

WPS4050

**The Demographic Benefit of International Migration:
Hypothesis and Application to Middle Eastern and North African Contexts**

Philippe Fargues*

European University Institute

World Bank Policy Research Working Paper 4050, November 2006

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent. Policy Research Working Papers are available online at <http://econ.worldbank.org>.

* Philippe Fargues is Director of the Euro-Mediterranean Consortium for Applied Research on International Migration (CARIM) at the European University Institute in Florence. An early version entitled “How international migration may have served global demographic security” was presented at the World Bank ABCDE Conference in Amsterdam, May 23-24, 2005. The paper has benefited from constructive comments by Maurice Schiff and Refik Erzan.

Non-Technical Summary

It seems sensible that international migration has no impact on the size of world population. However, this paper argues that international migration may have resulted in a smaller world population than in the non migration scenario. The author claims that most of recent migration has been from high to low birth-rate countries, and since migrants typically adopt and send back ideas that prevail in host countries, they are potential agents of the diffusion of demographic modernity to their country of origin.

The author uses data from three major origin countries: Morocco and Turkey (where emigration is bound for the West), and Egypt (where emigration is bound for the Gulf). These three countries offer contrasted situations: the host countries are either more (the West) or less (the Gulf) advanced in their demographic transition than the home country. He finds empirical evidence that time-series data on birth rates and migrant remittances (reflecting the intensity of the relationship between the emigrants and their home country) are strongly correlated. Correlation is negative for Morocco and Turkey, and positive for Egypt. This suggests that Moroccan and Turkish emigration has been accompanied by a fundamental change of attitudes regarding marriage and birth, while the opposite holds for Egyptian migration.

The broader conclusions from this paper are that migration may have caused a relaxation of demographic pressures for the world as a whole. In addition, if it turns out that emigrants are conveyors of new ideas in this area, the same may apply to a wider range of civil behavior.

Introduction

Migration is commonly regarded by development economists as a potentially win-win process, one susceptible to creating net wealth in both regions of origin and destination of migrants. How can the question of whether international migration is a “positive sum game” be transposed to demography? This paper advances the argument that international migration has contributed to contain the demographic explosion, more precisely that population movements from developing to more developed countries during the last decades have resulted in a smaller global world population than the one which would have been attained had no international migration taken place. In other words, it argues that international migration has contributed to reducing the risk of world overpopulation,¹ i.e., it has increased global security through demographic change.

The mechanism through which international migration is hypothesized to play on global demography is simple: most migration during the period of demographic transition²—a period during which international differentials in birth rates are peaking—has been from high to low birth-rate countries. It is assumed that, because international migrants adopt for themselves, and send back to their home countries, models and ideas that prevail in host countries, they are susceptible to be agents of the diffusion of demographic modernity.

The Middle East and North Africa (MENA) offers a particularly interesting case in point for testing the hypothesis that migrants are potential vectors of demographic change.

¹ Looking at the long term, the common sense would on the contrary associate migration with the search for vital space, that is with the demographic expansion of mankind rather than the reduction of its rate of growth. As Kingsley Davis (1988) puts it “Liberal political and economic leaders tend to believe that a movement from areas of high population density to areas of low population density is [...] desirable [while] their opponents point out that the Earth is already too crowded, that migration by helping to fill the last remaining open spaces, is making the crowding worse » (p. 252-3). In a long historical perspective, it is true that migration has often resulted in peopling scarcely peopled areas. However, things have changed: there are no longer ‘empty’ places and the world is now divided into well delineated political entities, between which strong economic differentials are the main driver of migration, disregarding population density.

Several MENA countries witness an intense emigration, with emigrants bound either for the Gulf or for the West, according to countries of departure and time. With regard to demographic differentials encountered through migration, MENA thus offers contrasted situations: host countries of emigrants are sometimes less, sometimes more advanced in their demographic transition than their home countries. If the central hypothesis of the paper is true, then emigration from MENA countries will have modified the course of the demographic transition of origin countries of migrants in two opposite directions, according to places of destination: slowing it down where emigrants are destined to the Gulf and speeding it up where they emigrate to the West.

The paper is divided into five sections. Section 1 examines the place of migration in demographic analysis. Section 2 proposes a general framework of interaction between migration and demographic change. Section 3 is a rapid overview of the well-documented side of this framework, i.e. the impact of migration on the demography of migrants. Section 4 is a very first attempt to explore the other side of the framework, i.e. the impact of migration on the demography of non-migrants in countries experiencing significant rates of emigration, with MENA as an example. Section 5 offers a partial validation of the main hypothesis by comparing Morocco, Turkey and Egypt.

1. The demographic ideal of a closed population

Migration was never built up by demographers at the same level of formal elaboration as the two other components of population change, i.e. birth rates and death rates which form together the ‘natural’ growth of any population. Migration is absent from the core model of

² The “demographic transition” is the shift from high to low levels of death and birth rates, with a time gap between the decrease of death rates and that of birth rates, and consequently a period of rapid population growth when death rates are already low while birth rates are still high.

formal demography — known as the ‘theory of stable populations’ — and methods for estimating migration are much less settled than those devised for measuring fertility and mortality.

Formal demography is anchored in the tradition of biology. It models population reproduction as the result of two biological processes, natality and mortality. The modern mathematical demography founded by Alfred Lotka simply excludes external migration³: “By a very natural abstraction, demographic analysis envisages as a point of departure the case of a closed population, that is to say, a population whose numbers receive new accessions only through births and suffers losses only through deaths, immigration and emigration being excluded” (Lotka 1998 [1939], p. 53). Basic analytical models—to begin with the most commonly used of them, i.e. the life table which describes the extinction of a generation “in the absence of external migration”—are constructed on the assumption of a “closed” population, i.e. a population that receives or sends no external migration⁴.

True populations however are not closed. States, or nations, define populations and borders separate national populations from one another. As soon as a population is delineated by a border, border crossing becomes one of the factors of its growth and reproduction. For Lotka this is not a reason for introducing migration in the fundamental demographic equations: “Demographic statistics is concerned primarily with human populations, and particularly with certain more or less isolated populations, as for example those of a nation [...] The practical problems [posed by migration across borders] are reduced more and more as the area included in the study expands, since emigration and immigration are plainly functions of the border periphery, whereas births and deaths are instead functions of the land

³ In this section we use the term ‘external’ rather than ‘international’ migration. The latter refers to nations, a modern division of the world which bears no meaning for most of history, while the former refers inclusively to any sort of territory.

area, and the ratio between the periphery and the internal area continuously decreases as the latter increases. Circumstances of politics and commerce further tend to accentuate that effect, so that for an entire country migration can in certain cases be almost negligible as a factor determining the growth of its population [...]” (*Ibid.*)⁵.

States are not only frames of reference for the delimitation of any national population; they also form the actual frame of population data collection. Statistical records thus incorporate migration, implicitly in vital statistics⁶ or explicitly in migration statistics. As a result, migration is a matter of interest for demographers, which they take into account as soon as they leave models for tackling real statistics. Their interest in migration can follow two very distinct purposes: either eliminating migration from vital records for its interference with biological demography, or measuring migration for its contribution to overall demography.

Eliminating the interference of external migration with the statistical observation of births and deaths has been an important concern for demographers. Following chemistry⁷, formal demography aims at studying fertility and mortality “in the pure state,” and for this

⁴ Later on, Keyfitz (1968) introduced the notion of “interacting populations”, and the tool of “immigration vector” in the mathematics of population.

⁵ Interestingly, theories of international migration do not put a greater emphasis on demography than the one demographic theory puts on international migration. Economic theories recognise that international differentials are key factors of migration, but they rarely consider demographic differentials (in population density or population growth) as true factors. Only few of them would endorse a statement such as “modern migration stems mainly from the difference in population growth between the developed and the less developed countries » (Davis 1988 p. 256). In fact, there are too many exceptions to make a rule of it. To take a Middle Eastern example, Lebanon is a country of emigration to Saudi Arabia, despite the fact that Lebanon has a much lower rate of natural population growth than Saudi Arabia (below 1% compared with 3.3% in 1995-2000), and Lebanon is a place of immigration for Syrians, despite the fact that Lebanon has a much higher demographic density than Syria.

⁶ For example, international migration affects death records and consequently the statistical observation of mortality: the death of an emigrant escapes national statistics of countries of origin so that emigration produces the same result as death in reducing the size of a generation.

⁷ Henry (1972) “Analyser, c’est décomposer un tout en ses parties : [...] L’observation nous fournit des données à l’état brut [...] Ces données brutes, qui peuvent paraître simples à un esprit superficiel, sont en réalité le fruit de combinaisons ou de mélanges fort compliqués où interviennent quantités d’éléments [...] Comme en chimie, c’est à l’analyse qu’il revient d’isoler le phénomène à l’état pur [...] Dans nos observations se mêlent l’effet du phénomène qui nous intéresse, la nuptialité, et des phénomènes perturbateurs, mortalité et migrations. » (p. 20-21).

purpose needs to remove the blurring effect of external migration (Henry 1972). What would have been recorded numbers of births and deaths if no migration had taken place? This is the question to be solved. Because migration is a selective process and because it changes the course of life, its statistical interference with fertility and mortality is a complex one. Do those who have emigrated have the same probability of giving birth or of dying than those who have not emigrated? To which extent do birth rates and death rates obtained on incomplete statistics (they do not cover emigrants) apply to all members of the generation under consideration? How to deal with the dependence in probability of emigration on one side, and fertility or mortality on the other side? These questions have produced more interesting methodological developments in demography than additional knowledge on migration itself⁸.

