MIGRATION AND GROWTH:
THE EXPERIENCE OF SOUTHERN EUROPE

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ABSTRACT

Migration and Growth: The Experience of Southern Europe*

Policy-makers in European countries typically complain about the low level of labour mobility within Europe. At the same time they appear to be increasingly concerned about growing migration pressures from outside the European Community. In this paper, we try to cast some light on the issues of both internal and external labour mobility. We investigate the link between migration and growth. We argue that in a relatively poor sending country, an increase in the wage will have a positive impact on the propensity to migrate (by providing the resources to enable a migrant to move), even if we control for the wage differential with the receiving country. Conversely, if the home country is relatively well off, an increase in the wage there will work towards a reduction in the pressure to migrate. Econometric estimation for Southern Europe over the period 1962–88 provides substantial support for our approach. We estimate the turning point in the migration-income link at around $4000 in 1985 prices. We predict, therefore, a steady decline in the propensity to migrate from South European countries. Similarly, our results highlight the possibility that the pressure to migrate from North African countries and other developing countries may increase with further growth.

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NON-TECHNICAL SUMMARY

Policy-makers in European countries typically complain about the low level of labour mobility within Europe. At the same time they appear to be increasingly concerned about growing migration pressures from outside the European Community. In this paper we try to cast some light on the issues of both internal and external labour mobility. We investigate the link between migration and growth. We argue that income growth in the home country will have a negative impact on the propensity to migrate, even if we control for the wage differential with the receiving country. This is because, in our model, potential migrants have an imbedded preference for living in their home country, to avoid the social, cultural and psychological costs associated with a move to a foreign location. The assumption of a home-market bias in the locational decision has some relevant implications for the growth-migration link. In particular, if income grows in the home country the propensity to migrate will decline, even with an unchanged income differential. This is because the positive income effect will prompt potential migrants to consume more of the home country's amenities and thus discourage them from migrating. If the home country is relatively poor, however, an increase in income may have altogether different effects. We argue that in these circumstances many would-be migrants may be unable to move abroad initially because of financial and/or educational constraints. Economic growth in the home country would relax such constraints and as a result, may lead to higher migration flows. Overall, the migration-income relationship is likely to be non-linear and exhibit a hump-shaped pattern.

In the empirical part we focus on the case of Southern Europe. For several decades South European countries have been the main source of migrants for Northern economies. They can therefore provide crucial indications of the pattern of internal labour mobility in Europe. At the same time countries in Southern Europe have gone through a full migration transition and have now become the destination of substantial labour flows from Northern Africa and many other relatively poor countries. An analysis of their experience can therefore cast some light on the factors which affect the longer-run trend in migration. More specifically, it can offer some useful insights on the link between income growth and migrations.

We find that migration flows from Southern Europe fell dramatically after the first oil shock. Analysts typically attribute the fall in migration after 1974 to the decline in labour demand in receiving countries. Interestingly enough, however, even during the 1980s, when economic conditions in Northern Europe recovered markedly, migrations from Southern Europe did not resume. We argue that neither the behaviour of wage differentials nor the evolution of relative labour market conditions can account for this pattern. As a matter of fact, there is little

sign of income convergence between Greece, Spain and Portugal on the one hand, and the main destination countries on the other. Similarly, we show that the growth in unemployment after 1973 did not spare the countries of Southern Europe. Econometric analysis is then used to disentangle the effects of demand, supply and demographic factors on the pattern of migrations. We estimate our migration equation on a sample of four South European countries (Greece, Spain, Portugal and Turkey) over the period 1962–88. Both individual country analysis and pooled estimations provide substantial support for our approach. We find that demographic factors do not play a significant role in explaining the pattern of South European migrations. We estimate the turning point in the migration-income link at around $4000 in 1985 prices. We predict, therefore, a steady decline in the propensity to migrate from South European countries. Similarly, our results highlight the possibility that the pressure to migrate from North African countries and other developing countries may increase with further growth.

1. INTRODUCTION

Labor mobility is a cause of growing concern among policy-
makers in Europe. Admittedly, the issue is addressed in a
somewhat schizophrenic matter. On the one hand, it is often
argued that enhanced factor mobility represents an essential
condition for European regions to adjust to idiosyncratic shocks
once exchange rate realignments will have been definitely ruled
out. With relatively immobile factors and widespread wage
rigidities, asymmetric shocks may induce prolonged period of
depressed economic conditions and high unemployment. Sustained
labor mobility is therefore seen as a crucial requirement to
facilitate the process of European integration and cohesion. A
completely different attitude takes hold when one is confronted
with the issue of international migrations. The fear here is
that, because of economic stagnation and explosive demographic
trends in the developing world together with the uncertainty
still surrounding the transition in both Eastern Europe and the
former Soviet Union, international migrations may resume on a
massive scale, exacerbating the unemployment problems in
receiving countries and stirring social tensions.

Overall, therefore, the current policy stance in receiving
countries would seem to favor internal labor mobility, but to
discourage external migrations. This raises, however, a serious
potential conflict with sending countries, for which
international migrations represent a way to relieve the excess
supply in their labor market and to relax their foreign exchange
shortage, thank to larger workers remittances. Attempts by the
host countries to stem migration are viewed therefore with
suspicion, if not with outright hostility. One way to reconcile
these conflicting interest is often deemed to be the promotion
of growth, through say targeted aid policies, in the emigration
country. This would stem migration pressure and help achieving
an equitable and more efficient solution to the migration problem
(ILO-UNCHR, 1992).

