diagrammatic form. Second, to examine the geographical distribution of immigrants over the space of Greece and some of the factors that determine that distribution. One of the results that may be mentioned again is that there are substantial differences between men and women that justify in the case of Greece what has been termed feminization of migration, namely that women participate in migration as independent individuals rather than as wives following their husbands.

Table 4 Regression Results

	Dependent Variable	C	UN	GDP	AGR	URB	DIST	D	$\overline{R}^2$	No. 01 obs
1.	?	-3693	-8.3	0.42	185.1	49.3	289.9	-324.5	0.98	51
		(1.72)	(0.21)	(0.89)	(3.46)	(63.17)	(1.82)	(0.31)		
2.	? ?	-2,211	-4.3	0.49	145.0	32.1	66.5	-850.4	0.98	51
		(1.40)	(0.15)	(1.41)	(3.70)	(56.09)	(0.57)	(1.12)		
3.	? W	-1,372	-2.38	-0.07	15.5	15.8	212.5	501.0	0.98	51
		(1.94)	(0.19)	(0.46)	(2.02)	(61.53)	(4.06)	(1.47)		

Note: Values of t-statistic are shown, without sign, in parenthesis below each coefficient.

Table 5

	Dependent Variable	C	UN	GDP	AGR	URB	DIST	D	$\overline{R}^2$	No. 01 obs
1.	A?	-379 (0.28)	5.5 (0.23)	0.57 (1.92)	91.4 (2,75)	26.0 (53,82)	-176,1 (1,78)	-1655,8 (2,58)	0,98	51
2.	A? ?	76.7 (0,06)	6.0 (0.27)	0.53 (1.92)	81.3 (2.63)	18.6 (41,31)	-223,9 (2,44)	-1711,3 (2,87)	0,97	51
3.	A? W	-429.3 (1.74)	0.02 (0.01)	0.03 (0,57)	8,16 (1,33)	6,69 (74,60)	47,2 (2,58)	67,9 (0,57)	0,99	51
		(Excluding Athens)								
4.	AM	-271 (0.19)	5.5 (0.23)	0.59 (1.96)	87.9 (2.57)	25.0 (11.63)	-189.5 (1.84)	-1,722.6 (2.61)	0.79	50
5.	AMM	-49.5 (0.04)	5.9 (0.27)	0.50 (1.78)	85.2 (2.68)	19.8 (9.92)	-208.3 (2.17)	-1633.4 (2.66)	0.74	50
6.	AMW	-208.1 (1.48)	0.11 (0.04)	0.08 (2.68)	1.19 (0.34)	4.56 (20.63)	19.9 (1.88)	-68.8 (1.01)	0.91	50

Note: Values of t-statistic are shown, without sign, in parenthesis below each coefficient.

NOTES

(1) Often, this tradition is supported by exploitive terms against the new immigrant. Of course, this applies to all nationalities and not just to Greeks.

(2) See Freeman (1992).

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