Measuring migration also fully enters within the scope of demography, insofar as the overall growth of any population is the addition of its external migration to its natural growth⁹. Because migrants have a specific age profile, their contribution to the age structure of the population has also become a topic of interest in demography, recently rekindled by the worry about consequences of ageing in industrialized countries. The question of how to balance decreasing fertility rates by sustained flows of immigrants has received a certain attention from demographers (Keyfitz 1981, United Nations 2000)¹⁰. However, for logical reasons intrinsic to migration itself the modeling of external migration never went very far in

⁸ An overview of the (modest) place of migration in demography is given by Keely (2000).

⁹ The balancing equation of population growth writes: $P_2 - P_1 = B - D + I - E$ where P_1 and P_2 name the total population at dates 1 and 2, and B , D , I , E are respectively the numbers of births, deaths, immigrants and emigrants recorded between dates 1 and 2.

¹⁰ A much debated report of the United Nations (2000) dedicated to exploring how migration could bring an answer to ageing made use of population projections to answer the question “what level of migration from less developed countries would be required to compensate for negative demographic trends in more developed countries ? »

demographic analysis¹¹, and for limits belonging to the social rather than biological nature of external migration, no robust framework of determinants comparable to those applied to mortality and fertility was never devised in the demographic study of migration. As Davis (1988) puts it “international migration [...] resembles mortality and fertility in being part of the fundamental balancing equation in demography, which says that any population change is a function of natural increase and net migration [...] but unlike mortality and fertility, it has no biological constraints and hence no built-in limits. There is no ‘normal’ or ‘natural’ rate of migration” (p. 245).

2. Modeling the impact of international migration on birth rates

To sum up, demography basically deals with international migration as numbers to be added (immigration) or subtracted (emigration) to any population defined by national boundaries. No individual country has a zero balance of external migration, but the entire world has, because it obviously receives no external migration. Despite this indisputable fact we argue, however, that flows of international migration might change the total number of inhabitants on earth, as a result of the impact international migration can have on natural population growth, notably on birth rates¹². We focus here on two particular sub-populations: migrants themselves, and the community they have left behind in home countries.

¹¹ Henry (1972) “Dans l’état actuel de la démographie, on ne sait pas étudier les phénomènes ouverts en tant que tels [...] » “L’émigration d’une région A [...] concerne les membres de la population étudiée et fait sortir de cette population : [...] L’immigration dans une région B résulte, elle, de l’arrivée de personnes étrangères à cette région [...] les événements qui figurent au numérateur ne concernent pas les membres de la population figurant au dénominateur. [...] Il n’y a pas symétrie entre l’émigration de A vers B et l’immigration en B provenant de A : [...] Dans ces conditions, l’étude des mouvements migratoires est, au moins sous son aspect théorique, une étude de sortie, d’émigration » (p. 198-9).

¹² Mortality is also linked with migration. For example, an interesting “Mediterranean” pattern of health has been found among migrant populations (Khalat & Darmon 2003). Including mortality in the paper would have complicated our purpose for only little added value, since mortality does not play as important a role as fertility in contemporary international demographic differentials.

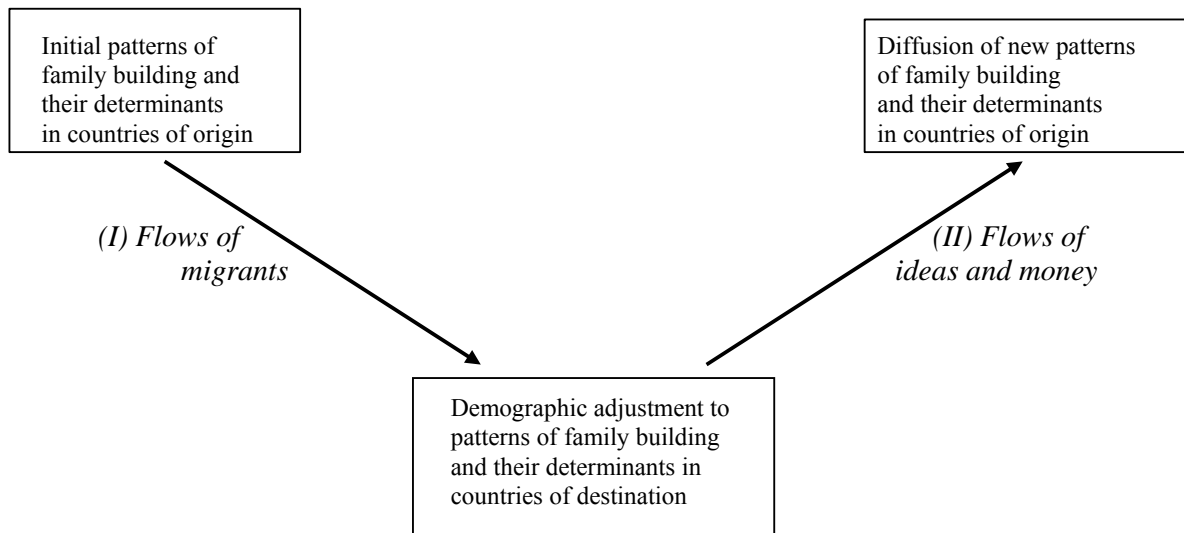
For those who move, migration is susceptible to produce two distinct impacts on patterns of family building. The first is a short-term one which results from imbalances in the sex ratio of migration flows—labor migration (whether of men or of women) delays marriage and procreation, while migration of family reunification yields the opposite effect, and allows to recover birth rates deficits of previous steps in individuals' life cycle—, and the second is a long-term one resulting from the gradual adjustment of migrants to their host population, which translates into a convergence of migrants' demographic patterns with those prevailing in receiving countries. This last effect is shown on Figure 1, left arrow. It is a limited one, since it affects only migrants themselves.

Those who don't move but live in communities from where numerous migrants have departed might also see their demography affected by migration. This will happen as soon as their living conditions are transformed by the emigration of relatives or neighbors on one side, and their vision of life is changed by alternative models to which they are exposed through the emigration of members of their community on the other side. Because expatriates are increasingly forming transnational communities in close contact with the environment left behind through fast travel and cheap telecommunications, modern migrants is still part of the game in their home countries, in particular in the diffusion of models. Their possible impact on patterns of family building and procreation is shown in Figure 1, right arrow. It is an enlarged effect, not limited to migrants themselves and their close families, but extended to their entire local community at home, and possibly to the larger society through the media. This process interacts with the first one: the more adjusted the emigrants to their host society—and the better connected to the world left behind—the more efficient their diffusion of new models and ideas in their home society.

This argument refers to the ideational frame of the demographic transition, by far less researched and less modeled than its structural frame. Much more has been written on the

decline of fertility in relation with structural transformations such as the spread of mass education, urbanization, or the shift from agriculture to services, than on the role played by culture and values in demographic change. As a consequence, empirical evidence is scanty: most, if not all, large fertility surveys designed on a highly standardized and comparative scheme¹³ have disregarded ideas and values, with the exception of a handful of questions directly related with family building, such as the ideal number children, sex preference, or views about marriage. For lack of individual data on more fundamental ideas and values expressing the way people see their lives, this paper will content itself with a macro approach, and will not reach the micro level which would allow a true validation of the hypothesis that migration is a vehicle for alternative ideas¹⁴.

Figure 1: A framework of the impact of international migration on birth rates



¹³ The core questionnaire of the World Fertility Survey (WFS) devised in the 1970s has been reproduced—with some amendments—in all major subsequent surveys, notably the Demographic and Health Survey (DHS) of the 1980s-1990s and the Papchild (1990s) and Papfam (2000s) initiated by the Arab League.

¹⁴ At the other side of the spectrum, for lack of accurate time series on migration in many countries, the paper will not offer any estimation of the global demographic impact of international migration, that is the reduction of the world population rate of growth which can be attributed to migration.

3. Downstream demographic adjustment of migrants

When people move, they change their environment but not their selves. In a short lapse of time, they will be subjected to the living conditions prevailing in their new environment, which are important to determine the cost of children. For material reasons, migration will most probably affect the timing of childbearing and the desired number of children. It will take longer however for immigrants to change some of their individual characteristics, such as the level of education which is recognized an important determinant of fertility, and even longer to adapt to a new culture. This will happen either later in the course of their own lives or only to their children. A quick but limited effect of migration on fertility has thus to be expected, before any deeper shift takes place.