In this paper, we take a closer look at the issues of internal and external migrations in Europe. We focus on the case of Southern Europe. For several decades, Southern European countries have been the main source of migrants for Northern economies. They can therefore provide crucial indications as to the pattern of internal labor mobility in Europe. At the same time, countries in Southern Europe have gone through a full migration transition and have now become the destination of substantial labor flows from Northern Africa and many other relatively poor countries. An analysis of their experience can therefore cast some light on the factors which affect the longer-run trend in migration. More specifically, it can offer some useful insights on the link between income growth and migrations.

The paper is organized as follows. In the next section, we present a simple model to study the link between migration and growth. We then look at the main migration trends from Southern Europe. Econometric results are presented in section 4. Concluding comments follow in the last section.

2. A SIMPLE MIGRATION MODEL.

The determinants of migration decisions have been the object of much research in the literature. Traditionally, it was assumed that the choice to migrate would depend on a comparison between income at home and income in the potential host country (Schultz, 1971). The Harris-Todaro approach refined this approach by remarking that risk-neutral migrants would weigh the wage in the destination country by the probability of finding a job. The Harris-Todaro model was then extended to allow for non-neutral behavior toward the risk (Banerjee and Kanbur, 1981, Hatton 1993). The most recent research has focussed on several factors, in addition to wage differentials, that may prompt people to migrate, such as the desire to diversify risk, to escape relative deprivation and the presence of imperfect information (Stark, 1991).

One stylized fact of the migration literature (Hatton and Williamson, 1993, Wyplosz, 1993) is that very few people migrate, sometimes in spite of the existence of exceedingly large wage differentials. In the absence of overwhelming barriers to labor mobility, the puzzle of low migrations rates has been alternatively attributed to large monetary costs of migration (Easterlin, 1961), to cost of living differentials, to optimistic expectations (Wyplosz, 1993) as well as widespread uncertainty about the home country's prospects (Burda, 1993, Faini 1993) [1]. In the model below, we take a different route and assume, as a starting point, that people prefer to live in their home countries and that, ceteris paribus, they would rather not migrate to avoid the social, cultural and psychological costs associated with a move to a different location. More formally, it is assumed that people derive utility also from the amenities they can consume at a given location and that such amenities are

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[1] It may be thought that uncertainty about the home country's outlook would encourage a risk-averse person to migrate. This is no longer the case, however, once we introduce some forms of irreversibility, because of fixed moving costs, in the migration choice.

3

more conspicuous in their home country [2]. Moving abroad involves a loss of utility because of the need to settle into a new and unfamiliar environment and the loss of social relationships. A home market bias in the locational preference is certainly easier to justify than the corresponding bias in consumption patterns (Venables and Smith, 1986) or in financial portfolio allocation (French and Poterba, 1991). As we shall see, one interesting implication of this framework is that the level of wage in the home country differential becomes a crucial determinant of the migration decision, even if we control for the wage differential.

Formally, we assume that the utility of a potential migrant can be represented as follows:

$$U(w_i, \ f_i) \tag{1}$$

where w_i and f_i denote respectively the wage and the amenities in region i. There are two possible locations, the South (S) and the North (N). The potential migrant initially lives in region S. Following the previous discussion, it is assumed that amenities are larger in the origin country of the potential migrant, i.e. that $f_s > f_n$. For migration to occur, evidently the wage differential, $w_n - w_s$, must be large enough to offset the loss of utility attendant on moving abroad.

Given eq. 1, migration will occur if $U(w_n, \ f_n) > U(w_s, \ f_s)$. After taking a simple first-order expansion of $U(w_n, \ f_n)$ around $U(w_s, \ f_s)$, the migration condition becomes:

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[2] A similar hypothesis is made by Djajic and Milbourne (1988) who assume that the marginal utility of consumption at home is always higher than that associated with the same rate of consumption in the host country. This assumption plays a crucial role in their analysis of return migrations.

4

$$U(w_s, f_s) + U_w(w_n-w_s) + U_f(f_n-f_s) \geq U(w_g, f_g) \qquad (2)$$

or:

$$\frac{U_w}{U_f} \geq \frac{f_s-f_n}{w_n-w_g} \qquad (3)$$

where the derivatives of the utility function, U_w and U_f, are evaluated at w_s and f_s. One crucial consideration is that the right-hand side of eq. 3, i.e. the marginal rate of substitution between the real wage (or, more precisely, the goods that such a wage can buy) and the amenities at a given location, will not be generally constant. For instance, if we assume that $U(w,f)$ can be described by a CES function, the migration condition becomes:

$$\frac{1-\delta}{\delta} \geq \frac{f_s-f_n}{w_n-w_s} (\frac{w_s}{f_s})^{1+\rho} \qquad (4)$$

where $1/(1+\rho)$ is the elasticity of substitution between w and f, while δ is the distributional parameter associated with f in the CES function. What eq. 4 suggests is that migration is more likely to occur the larger the wage differential and the smaller the gap in amenities. More crucially, eq. 4 shows that an increase in the wage in the home country, i.e. in w_s, will be associated with lower migrations, even with an unchanged wage differential [3]. The intuition is simple. In this model, both the wage and the amenities associated with a given location are normal goods. A equiproportionate increase in w_s and w_n has

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[3] Notice that this result will not generally hold for any concave utility function in the wage alone, as can be seen by simply taking a second order expansion of $U(w)$. As a further counterexample, consider the case where $U(w) = \ln w$. Clearly, the incentive to migrate depends only on the wage differential; the wage level in the home country plays no independent role.

therefore a positive income effect which will prompt consumers to try to consume more of the home country's amenities. The propensity to migrate will therefore decline. The implications of this result are worth-noticing. Increases in the home country income will have a twofold effect on migration, first by reducing the wage differential with the host country, second by inducing a decline in the propensity to migrate. Clearly, this would enhance the effectiveness of those policies which, as mentioned earlier, would aim at reducing migration through the promotion of growth in the sending countries.