In fact, the convergence of immigrants' fertility with natives' seems to be a slow process: for example in France—the country which hosts the largest Arab expatriate community outside the Arab world—total fertility rates among immigrants women of MENA origin have decreased during the 1980s and the 1990s, thus reducing the distance with their host population, but surprisingly at a much slower pace than in their countries of origin (Table 1). Algerian women living in France have experienced an earlier fertility decline than those left behind in Algeria (6.77 children per women against 4.22 in 1980), but since this decline has been slower among the former than the latter, Algerian emigrants have now higher fertility rates than their non-migrant fellow citizens in Algeria (3.19 against 2.97 in 2000). The same holds for Moroccan, Tunisian and Turkish women. This unexpected result is largely due to a statistical artifact resulting from two characteristics of migration: for women migration is often caused by marriage (another result of which being fertility), and it is a selective phenomenon.

To fully understand this artifact it has to be borne in mind that, after the quasi-closure of Europe to labor immigration starting from the mid 1970s, family reunification has become

the first channel of legal entry for non-European aliens. Firstly, family reunification applies to wives or husbands, which means that a birth is very likely to follow shortly after migration¹⁵. On average, 49% of Algerian immigrant women are married at the time of immigration in France, 52% of Moroccans and Tunisians and 59% of Turks (Borrel & Tavan 2003). That births delayed in countries of origin are recovered in countries of emigration clearly emerges from the fact that, for a same generation of women, those who reside in France for more than 10 years have a much lower level of fertility than those arrived from less than ten years (Table 2)¹⁶. The demographic adjustment effectively operates, but only after certain duration of stay. Secondly, family reunification tends to perpetuate the social selection of migrants, and those arrived in France at the time of massive labor migration (before 1974) where mostly unskilled workers, belonging to social groups with higher fertility than the national average in their home countries.

Before concluding this section, two remarks should be made. First, the social selection of migrants varies with home and host countries. For example, despite Egypt is a country with higher birth rates than Lebanon, Egyptian immigrants in Australia have much lower birth rates than Lebanese immigrants in the same country. In 1981, total fertility rates were 5.40 children per woman in Egypt and 4.05 in Lebanon, while their immigrant communities in Australia had total fertility rates of 2.51 and 4.80 respectively (Young 1991). Egyptians in Australia were more advanced than Lebanese in their demographic transition, while the contrary was true for their countries of origin, a probable sign of upward social selection of migrants to Australia in Egypt and downward in Lebanon. As a result of

¹⁵ A high proportion of children are first children (as soon as fertility is low) and most first children are born during the first years of marriage.

¹⁶ Carlson (1985) analyses in another context (the U.S.) how the event of migration and a new social context combine to affect the vital rates of migrant populations. The timing of marriage remains affected by a cultural factor “which may be more than a simple combination of levels of schooling and job experience” (p. 64). The timing of births displays a strong, temporary and short-term impact of immigration, but no evidence of any longer-term effect: migrants are highly adaptable.

convergence with native Australians, fertility declined from one generation of immigrants to the next among Lebanese, but not among Egyptians who had since their arrival a lower fertility than average Australians¹⁷.

The second remark on adjustment of migrants to their host societies is that convergence might happen faster in demography than in other family related issues. A survey among immigrants from Turkey and Morocco carried out in Belgium in the early 1990s found that in matters directly related with fertility, such as the desired family size, the preference for boys or girls, the utility of children and contraception, migration produces a decisive change. For example, the percentage of married women aged 25-29 using contraceptive was respectively 79% and 71% among Turkish and Moroccan women living in Belgium, compared with 44% and 35% in their countries of origin the same year. When it comes to marriage the choice of partner and female autonomy, however, only a “prudent shift in the code of conducts” is observed: marriage decided on free individual choice without parents interfering remains very rare and most often a source of conflict. Social and cultural changes would thus proceed at different paces according to domains (Lesthaeghe and Surkyn 1995).

4. Patriarchal vs. individualistic values sent back home by migrants

From the mid-1970s until the late 1980s, Arab countries were displaying a puzzling pattern of fertility differentials: contrary to what is observed at the level of the world—a negative correlation between GDP per capita and birth rates—the richest Arab countries were also those with the highest birth rates. As it will be briefly recalled in the next paragraph, this

¹⁷ TFR had declined from 5.09 children per women among Lebanese immigrant women in Australia born in 1917-21 to 4.35 for those born in 1937-41 (youngest generation having completed its fertility in 1981), while among Egyptians the decline was only from 2.57 to 2.42 (Young 1991).

has been interpreted as the result of oil wealth and the particular type of state-to-society relationship it generated (Fargues, 1993). Even more puzzling, when only non-oil Arab countries were compared with each other, some of those best endowed with what is considered universal factors of the fertility transition—such as good health or high level of female education—were keeping higher levels of fertility than countries less endowed with these same factors. In other words, a single country could be characterized at the same time by advance in well-being and delay in demographic matters¹⁸. This apparent anomaly was due in part to migration, which served as a vehicle for values and models.

All began in the wake of the 1973 Arab-Israeli war. Beforehand, all Arab countries except one, Lebanon, were still in a pre-transitional stage regarding fertility, with total fertility rates ranging from 6 to more than 8 children per woman according to country, and it was only in the second half of the 1970s that social and economic transformations began to translate into rising age at marriage among women (Rashad & Osman 2003) and birth control. However, in major Arab oil producing countries (the Gulf states, Libya and Algeria), the sudden change in scale of state revenues in the immediate aftermath of the 1973 war which sent crude oil prices soaring, jammed the transition of fertility. Oil revenues enabled governments to establish welfare state systems through financing development (health, education, etc.) on one hand, and subsidizing consumption on the other hand.

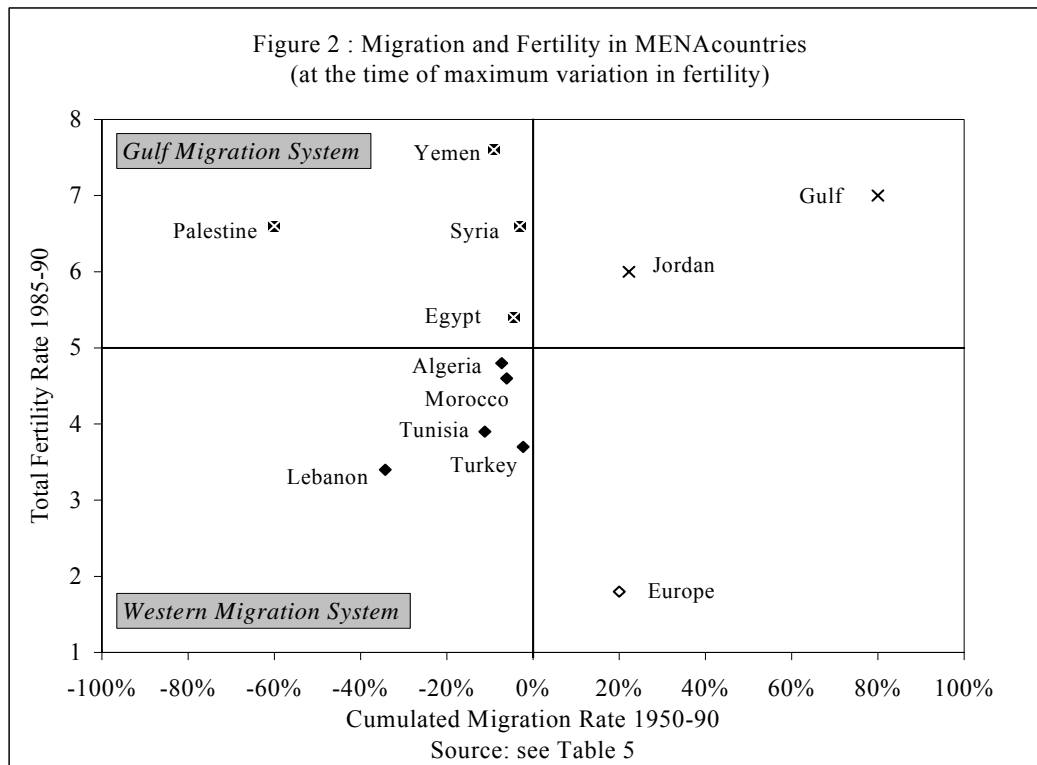
While development activities were conducive to fertility decline, subsidized consumption, by reducing the cost of children, could work to the opposite effect. This is what happened in a number of Arab countries, especially the most oil-rich ones, whose governments, by keeping the population in check through generous oil wealth redistribution, were able to play the forces of social conservatism and change off against one another. Social

¹⁸ For example Jordan was better endowed than Morocco with regard to health or educational status of the population, but Morocco was far in advance on Jordan with regard to birth control.

conservatism was reflected in particular by a continuing very low labor force participation rate among married women¹⁹. So, by both cutting the costs of fertility and keeping women in the home, oil revenues indirectly promoted high fertility. To some extent, oil revenues “generated” population²⁰. As if by contagion, the oil-type of early marriage and high birth rates persisted in non-oil countries of the Mashreq (except Lebanon), while in the distant Maghreb it gradually gave room to delayed marriage and birth control. The transition of fertility happened earlier in Tunisia and Morocco than in Jordan, Syria, Yemen and even Egypt. Migration offers a key for understanding what happened then. Figure 2 clearly shows that in the second half of the 1980s, when fertility differentials between MENA countries were peaking, all the countries of emigration to the Gulf had an above-average level of fertility (upper-left panel of Figure 2), while all the countries of emigration to the West had below average levels of fertility (lower-left panel).

¹⁹ A mechanism sustained in the Gulf by labour imports, since women-dominated jobs—notably in education, health and administration—could be occupied by immigrant women.

²⁰ The oil crisis started in the mid-1980s gradually put an end to this mechanism.



As soon as a surprising pattern of Mashreq-Maghreb demographic differentials became clearly revealed by large fertility surveys in the late 1980s-early 1990s, the idea was advanced that “cultural models encountered through international migration to a certain extent reinforce the geography of demographic transition : the Maghreb, which has a foothold in Europe through its émigrés, has experienced a marked decline in its birth rate whereas the Egypt of the *Infitâh*, strengthening its Arab exchanges by a million and a half expatriates in the Gulf, saw it rise again temporarily from 1974 to 1985. [...] Migration itself contributed to the renewed rise in the birth rate, because of the Egyptians’ contact with the large family standard common in the Gulf—footnote : For the same reason, one could assume that migration to Europe has accelerated the decline of the birth rate in the Maghreb” (Fargues 1993: 164). Later on, a comparison between Morocco and Egypt reiterated the hypothesis that emigration contributes to the diffusion in emigrants’ home countries of ideas and models

prevailing in their host countries, and emphasized that contrasted marriage patterns were key factors differentiating the level of fertility in the two countries (Courbage 1995).

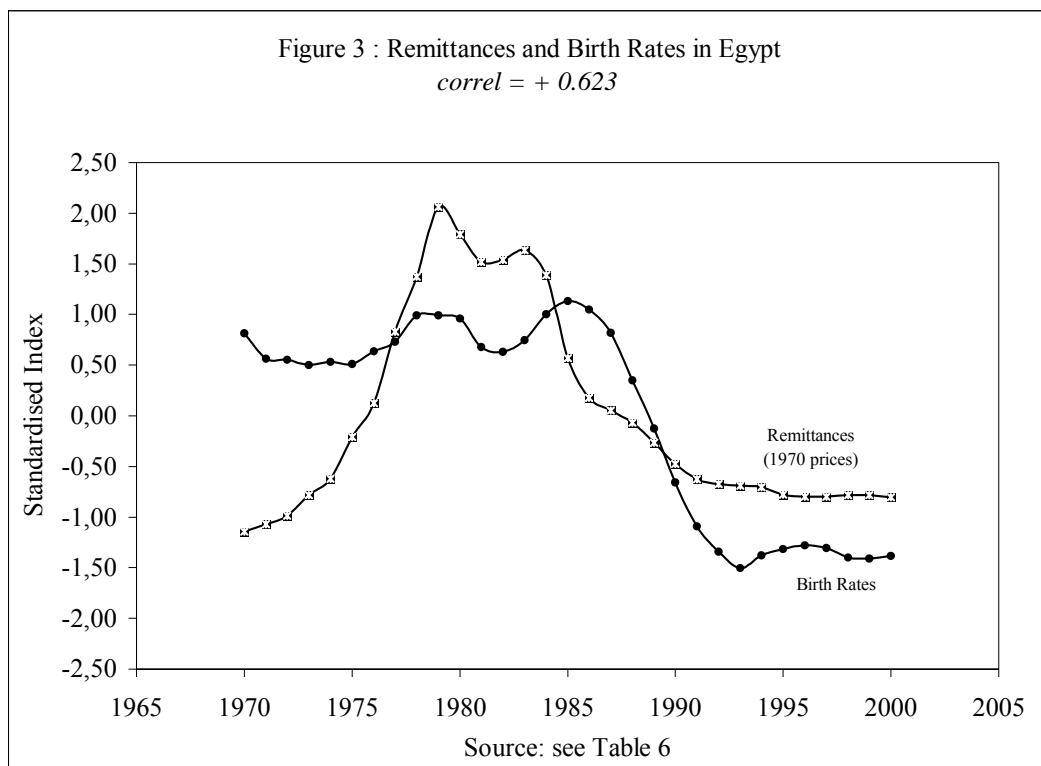
Subsequent studies of marriage in Egypt revealed that rising material expectations and increased consumerism among the youth had affected the cost and the timing of marriage, and they attributed this transformation to changes in aspirations—notably regarding the acquisition of consumer durables—repatriated in Egypt from Saudi Arabia and other Gulf countries by waves of men labor migrants, as well as to actual increases in income and standards of living generated by emigrant workers remittances. Singerman and Ibrahim (2003) found that, with a dramatic increase in the 1970s and the 1980s then stabilization in the 1990s, the cost of marriage in Egypt has been responding to the growing then stabilizing size of the Egyptian labor migration to the Gulf. Other scholars have interpreted decreasing rates of economic activity among woman at 20-24 years between 1988 (24%) and 1998 (21%)—“contrary to the expectations for a period of structural adjustment”—as a sign that “modern marriage in Egypt may offer young girls something of greater value than the alternative of earning their own income through wage work” (Amin & Al-Bassusi 2003: 3). However strong they are, material motives are not the only force at play. Ideas also matter. In this respect, it is probable that social and cultural conservatism encountered in Saudi Arabia by Egyptian migrants and brought back home to a more open Egyptian society, are part of the explanation (Singerman & Ibrahim 2003).

Why did Egyptians or Jordanians, but not Moroccans or Tunisians (or Turks, outside the Arab world) translate material aspirations raised by the contact with wealthier societies into conservative views and practices in family building related matters? What are the mechanisms determining women to gain access to the wealth in circulation, either through marriage and rising dowry (Egypt and Jordan), or rather through economic activity and paid labor (Tunisia and Morocco, or Turkey)? This paper’s contention is that international

migration has served as a vehicle to the patriarchal model where emigrants were bound for Saudi Arabia and the Gulf, and to the individualistic one when they were destined to Europe. In other words, migration is hypothesized to have brought about normative changes, whether towards reinforced control of the family over its members or towards increased individual autonomy.

5. Upstream diffusion of demographic models by migrants

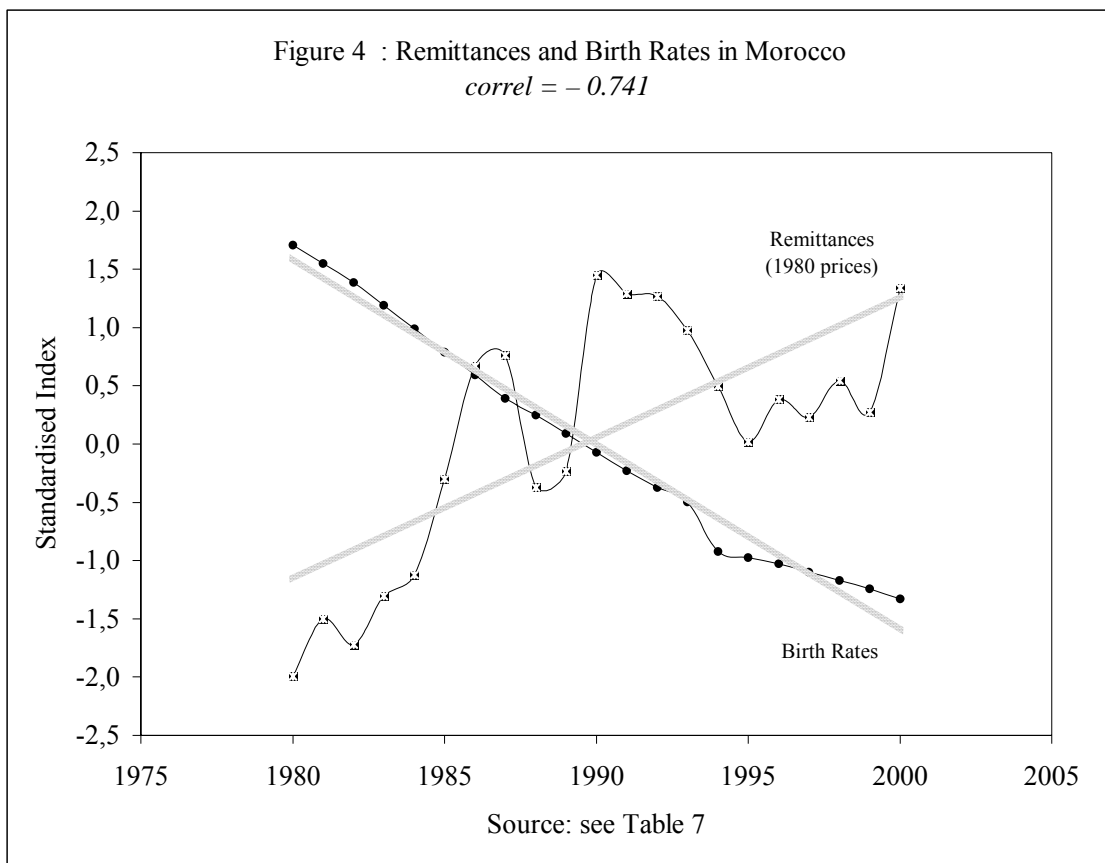
What would have been the level of fertility had no international migration taken place? Comparisons over time and space offer an imperfect but workable method to answer the question.