One obvious shortcoming of the previous approach is that it does not allow for heterogeneity among agents. If eq. 4 holds, all agents would be predicted to migrate. To allow for non-homogeneous behavior, we assume that $\gamma = (1-\delta)/\delta$ is distributed within the home country population according to a Pareto distribution function:

$$\frac{\theta}{x_0} \left(\frac{x_0}{\gamma}\right)^{\theta-1} \tag{5}$$

where x_0 and θ are parameters of the distribution function [4]. The migrants share in the home country population is therefore equal to:

$$Prob(\gamma \geq z) = \int_z^{\infty} \frac{\theta}{x_0} \left(\frac{x_0}{\gamma}\right)^{\theta-1} d\gamma = x_0^{\theta} z^{-\theta} \tag{6}$$

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[4] Notice that the Pareto distribution function is defined over the interval (x_0, ∞).

6

where $z = (f_s - f_n)/(w_n - w_s) (w_s/f_s)^{1+\rho}$.

The framework developed so far does not allow for the fact that not all would-be migrants, i.e those for which eq. 4 holds, are actually able to move abroad [5]. The presence of minimum educational and wealth requirements may indeed act as a binding constraint for many would-be migrants (Banerjee and Kanbur, 1981). Furthermore, capital markets imperfections may prevent a potential migrant from contracting a loan to pay for the monetary cost of migrations. Perhaps more crucially, minimum educational requirements may present an insurmountable obstacle for many would-be migrants [6]. Suppose therefore that, for someone to be able to migrate, a given characteristic A (say, educational attainment) must be greater than a given critical value ('c') and satisfy therefore the condition $A > c$. The number of actual migrants would then be determined by the intersection of the two relevant sets of agents, i.e. those for which eq. 4 holds (and are therefore willing to migrate) and those for which the constraint is not binding (and are, as a result, able to move abroad):

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[5] One further missing factor from the previous model is unemployment. It is easy to show however that unemployment can be introduced in a relatively simple manner. Let p_i be the probability of being unemployed in region i (with i=N, S) and w_i ($\overline{w}_i$) the wage rate when employed (unemployed). The migration condition becomes:

$$p_n U(\overline{w}_n, f_n) + (1-p_n) U(w_n, f_n) \succeq p_s U(\overline{w}_s, f_s) + (1-p_s) U(w_s, f_s)$$

We only need to take a linear approximation of $U(\overline{w}_n, f_n)$, $U(w_n, f_n)$ and $U(\overline{w}_s, f_s)$ around $U(w_s, f_s)$ to find an expression analogous to eq. 3, with the relevant wage variable being now $(1-p_i) w_i + p_i \overline{w}_i$, i.e. the expected wage. In the empirical implementation, we assume that the probability of being unemployed in region i is a function of the unemployment rate there.

[6] It could be the case however that agents, if inherently more propense to migrate, would then strive acquire the necessary educational achievements to be able to move abroad (see Stark, 1993, for a similar approach)

$$Prob(\gamma \geq z, A \geq c) = \int\limits_{z}^{\bar{\bar{}}} \int\limits_{c}^{} f(\gamma, A) \, dA d\gamma \qquad (7)$$

where $f(\gamma, A)$ is the joint density function of γ and A. If we assume that A and γ are independently distributed and furthermore that the characteristic A is distributed among the population according to a Pareto distribution function, then it is easy to show that the actual number of migrants (M) as a share of the home country's population (P) will be equal to:

$$\frac{M}{P} = x_0^{\theta} \; z^{-\theta} \; x_1^{\epsilon} \; c^{-\epsilon} \qquad (8)$$

where x_1 is the lower limit of the support of the distribution of A. We also assume that an increase in the home country's wage will shift the distribution of the characteristic A to the right. We do so by postulating that x_1 is a function of the wage rate in the South. More precisely, we assume that:

$$x_1 = w_s^{\alpha + \beta \ln w_s} \qquad (9)$$

We expect $\alpha > 0$ and $\beta < 0$, the implication being that increase in the home wage will relax the constraint (because $\alpha > 0$), but will do so at a declining rate (to the extent that $\beta < 0$). Substituting eq. 9 and the expression for z in eq. 8 and taking logs yields after some manipulations the following expression:

$$\ln(M/P) = \theta \ln x_0 + \theta \ln(w_n/w_s) - \theta \rho \ln w_s + \theta \ln(f_s - f_n) \qquad (10)$$

$$+ \theta(1+\rho) \ln f_s + \epsilon \alpha \ln w_s + \epsilon \beta (\ln w_s)^2 - \epsilon \ln c$$

Relative amenities and relative wages have the expected

8

impact on the migration rate. We see however that the impact of w_i is a priori ambiguous. If $(\theta \; \rho)$ is large, the effect of a larger w_i on the propensity to migrate and thus on the number of would-be migrants dominates, so that an increase in w_i is associated with lower migrations. Conversely, if $(\epsilon \; \alpha)$ is relatively large, the impact of a larger w_i in relaxing the constraint and allowing therefore more would-be migrants to move abroad is more important and the rate of migration increases. Finally, with $\beta < 0$, we expect the square term in $\ln w_i$ to have a negative coefficient.