Let us compare firstly Morocco and Egypt over time. The last three decades have been a period of intense emigration for both countries. Annual flows of emigrants are not recorded,

but remittances are. Money transferred by emigrants is directly linked with increases in household income that are hypothesized to play on patterns and timing of family building. In addition, one can reasonably assume that their amount is a good proxy for the intensity of the overall relationship kept by emigrants with their home country, i.e. a remote proxy for ideas, values and models they convey to the community left behind. The contrast between Egypt (Figure 3) and Morocco (Figure 4) is striking. The time correlation between remittances and birth rates is as highly positive in the former (+0.623) as it is negative in the latter (-0.741).

Standardized index defined as: $[x - \text{average}(x)] / \text{standard deviation}(x)$

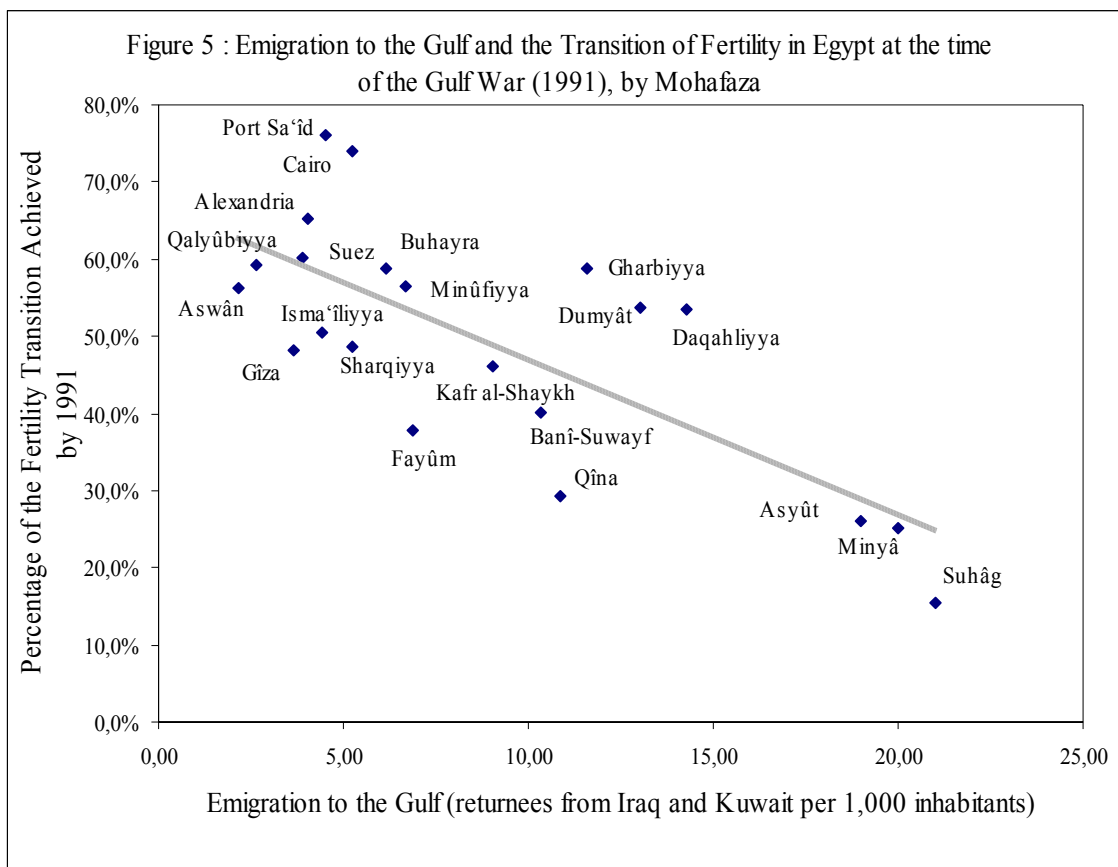


This paper does not develop the particular role that can be attributed to state policies in the discontinuous history of birth control and fertility decline in Egypt (Fargues 1997) but

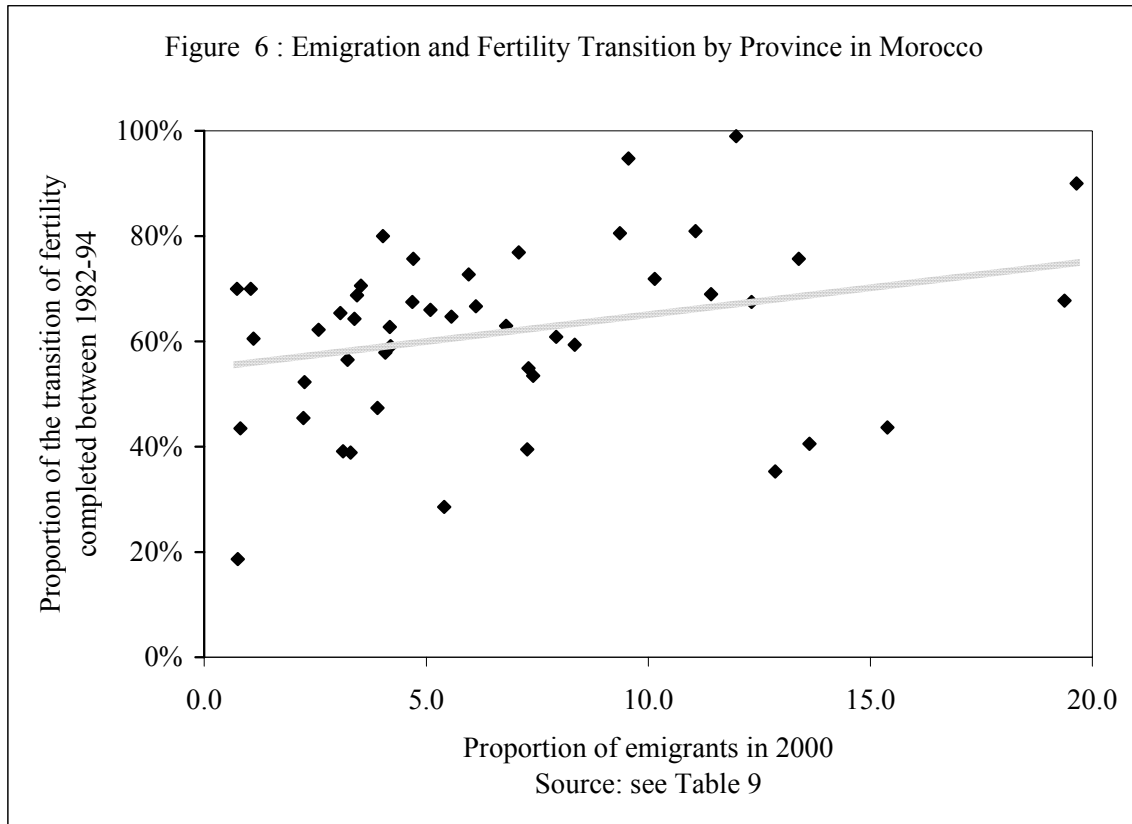
contents itself with noting how perfectly any change in private money transfers made by emigrants translates with a time lag of around two to three years into a parallel change in birth rates: as if income provided by emigrants played a direct role on the cost of children (alleviated by additional resources from abroad) but not on the desired size of the family (unchanged). Morocco offers a pattern opposing to that of Egypt: not only remittances and birth rates vary in opposite directions, the first ascending and the second descending, but the irregularity of remittances contrasts with the perfect regularity of birth rates, as if remittances themselves had no direct impact on birth rates. It is rather the size of the Moroccan expatriate community and the intensity of non-material links its members develop with Morocco which matter here: the continuous circulation of ideas is not subjected to the same ups and downs as money transfers. To sum up, time series suggest that Egyptian migration to the Gulf did not bring home innovative attitudes regarding marriage and birth, but rather material resources—in quantity varying with years—for the achievement of traditional family goals. On the contrary in Morocco, emigration to Europe has coincided with a fundamental change of attitudes, without variations in material resources drawn from emigration affecting the trend.

Time correlation is not causation, however. For asserting that migration truly contributes to determining the pace and direction of changes in birth rates, rather than simply covariates with these changes – which would happen if migration on one side, and the decline of fertility on the other side, were two independent outcomes of a same third evolution, such as an increasing openness of societies to the outside world – one has to verify that changes in birth rates vary with the degree of exposure to migration, i.e. that regions from where intense emigration has departed display more dramatic demographic changes than those with little or no emigration: the closer the agents of diffusion, the stronger their impact. Space correlations are expected to corroborate time correlations.