3. TRENDS IN SOUTHERN EUROPEAN MIGRATIONS

Historically, Southern European countries have always represented a source of migrant labor for Northern economies. In the nineteenth century, Italian, Spanish and Portuguese workers went in great numbers to France, Germany and Switzerland in an attempt to escape from poverty and deprivation at home (Ferenczi and Wilcox, 1934; Faini and Venturini, 1993b). The dramatic fall in transoceanic passenger costs at the end of the nineteenth century prompted many migrants to choose the Americas as their destination. But even during this period migration toward Northern Europe was always sustained and actually registered a significant increase after 1900. A first turning point came only with the first World War. Then, after a brief resumption of international labor flows in the twenties, the Great Depression took a major toll on the movement of workers between Southern and Northern Europe.

Southern European countries resumed their role as a source of migrant workers for the North after the second World War. During the second half of the fifties, intra-european migration register a massive surge. The trend continues unabated until the first oil shock, when declining economic opportunities in the receiving countries forced many migrants to return home and discouraged new migrants to try their chance in Northern Europe. Fig. 1 shows how, after a steady increase during the sixties, migration flows from Southern Europe fell dramatically in the wake of the first oil shock.

Analysts typically attribute the fall in migration rates after 1973 to the decline in labor demand in the main receiving countries (Salt, 1991). Interestingly enough, however, when, in the eighties, economic conditions in Northern Europe showed a clear improvement, migrations from Southern Europe did not resume. There are several possible explanations to this apparent puzzle. First, it could be argued that wage and income

10

differentials between Northern and Southern Europe during the eighties were no longer providing an adequate incentive for labor to move. But the evidence is simply not there. From Fig. 2, we see that there was little if no sign of income convergence between the main sending countries in Southern Europe (Portugal, Spain and Greece [7]) and the main destination countries. Only at the very end of the eighties did the income differential between Northern and Southern Europe exhibit a substantial decline and this held true only for Portugal and Spain. Neither do we find a significant improvement in the relative labor market conditions between sending and receiving countries. Fig. 3 shows that the increase in unemployment after 1973 did not spare countries in Southern Europe. Second, it is possible that a structural shift in the composition of labor demand, say toward higher skills, meant that employment growth in the receiving countries no longer had a substantial pull effect on migrations. Yet, whereas migrations from Southern Europe declined or remained flat, the same trend cannot be ascertained for other traditional sending countries, in particular in Northern Africa. Other factors, besides the structural shift in labor demand, must therefore be at work. One plausible conjecture would be that the fall in migration rates from Southern Europe reflected supply more than demand factors. Recall that one implication of the model in section 1 was that, even with constant wage differentials, the propensity to emigrate will decline if economic conditions improve in the home country. From Fig. 4, we see that economic welfare steadily improved in the main sending countries: by itself, this evolution may have had some role in discouraging workers from migrating. Clearly enough, however, only econometric analysis can disentangle the role of the many factors which are potentially at work in determining migrations. In the next section, therefore, we turn to our econometric results.

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[7] Italy would be an exception though, to the extent that the income gap with Northern Europe declined substantially between 1974 and 1990. For the reasons explained below, however, we do not include Italy in our econometric sample.

4. ECONOMETRIC ANALYSIS

a) the estimating equation.

From eq. 9, migration is seen to depend on the wage differential, the wage level (and its square) in the sending country as well as the level of amenities in the home and the host countries. For the purpose of estimation, we assume that the relative level of amenities is a function of the number of migrants to a given destination in the previous year. We also introduce among the regressors the level of unemployment in both the sending and the receiving countries. As noticed earlier (see footnote 5), this can be justified if we consider a framework where potential migrants maximize their expected utility (which in turn is a weighted function of the utility when employed and when unemployed), with the probability of being employed positively related to the employment rate at a given destination.

Even with these modifications, eq. 9 only reflects supply determinants of migration. The discussion in the previous section highlights however the crucial role that demand (i.e. host country's) considerations may have played in determining the evolution of migrations. We amend therefore the model as follows. First, we assume that policy-makers in the host country try to minimize a loss function which include among its arguments a) the difference between actual and desired migrants (the latter being equal to labor demand for foreign workers, L^d), b) the amount of expenditure (E) required to implement effective migration controls. In turn, the actual number of migrants (M) is an increasing function of migrants' notional supply (which is given by eq. 9), but is negatively related to the level of expenditure on migration controls. Formally, the policy-maker's problem in the host country is:

12

$$\min L(M - L^d, E) \qquad (11)$$

s.t.:

$$M = M(M^s, E) \quad M_1 > 0, \ M_2 < 0 \qquad (12)$$

where M^s is the notional supply of migrants.

The empirical underpinning of this approach is that controls can never be fully effective in stemming the flow of migrants, but rather act like a wire-mesh screen. They hinder and slow down migrations, but also permit some inflow particularly if the inward pressure rises [8]. If we solve the optimization problem of eqs. 11-12, we find that the actual number of migrants will depend both on the determinants of M^s and on labor demand for foreign workers in the host country. We assume that the latter is an increasing function of employment growth in the host countries. The estimating equation therefore reads as:

$$\ln(M/P) = a_0 + a_1 \ln(w_n/w_s) + a_2 \ln w_s + a_3 (\ln w_s)^2 \qquad (13)$$

$$+ \ a_4 \ln U_s + a_5 \ln U_n + a_6 \ln EG_n + a_7 \ln(M/P)_{t-1}$$

where EG_n denotes employment growth in the receiving country.

b) the data.