In both countries, emigration and the pace of fertility transition are found to covariate in space.²¹ In Egypt (Figure 5), the higher the rate of emigration the slower the process of fertility decline, a correlation which suggests that migration has curbed forces of change, possibly in relation with a stronger exposure to conservative ideas prevailing in countries of emigration, i.e. the Gulf and Saudi Arabia. The contrary holds for Morocco (Figure 6) where contact with European culture and way of life established through emigrants had accelerated demographic change.



²¹ Note that space correlations are lower and in opposite directions than time correlations.



A key intermediate variable between emigration and demographic change populations left behind seems to be education. On one side there is overwhelming evidence that education is the single most important determinant of the transition of fertility in developing countries (Cleland & Hobcraft 1985, Jejeebhoy 1995), and MENA individual countries are not exceptions to this worldwide rule, even though this is not a one-to-one relation. In Egypt as well as in Morocco, declines in fertility have been associated with rising education, in particular among women.

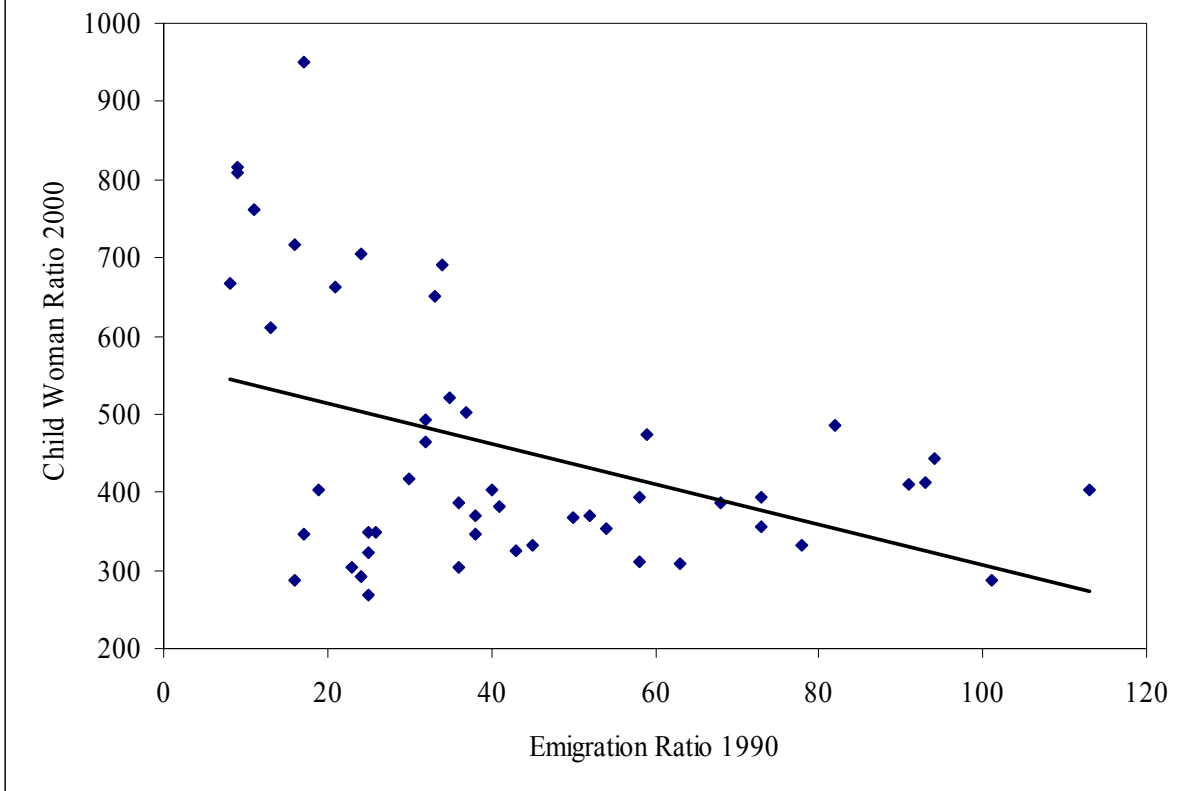
On the other hand, MENA data support the hypothesis that migration has had an impact on the average education of non-migrant populations left behind, and that this impact varies according to the region which major streams of emigrants are destined to: emigration to the Gulf would have slowed down the progress of education in regions of origin, while emigration to the West would have sped it up.

Effectively, in Egypt emigration is negatively associated with the progress of education, while in Morocco a positive association is found (Table 3). Whether the antecedent is education or emigration—that is whether regional differences in education are a cause or a consequence of regional differences in emigration —cannot be established with data that were available for preparing this paper.²²

Evidence from Turkey goes in the same direction (Figure 7). If one excludes the most developed provinces of the country—those where an early demographic transition was recorded in the wake of a modernization process which took place during the first half of the twentieth century, i.e. before emigration to the West started (Duben & Behar 1991)—one finds a negative correlation between cumulated emigration before 1990 (as reflected into the proportion of expatriates per 1,000 inhabitants in the 1990 population census) and the child/woman ratio in 2000 (reflecting fertility in the 1990s). As in Morocco, this negative association corresponds to the combination of a positive correlation between emigration and education (education index in 2000) and a negative correlation between education and fertility (Table 3).

²² Emigration indexes used here are stocks, i.e. cumulated numbers of emigrants (return migrants in Egypt) at the time of the survey/census, which thus refer to migration movements that took place during the open period of time before the survey/census. Education indexes are those provided by Human Development Reports and all refer to 2000.

Figure 7 : Emigration and Fertility by Province in Turkey, 2000



The important point is that emigration to the West could have fostered education in regions of origin of migrants, thus indirectly contributing to the demographic transition of non-migrant populations. Ideas and values would have impacted on a key structural determinant of fertility. The inducement effect of migration on the formation of human capital in migrants' countries of origin does not refer to the "brain gain" hypothesis, according to which the success encountered abroad by highly skilled emigrants would encourage their non-migrant fellow citizens to invest in education, thus resulting in more human capital than if no brain drain had taken place (Stark, 2000). It rather emphasizes the impact of migration on the average level of mass education. Evidence accumulated in various contexts shows that remittances being channeled by families, they reach the very places from where migrants come and are used for basic needs including education and health care, i.e.

for human capital investment (Newland, Kathleen and Erin Patrick 2004). In addition to this general argument, we argue that, if emigrants are living abroad in a context where education is more widely spread than in the region where they come from, then they convey pro-education values to their community of origin.

Conclusion: the global demographic benefit of migration

When people move from one country to another, they change their cultural, social and economic environment, as well as their individual position in the environment where they actually live. Such a change impacts on the way they behave, including in matters related with demographic reproduction. It can be a direct impact on marriage and fertility, or an indirect one, through education. Because migrants are conveyors of values and ideas to the world left behind, non-migrants in countries of origin can themselves react to changes induced by mobility. Beyond the space distribution of inhabitants on earth, international migration impacts on their reproduction. In which direction it alters demographic processes—producing either more or less fertility—will depend on the social, economic and cultural context in which migration takes place.

Populations of the Middle East and North Africa have known intense movements of international migration starting from the 1970s, i.e. during the critical decades of the demographic transition, at a time when fertility contrasts across the world were sharper than ever. Most emigrants from the Maghreb and Turkey headed to Europe, while most emigrants from the Mashreq took the way of the Arab Peninsula and the Gulf. The first encountered societies where small size families and individualistic values were predominant, while the second found societies with larger families than those left behind and deeper-rooted patriarchal values.

From where they now lived, be it Europe or Arabia and the Gulf, these emigrants of modern times could keep close and often daily ties with their home society. Through these ties, they could have an impact on the way marriage, family building and the education of children evolved in their country of origin. This paper has established that migration to Europe was in fact accompanied by an accelerated move towards low birth rates, while migration to the Gulf coincided with a slowed down pace of fertility transition. In other words, emigration may have indirectly altered the demographic reproduction and affected population numbers in the regions of origin, resulting in fewer inhabitants in the Maghreb and Turkey, but in larger numbers in the Mashreq.

Two broader conclusions can be drawn. The first relates to global demography. In most of modern international migration, the host society has a lower level of fertility than the home society. From this point of view, migrants from Turkey and the Maghreb to Europe are the rule and those from the Mashreq to Arabia and the Gulf, the exception. The acceleration of demographic transition found in Turkey and the Maghreb to be correlated with migration to Europe suggests that, if a similar relation were to apply to any migration from high to low birth rates countries, then international migration would have produced a global demographic benefit, under the form of relaxed demographic pressures at the level of the world.

The second conclusion relates to the circulation of ideas. If it turns out that emigrants are agents of the diffusion of new ideas in matters related with family building and education, then the same may apply to a wider range of civil behaviors. Because modern migrants keep strong links with their community of origin, they are susceptible to become key conveyors of ideational change among non-migrants in these communities.