We estimate eq. 13 on a sample of Southern European countries which include Greece, Portugal, Spain and Turkey. The

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[8] We have borrowed this analogy from William Cline's assessment of protection in the textile and clothing sector (Cline, 1987).

exclusion of Italy is dictated by the lack of homogeneous conditions the country, because of the persistent backwardness of the Mezzogiorno area. As a matter of fact, whereas the Northern part of Italy stopped being a net emigration area many decades ago, the Mezzogiorno has been a steady source of migrant workers until at least the early eighties. The existence of persistent and substantial regional differences within Italy implies that any aggregate analysis of the migration behavior of the country is most likely to be meaningless or even misleading [9]. Furthermore, an analysis of migration behavior in the Mezzogiorno has already been presented in Faini (1989).

Migration data come from national sources. The relevant sources are indicated in the data appendix. As a proxy of wages, we use PPP corrected indicators of income per capita for both the sending and the destination countries. There is considerable discussion on whether income or wage indicators should be included in a migration equation (Hatton and Williamson, 1993). We believe that, for medium and long-run migrations, income data may provide a better indication of the earning potentials of prospective migrants. Empirically, the use of either indicators does not seem to make much difference (Gould, 1979). Finally, income, unemployment and employment variables in the host country are defined as weighted averages of the main destination countries' relevant variables, with weights reflecting the importance of each destination in the migration flow from a given country.

c) the results.

The results of estimating eq. 13 for Greece. Portugal, Spain

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[9] Admittedly, regional differences in migration behavior and standard of living are also important for other countries in our sample, such as Spain. We believe however that the degree of regional inequality is much more pronounced in Italy than say in Spain. For instance, in 1988 the ratio between income in the more and in the less developed regions was equal to 1.41 in Spain and 1.78 in Italy.

and Turkey are presented in Table 1. All equations have been estimated by ordinary least-squares. Three main facts stand out. First, the level of income in the sending country is a consistently significant determinant of migration behavior. The coefficient on the income level is positive, whereas the coefficient on its square is negative, suggesting the existence of a hump-shaped pattern of migrations in response to the home country's income. This seems to indicate that, in the early stages of development, increases in the sending country's economic well-being lead to more rather than less migrations, to the extent that they help relaxing the financial and educational constraints which prevented many would-be migrants from moving abroad. A similar pattern, but in a different context, was identified by Banerjee and Kanbur (1981) [10]. For relatively higher levels of income, however, further income growth, even with a constant wage differential, will lead to lower migrations. Second, labor market conditions in the receiving countries appear to matter considerably. Indeed, both the unemployment rate and the employment growth rate in the host country play a highly significant role in affecting migrations. We have also tested for the conjecture that employment growth in the destination countries had no longer a significant impact on migrations, presumably because of a structural shift in the composition of labor demand, after 1980. We find little evidence in support of this claim. Only for Spain is the coefficient on EG not significantly different from zero after 1980. For Greece and Portugal, the hypothesis that the coefficient on employment growth does not exhibit any structural break cannot be rejected. For Turkey, there is some (weak) evidence that the coefficient

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[10] The main difference between our model and the one of Kanbur and Banerjee is that, in the latter, the downward-sloping portion of the income-migration schedule is due to the income differential-reducing effect that an increase in the home country's income level entails. By contrast, in our model, the income differential is kept constant and the reduction in the migration rate is wholly due to the effect that greater economic well-being exerts on the locational choice.

on employment growth may have somewhat declined after 1980 [11]:
in Table 1, we report the unconstrained specification. Finally,
we find that wage differentials matter in affecting the evolution
of migrations, but not in a very substantial way. For Turkey, for
instance, it was not possible to reject the hypothesis that the
coefficient on the income differential is not significantly
different from zero. Similarly, for Greece the coefficient on the
wage differential is only marginally significant.

The statistical properties of the estimated equations appear
to be satisfactory. We have tested all equations for residual
autocorrelation, stability and predictive power. Nowhere do we
find any indications of significant misspecification. The Hendry
test yields a somewhat large value for Turkey, but a standard
degrees of freedom correction takes it back into the acceptable
bounds [12].

The finding that economic growth in the sending country will
have a positive impact on migration for relatively poor countries
(to the extent that, according to our model, it relaxes existing
constraints on migration), but will exert an opposite effect on
middle-income countries (given that potential migrants will then
be more willing to consume their home countries' amenities)
offers encouraging support to our model. Admittedly, however,
demographic considerations may provide an alternative explanation
for such finding. Indeed, demographic transition theories suggest
that income growth is initially accompanied by an acceleration
in population growth (to the extent that the fall in the death
rate precedes the decline in the birth rate) and leads therefore
to an increasing weight of young age cohorts in the population.
Given that migration is a (negative) function of age, the larger

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[11] The $F(1,18)$ statistics associated with this constraint is
equal to 1.59.