References

- Amin Sajeda & Nagah H. Al-Bassusi 2003, Wage Work and Marriage : Perspectives of Egyptian Working Women, *Policy Research Division Working Papers n° 171*, New York: The Population Council.
- Borrel Catherine & Chloé Tavan 2003, La vie familiale des immigrés, in *France, portrait social 2003/2004*, Paris: Institut National de la Statistique et des Etudes Economiques.
- Carlson Elwood 1985, The Impact of International Migration upon the Timing of Marriage and Childbearing, *Demography*, 22/1 : 61-72
- Cleland, John G. and John Hobcraft 1985, Reproductive change in developing countries : insights from the world fertility survey. Oxford: Oxford university press.
- Courbage Youssef 1995, Fertility Transition in the Mashriq and the Maghrib: Education, Emigration, and the Diffusion of Ideas, in Carla Obermeyer (Ed) *Family, Gender and Population Policy: Middle-Eastern Realities*, Cairo: American University in Cairo Press, pp. 80-104.
- Davis Kingsley 1988, Social Science Approaches to International Migration, *Population and Development Review*, Supplement to Volume 14: 245–261.
- Duben Alan and Cem Behar (1991) *Istanbul Households. Marriage, Family and Fertility, 1880-1940*, Cambridge University Press, Cambridge
- Egypt, Ministry of Manpower and Training 1992, *Survey of Returning Labour from Kuwait and Iraq as a Result of the Gulf Crisis*, EGY/89/P01, Cairo.
- Fargues Philippe 1993 [1994], Demographic explosion or social upheaval ?, in *Democracy without Democrats?*, London: I.B. Tauris, pp. 155-181.
- _____ 1997, State Policies and the Birth Rate in Egypt: from Socialism to Liberalism, *Population and Development Review*, New York, 23/1: 115-138.
- Hamdouch Bachir (Ed) 2000, *Les Marocains résidant à l'étranger : une enquête socio-économique*, Rabat: Institut national de statistiques et d'économie appliquée (INSEA).
- Henry Louis 1972, *Démographie. Analyse et modèles*, Larousse: Paris.
- Jejeebhoy, Shireen J. 1995 Women's education, autonomy, and reproductive behaviour : experiences from developing, Oxford: Clarendon Press.
- Keely Charles B. 2000, Demography and international migration, in Caroline B. Brettell & James F. Hollifield (Ed) *Migration theory : talking across disciplines*, New York: Routledge, pp. 43-60.
- Keyfitz Nathan 1968, *Introduction to the Mathematics of Population*, Reading (Mass.): Addison-Wesley.
- _____ 1981, The limits of population forecasting, *Population and Development Review*, New York, 7/4: 579-593.
- Khlat Myriam & N. Darmon 2003, Is there a Mediterranean migrants mortality paradox in Europe? *International Journal of Epidemiology*, 32(6):1115-8.

- Khûrî Nabil (Ed) 1991, *Egypt Emigration Survey* (In Arabic: *Masah Al-Hijra Al-Khâriyya Fî Jumhûriyya Misr Al-'Arabiyya*), 4. Vol., CAPMAS, ILO, Cairo: Dâr al-Mustaqbal al-'arabî.
- Legros Françoise 2003, La fécondité des étrangères en France : une stabilisation entre 1990 et 1999, *INSEE Première* n°898, Paris: Institut National de la Statistique et des Etudes Economiques.
- Lesthaeghe Ron and Johan Surkyn 1995, Heterogeneity in social change : Turkish and Moroccan women in Belgium, *European Journal of Population*, 11/ 1 : 1-29
- Lotka, Alfred J. (1998 [1939]) *Analytical Theory of Biological Populations*, New York and London: Plenum Press (English translation of [1934 & 1939] *Théorie analytique des associations biologiques*, Paris: Hermann & Cie).
- Newland, Kathleen and Erin Patrick 2004, *Beyond Remittances: The Role of Diaspora in Poverty Reduction in Their Countries of Origin*, Washington, Migration Policy Institute, http://www.livelihoods.org/hot_topics/docs/MPIDiaspora.doc
- Rashad Hoda & Magued Osman 2003, Nuptiality in Arab Countries : Changes and Implications, in Nicholas Hopkins (Ed) *The New Arab Family, Cairo Papers in Social Science*, vol. 24, n. 1/2, Cairo: AUC Press, pp. 20-50
- Singerman Diane & Barbara Ibrahim 2003, The costs of marriage in Egypt : a Hidden Variable in the New Arab Demography, in Nicholas Hopkins (Ed) *The New Arab Family*, Cairo Papers in Social Science, vol. 24, n. 1/2, Cairo: AUC Press, pp. 80-116.
- Stark Oded 2002, The Economics of the Brain Drain Turned on its Head, paper presented at the ABCDE-Europe World Bank Conference, Oslo.
- United Nations 2000 *Replacement migration : is it a solution to declining and ageing populations ?* ST/ESA/SER.A/..., New York
- _____ 2003, *World Population Prospects: The 2002 Revision*, ST/ESA/SER.A/222, New York
- Young Christabel 1991, Changes in the Demographic Behaviour of Migrants in Australia and the Transition Between the Generations, *Population Studies*, vol. 45/1 : 67-89.

Table 1: Total fertility rates^{*/} (children per woman) of foreign citizen women residing in France, compared with their country of origin and with French women, around 1980, 1990 and 2000

Citizenship	Residence 2000	1980	1990
Algerian	France	4.22	3.22
	Algeria	6.77	4.67
Moroccan	France	5.14	3.51
	Morocco	5.65	4.03
Tunisian	France	5.21	3.93
	Tunisia	5.30	3.62
Turkish	France	5.13	3.73
	Turkey	4.40	3.40
French	France	1.87	1.76
		1.82	

^{*/} the total fertility rate (TFR) is the final average number of children born per woman, obtained as the sum of age specific fertility rates from 15 to 49 years, during a given period of time.

Sources: France (in 1982, 1990, 1999): Legros 2003 ; Algeria, Morocco, Tunisia, Turkey: United Nations 2003.

Table 2: Total fertility rates in 1999 among foreign women residing in France, according to date of immigration

Nationality \ Date of immigration	1980-89	1990-99
Algerians	2.66	4.08
Moroccans	2.91	4.31
Tunisians	2.66	4.46
Turks	2.46	3.99

Source: Legros 2003

Table 3. Correlation Coefficients between Emigration, Education and Fertility in Egypt, Morocco and Turkey

Variables	Egypt	Morocco	Turkey(1)
Emigration x Fertility	+ 0.66	- 0.29	- 0.42
Education x Fertility	- 0.85	- 0.45	- 0.84
Emigration x Education	- 0.50	+0.26 (U) / + 0.40 (R)	+ 0.32

(1) Correlation computed on provinces with a HDI below 750

Table 4: Estimation of Net Migration using UN sources – Example of Morocco, 1950-2000

Year t	Total Population	Birth Rate [t,t+5]	Death Rate [t,t+5]	Natural Increase [t,t+5]	Expected Population	Net Migration [t,t+5]
	(1)	(2)	(3)	(4)	(5)	(6)
1950	8953	0,0504	0,0257	0,0247	8953	2
1955	10132	0,0504	0,0227	0,0277	10130	-11
1960	11626	0,0501	0,0196	0,0305	11637	-218
1965	13323	0,0482	0,0174	0,0308	13541	-231
1970	15310	0,0456	0,0157	0,0299	15541	-474
1975	17305	0,0394	0,013	0,0264	17779	-365
1980	19382	0,0371	0,0114	0,0257	19747	-45
1985	21995	0,0323	0,0089	0,0234	22040	-161
1990	24564	0,0267	0,0074	0,0193	24725	-214
1995	26839	0,0244	0,0066	0,0178	27053	-229
2000	29108	0,0232	0,006	0,0172	29337	-158
2005	31564	-	-	-	31722	
1950-2005						-2104

Source: Columns (1) to (3) United Nations 2003; Columns (4) to (6) computed by the author as: (4)=(2)-(3) ; (5)=(1)*Exp[(4)x*2.5] ; (6)=(1)-(5)

N.B. Table 4 shows how migration flows can be estimated (very imperfectly) in the absence of any reliable source on migration, using the United Nations demographic database. Cumulated migration from 1950 to 1990 (amounting to -1,503 in the example of Morocco) divided by the total population in 1990 (24,654 million in Morocco) gives the rate of cumulated migration provided in Table 5 (Morocco: -6.1%).

Table 5: Migration and Fertility in Selected MENA Countries at the Time of Maximum Variation in Fertility

Country	Cumulated Migration 1950-90 / Population 1990	Total Fertility Rate 1985-90
<u>Western Migration System</u>		
Morocco	-6.1%	4.6
Algeria	-7.3%	4.8
Tunisia	-11.2%	3.9
Lebanon	-34.3%	3.4
Turkey	-2.3%	3.7
<u>Gulf Migration System</u>		
Egypt	-4.5%	5.4
Palestine	-60.0%	6.6
Syria	-3.1%	6.6
Yemen	-9.1%	7.6

Source: Cumulated migration is computed by the author applying the method described in Table 3.