[12] As shown by Kiviet (1986), Montecarlo evidence suggests
that the actual size of the Hendry and the LM tests are
substantially larger than their nominal size, leading to
systematic overrejections of the null hypothesis. To alleviate
this problem, a degree of freedom correction is strongly advised.

share of young cohorts will tend to increase migrations. In a
second phase, though, the belated decline in the birth rate will
induce a decline in the weight of young adults cohorts and a fall
in the propensity to migrate. Overall, therefore, demographic
factors could fully account for the inverse-U pattern of
migrations that we found in our data. We control for this factor
by introducing in our regressions the share of 14-29 (or 20-29)
years aged people in the population. Table 2 shows the evolution
of the first of these two indicators for our sample countries.
The share of young adults declines first and rises later after
1970 [13]. Clearly, it is difficult to reconcile this pattern with
the supposedly positive effect of young adult cohorts on
migrations. This is indeed confirmed by our regression analysis.
In no cases, the share of young adult cohorts (be it measured by
the number of 14-29 or 20-29 years aged people) in the population
came to be even a nearly significant factor in determining
migrations. We conclude therefore that, at least for Southern
European countries, demographic factors do not provide a
convincing explanation of the hump-shaped pattern of migrations.

More efficient estimates of eq. 13 can be obtained by
pooling the sample countries together, provided of course that
the pooling restrictions are not rejected by the data. We rely
on a fixed effect framework, where the intercept is allowed to
differ across countries, but the slope coefficients are assumed
to be the same [14]. The econometric results for the pooled sample

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[13] Notice though that data on the size of population cohorts
are available only at five year intervals. In the regression
analysis, we are therefore forced to rely on a linear
interpolation.

[14] Standard tests (first on a pairwise basis and then by
adding one country at a time) indicate that pooling is
appropriate for Greece, Spain and Turkey. For instance, the $F_{7,39}$
test for pooling Spain and Turkey is equal to 2.14. Adding Greece
yields an $F_{7,64}$ equal to 1.70. The pooling restrictions are
(marginally) rejected for Portugal. We have therefore estimated
the equations in Table 3 also without Portugal. The results,
however, do not change in any substantial manner, with the only
exception of the coefficient on the income differential which
loses statistical significance.

are reported in table 3 (column 1). The coefficients are well
determined and broadly support the results on a country-per-
country basis. In column 2, we rely on an alternative econometric
specification: rather than stacking the data, we define a
separate equation for each country and estimate a SURE
specification, imposing the cross-equation restrictions of equal
slope coefficients for the four countries equations. This
approach is designed to capture common shocks to the migration
equation [15]. With the exception of the home country unemployment,
all coefficients are precisely estimated. Finally, in column 3,
we follow Arellano and Bond (1991) in allowing for the fact that
a fixed effect specification may not be appropriate in a dynamic
panel context [16]. To cope with this problem, we estimate the
equation in a first-difference form and rely on an instrumental
variable procedure to allow for the resulting correlation between
the new error term and the lagged dependent variable [17]. The
results provide again strong support to our approach. All
coefficients, including domestic unemployment, are quite well
determined and bear the right sign. Once again, we find that,
even after controlling for the wage differential, the level of
income in the home country plays a crucial role in influencing
migrations with a positive effect for a relatively poor country
and a negative effect otherwise.

Overall, our results suggest that the impact of growth on

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[15] See Arellano (1987). Notice that this approach requires
a balanced sample. Compared to column 1, we are therefore forced
to throw away a few observations.

[16] This is because when taking the difference from each
country's mean to calculate the country's fixed effect, the error
term becomes:

$$\epsilon_{it} - (1/T) \sum_{t=1}^{T} \epsilon_{it}$$

and, for relatively small T, is therefore correlated with the
lagged dependent variable.

[17] See Arellano and Bond (1991) for further details and
rationale about the estimation procedure.

emigration is rather complex. For relatively richer countries, income growth will reduce the income differential with the destination countries and also encourage people not to incur the social and psychological costs of migrations. Emigrations therefore will unambiguously decline. In contrast, for poor countries, the impact of income growth is likely to have an ambiguous impact on migration. On the one hand, it will lower the income differential with the receiving countries. On the other, however, it will relax the financial and educational constraints which prevented many would-be migrants from going abroad. The net effect may plausibly be positive, particularly if the sending country is relatively poor to begin with. The turning point in the migration-income relationship will therefore play a crucial role in this context. Our estimates of such point fall in a relatively narrow range, i.e. from $ 3400 for Turkey to $ 4000 for Portugal and $ 4100 for Greece, in 1985 international dollar prices. Only for Spain does the estimated turning point fall outside this range. The estimated turning point in the pooled sample using the Arellano-Bond procedure is equal to $ 3615.

To sum up, our approach moves some steps toward explaining two apparent paradoxes in the empiric of migrations. First, it is often found that migrants do not come from the relatively poor countries. It is for instance an established fact among economic historians that in the nineteenth century the flow of intercontinental migrations originated mostly from relatively well-off countries in Europe, namely England first and Germany later (Razin and Sadka, 1992, Davis, 1984). Poorer countries in Southern Europe by contrast were quite latecomers as a source of migrant workers. The second puzzle comes from the fact that often, even in the presence of large and persistent wage differentials, the rate of migration can be very low. To account for this fact, we rely on the existence of non-monetary costs of migration and the desire by potential migrants to consume more of their home country's amenities, when their income increases. The empirical relevance of this approach is likely to be more significant for international migrations, where cultural,

19

geographical and linguistic barriers matter relatively more.

5. CONCLUSIONS AND POLICY IMPLICATIONS.

Policy-makers in European countries typically complain about the low level of labor mobility within Europe. At the same time, perhaps somewhat paradoxically, they appear to be increasingly concerned about growing migration pressure from outside the European Community.

This paper has tried to cast light on both the issues of internal and external labor mobility. Regarding the former, it argues that the outlook for internal labor mobility in Europe is rather bleak. Despite sometimes persistent wage and income differentials, there is little evidence that even the full abolition of barriers to internal migrations within Europe may lead to a resumption of labor flows [18]. Our results indicate that the propensity to emigrate in Southern European countries, which used to be the dominant source of workers migrants within the Community, has fallen dramatically and is not likely to increase again. Indeed, most countries in Southern Europe are well to the right of the migration turning point, meaning that further income growth will further enhance the decline in the propensity to migrate. We have offered a new explanation to this phenomenon, focussing on the impact of income growth, for given wage differentials, on the propensity to migrate.

Regarding external migrations, this paper adds causes of both optimism and pessimism to the traditional view that growth in the sending countries will stem migration pressures. It adds optimism to the extent that it shows that after a certain point further growth in the origin countries will lead to lower migration propensity, even for constant wage differentials. Put it differently, higher income in the sending countries will lower

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[18] See Attanasio and Padoa-Schioppa (1991), Eichengreen (1992, 1993) and Decressin and Fatas (1993) for further evidence on labor mobility in Europe.

migrations both through their impact on the income differential
and because it will lower the propensity to move abroad. The
paper however also brings a motive of pessimism to the extent
that it shows that such effects will not work for relatively poor
countries, where income growth may be associated with more rather
than less migrations. Most sending countries in Northern Africa
have still a long way to grow before reaching the migration
turning point. Under these circumstances, aid and development
policies, particularly if geared to egalitarian objectives, may
not help much in stemming migration. This is not to say of course
that aid and development policies should not be encouraged. It
is meant instead to emphasize that such policies should not be
loaded with ancillary objectives such as the discouragement of
migrations.

Table 1

The determinants of migration

Dep. var.: ln (M/P)

	Greece	Spain	Portugal	Turkey
Constant	-189 (4.17)	-160 (1.44)	-159 (3.87)	-234 (2.6)
LY	45.2 (4.33)	36.7 (1.82)	37.9 (3.77)	57.9 (2.5)
LYSQ	-2.7 (4.40)	-2.1 (1.77)	-2.3 (3.69)	-3.6 (2.4)
LDIF	3.4 (1.68)	4.36 (2.72)	3.12 (3.23)	.39 (.32)
U_i [1]	.03 (1.03)	-.01 (.56)	.42 (3.73)	.01 (.33)
U_n	-.11 (2.30)	-.08 (1.07)	-.09 (1.68)	-.22 (4.1)
EG_n [2]	4.6 (1.62)	10.4 (2.52)	10.3 (2.19)	15.6 (3.1)
$EG80_n$	------	------	------	8.26 (2.0)
ln $(M/P)_{-1}$	.37 (5.90)	.65 (5.97)	.34 (2.45)	.26 (2.3)
D	-.87 (11.2)	------	.84 (13.7)	------
R^2	.96	.94	.96	.91
DW	1.48	2.25	1.92	1.89
SER	.15	.21	.18	.20
LM $(\chi^2(1))$	2.37	.41	.05	.28
H $(\chi^2(1))$	.62	.61	.61	5.87
Chow $(F_{1,18})$	.17	.41	.32	3.37

Legend.

M: migrations, P: population, LY: log of income in the home country, LYSQ: LY^2, U_i: home country's unemployment, U_n: host country's unemployment, EG_n: employment growth in the host country, $EG80_n$: EG_n in the eighties, D: dummy variables (1967 migration stop in Greece, 1982 French regularization for Portugal).
T-statistics in parenthesis. LM: Lagrange Multiplier test for serial correlation, H: Hendry test for predictive power, Chow: Chow test for structural stability.

Notes.
[1]: U_i in the seventies for Portugal.
[2]: EG_n in the seventies for Spain and Turkey.

Table 2

Population share of young adult cohorts
(14-29 years aged people)

	Portugal	Spain	Greece	Turkey
1960	0.236	0.231	0.251	0.250
1965	0.229	0.223	0.234	0.253
1970	0.206	0.218	0.204	0.249
1975	0.238	0.228	0.216	0.270
1980	0.253	0.230	0.215	0.276
1985	0.253	0.241	0.221	0.282
1988	0.251	0.245	0.219	0.283

Table 3

The determinants of migration
(pooled data)

Dep. var.: ln (M/P)

	OLS	SURE	DPD [1]
Constant	-53.3 (2.59)	-31.4 (1.72)	------
LY	13.1 (2.60)	7.8 (1.71)	39.3 (5.33)
LYSQ	-.81 (2.64)	-.49 (1.73)	-2.40 (5.36)
LDIF	.82 (1.66)	1.14 (2.84)	1.56 (2.02)
U_i [2]	1.40 (2.06)	.60 (.88)	.30 (1.85)
U_n	-.09 (3.77)	-.07 (3.00)	-.19 (4.30)
EG_n	10.5 (5.41)	9.77 (5.05)	7.66 (4.02)
ln $(M/P)_{-1}$	.64 (11.1)	.63 (8.13)	.20 (2.10)
D67	-.69 (8.06)	-.48 (7.55)	-.55 (2.59)
D82	.66 (11.2)	.51 (7.96)	.70 (3.42)
R^2	.94	------	------
DW	1.42	------	.018 [3]
SER	.23	------	.17
Sargan $\chi^2(10)$	------	------	7.33

Legend.

M: migrations, P: population, LY: log of income in the home
country, LYSQ: LY^2, U_i: home country's unemployment, U_n: host
country's unemployment, EG_n: employment growth in the host
country, D67: dummy variable (1967 migration stop in Greece),
D82: 1982 French regularization for Portugal.
Country intercepts have been omitted. T-statistics in
parenthesis. The Sargan procedure is a test for the
overidentifying restrictions in an instrumental variable context.
See Arellano and Bond (1991).

Notes.
[1]: dynamic panel data estimation.
[2]: U_i in the seventies for Portugal.
[3]: second order serial correlation test [N(0,1)]. First-order
serial correlation test has been introduced by taking first
differences in the original equation.

DATA APPENDIX

Gross emigration flows (M): National Employment Statistical Data.

Total population (P): OECD data.

Income per capita in Purchasing Power Parity (Y): Summer and Heston data base.

Unemployment rate (U): OECD data.

Employment growth (EGn): OECD data.

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Fig.1   Emigration rate

Emigration rate

year

□   Portugal
+   Spain   ◇   Greece   △   Turkey
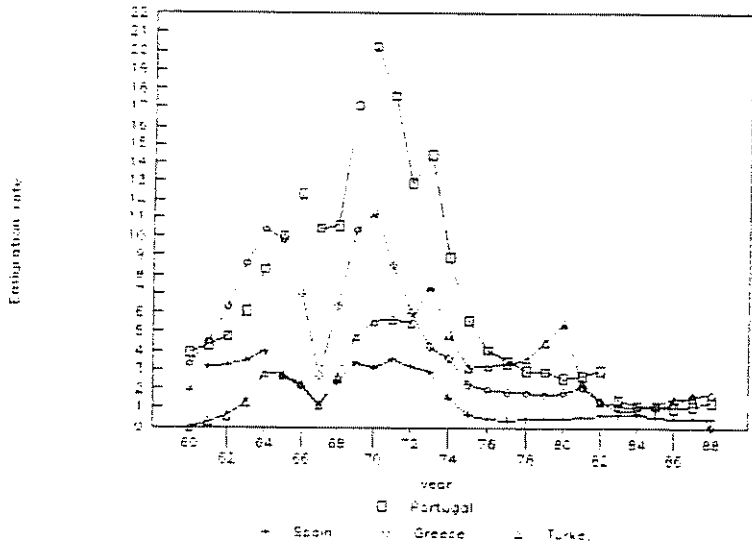
Fig. 2. Income Differentials
(Germany's income in the numerator)

Legend: Greece, Portugal, Spain, Turkey

FIG.3 Unemployment rate
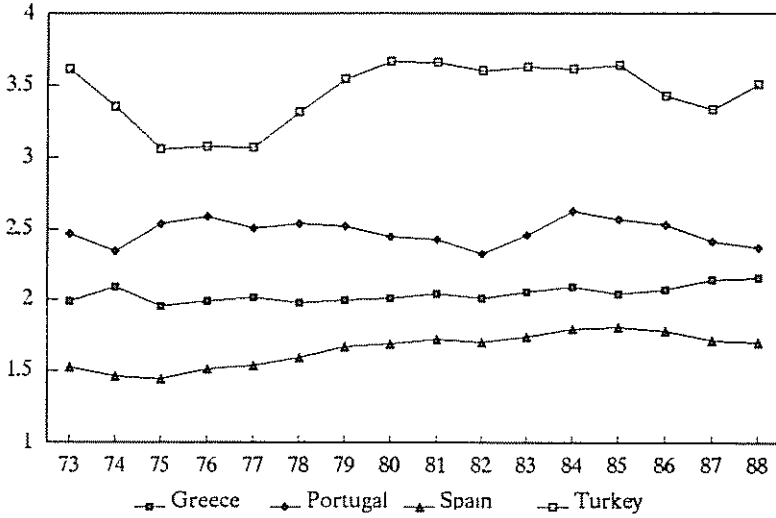of Portugal, Spain, Greece and Turkey

Unemployment rate
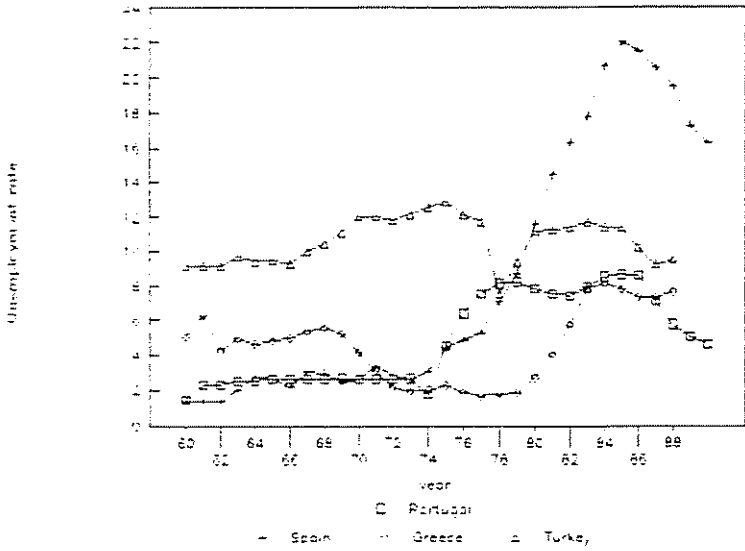
year

□   Portugal

— Spain   · Greece   △ Turkey

FiG.4 Income per capita of purch. F F
of Portugal, Spain, Greece and Turkey

Income per capita (Migliaia)

year

□ Portugal

+ Spain   ⬦ Greece   △ Turkey