Table 6: Remittances and births rates in Egypt 1970-2000

Year	BR per 1000	Remittances M\$		Year	BR per 1000	Remittances M\$	
		Current prices	1970 prices			Current prices	1970 prices
1970	36.4	29	29	1986	37.6	2505	446
1971	36.3	27	52	1987	35.4	3604	407
1972	36.1	104	79	1988	33.2	3770	368
1973	36.3	117	143	1989	30.8	3293	305
1974	36.1	268	195	1990	28.8	3743	240
1975	36.7	365	324	1991	27.6	2569	192
1976	37.2	755	429	1992	26.9	3028	177
1977	38.4	928	652	1993	27.4	3835	172
1978	38.4	1773	824	1994	27.7	3232	168
1979	38.2	2213	1041	1995	27.9	3279	144
1980	36.9	2696	956	1996	27.8	2798	137
1981	36.7	2181	869	1997	27.3	3256	137
1982	37.2	2439	876	1998	27.3	3718	143
1983	38.4	3666	907	1999	27.4	3772	143
1984	39.0	3963	828	2000	27.4	3747	136
1985	38.6	3212	570				

Sources: Birth rates: CAPMAS; remittances at current prices: Central Bank of Egypt; at 1970 prices: computed by the author using indexes of prices provided by CAPMAS.

Table 7: Remittances and births rates in Morocco 1980-2000

Year	BR per 1000	Remittances (MDir) Current prices	1980 prices	Year	BR per 1000	Remittances (MDir) Current prices	1980 prices
1980	39.0	4211	4211	1991	28.1	18739	8681
1981	38.1	5484	4556	1992	27.3	19796	8471
1982	37.2	5697	4866	1993	26.6	19876	8116
1983	36.1	6787	5034	1994	24.2	19261	7559
1984	35.0	7990	5669	1995	23.9	18711	7293
1985	33.8	10378	6552	1996	23.6	20622	7173
1986	32.7	13548	7394	1997	23.2	20255	7406
1987	31.6	14135	7361	1998	22.8	22025	7356
1988	30.8	11683	6956	1999	22.4	21120	7851
1989	29.9	12400	7264	2000	21.9	25784	8685
1990	29.0	17688	8009				

Source: Annuaire statistique du Maroc, various years.

Table 8: Emigration to the Gulf and the Transition of Fertility in Egypt at the time of the Gulf War (1991), by Governorate

Governorate	Returnees from Iraq & Kuwait per 1,000 inhabitants	Percentage of the Fertility Transition Completed in 1991
Port Sa'îd	4.52	76.1%
Cairo	5.26	74.1%
Alexandria	4.02	65.1%
Suez	3.91	60.1%
Qalyûbiyya	2.66	59.3%
Buhayra	6.18	58.8%
Gharbiyya	11.61	58.7%
Minûfiyya	6.70	56.4%
Aswân	2.17	56.2%
Dumyât	13.03	53.7%
Daqahliyya	14.29	53.5%
Isma'îliyya	4.43	50.5%
Sharqiyya	5.24	48.7%
Gîza	3.67	48.3%
Kafr al-Shaykh	9.04	46.1%
Banî-Suwayf	10.32	40.1%
Fayûm	6.88	37.9%
Qîna	10.88	29.3%
Asyût	13.90	25.9%
Minyâ	9.45	25.2%
Suhâg	23.48	15.5%

Source: Geographical distribution of returnees provided in Khûrî 1991. Percentage of the fertility transition completed in 1991 computed by the author as $[45 - \text{CBR}(1991)]/30$ where Crude Birth Rates by Mohâfaza in 1991 are given by CAPMAS.

Table 9: Emigration and the Transition of Fertility by Province in Morocco

Province	(1)	(2)	Province	(1)	(2)
Oued Ed-Dahab		42%	Oujda-Angad	7,1	77%
Boujdour	5,4	29%	Taourirt	1,0	70%
Laâyoune	1,1	61%	Casablanca	9,6	95%
Es-Semara	7,3	39%	Mohammedia	11,1	81%
Guelmim	7,4	53%	Khémisset	3,4	64%
Tan-Tan		67%	Rabat	12,0	99%
Tata	3,1	39%	Salé-Al Jadida	3,1	65%
Agadir-Ida ou Tanane	13,4	76%	Skhirate-Témara	3,5	71%
Chtouka-Aït Baha	4,7	68%	El Jadida	2,6	62%
Inezgane-Aït Melloul	0,9		Safi	2,2	45%
Ouarzazate	15,4	44%	Azilal	0,8	43%
Taroudannt	4,2	63%	Béni Mellal	9,4	81%
Tiznit	12,3	68%	El Hajeb	6,8	63%
Zagora		35%	Errachidia	7,3	55%
Kénitra	5,6	65%	Ifrane	4,2	59%
Sidi Kacem	3,9	47%	Khénifra	3,4	69%
Ben Slimane	6,0	73%	Meknès-El Menzeh	19,6	90%
Khouribga	10,1	72%	Boulemane	2,3	52%
Settat	8,3	59%	Fès Jdid-Dar Dbibagh	11,4	69%
Al Haouz		26%	Sefrou	4,7	76%
Chichaoua		26%	Al Hoceïma	12,9	35%
El Kelaâ des Sraghna	5,1	66%	Taounate	3,3	39%
Essaouira		54%	Chefchaouen	0,8	19%
Marrakech-Médina	4,0	80%	Fahs-Bni Makada		40%
Berkane	0,7	70%	Larache	13,6	41%
Figuiç	3,2	57%	Tanger-Assilah	19,4	68%
Jerada		45%	Tétouan	4,1	58%
Nador	6,1	67%	Total	6,7	57%

(1) Emigrants, per 1,000 inhabitants

(2) Percentage of the Fertility transition achieved between 1984 and 1992

Source : Author's calculation from Hamdouch 2000 (emigrants) and CERED, various dates (birth rates)

Table 10: Emigration, Fertility and Education by Province in Turkey

Province	(1)	(2)	(3)	(4)	Province	(1)	(2)	(3)	(4)
Kocaeli	25	318	942	869	Trabzon	63	308	821	718
Yalova		277	954	838	Afyon	41	381	82	715
İstanbul	31	295	956	837	Niğde	19	403	832	712
İzmir	18	254	94	829	Karaman	68	386	856	712
Bursa	20	290	927	829	Sivas	58	393	809	707
Muğla	10	280	928	823	Kırşehir	78	331	864	707
Sakarya	36	322	918	817	Malatya	25	269	811	706
Bolu	37	275	915	814	Kastamonu	16	288	816	704
Tekirdağ	15	270	944	800	Bartın		285	851	702
Balıkesir	17	274	896	792	Sinop	43	326	819	701
Ankara	28	276	926	792	Osmaniye		397	853	699
Bilecik	12	286	92	790	Elazığ	73	355	814	698
Antalya	12	297	901	788	Giresun	45	332	786	688
Eskişehir	19	256	942	787	Bayburt	94	444	692	686
Denizli	34	314	882	784	Tunceli	101	287	855	685
Çanakkale	9	236	914	782	Tokat	30	418	782	683
Aydın	15	295	855	782	Çankırı	25	349	785	681
Manisa	12	298	86	780	Ordu	36	387	772	677
Zonguldak	34	263	893	773	K.maraş	59	474	806	674
Kırklareli	18	244	945	773	Aksaray	113	403	818	670
Edirne	15	234	911	769	Gümüşhane	73	394	765	669
Artvin	24	303	894	759	Diyarbakır	13	610	682	668
İçel	22	295	863	757	Yozgat	93	412	781	665
Uşak	58	310	873	751	Erzurum	32	464	784	661
Adana	27	368	884	751	Ardahan		416	852	655
Samsun	38	347	868	747	Erzincan	50	367	793	653
Hatay	91	409	861	747	Adıyaman	32	492	77	652
Kayseri	52	370	895	746	Kars	37	501	809	644
Burdur	24	293	887	746	Batman	16	716	707	644
Karobük		278	893	744	Mardin	34	691	685	637
Gaziantep	35	520	839	742	Siirt	9	816	693	636
Kilis		464	81	739	Iğdir		547	767	632
Konya	40	404	836	738	Şanlıurfa	21	662	649	619
Nevşehir	54	354	851	735	Van	11	761	671	616
Düzce		313	888	735	Hakkari	9	810	703	611
Kütahya	23	303	845	732	Bingöl	82	486	701	601
Çorum	38	370	827	726	Bitlis	8	668	656	577
Rize	36	304	871	725	Muş	33	651	643	574
Isparta	26	348	844	724	Ağrı	24	706	642	572
Amasya	25	322	872	721	Şırnak	17	950	651	560
Kırıkkale	17	346	837	720					

(1) Emigrants per 1,000 inhabitants in 1990; (2) Child woman ratio, per 1,00 in 2000

(3) Education index x 1000 in 2000; (4) Human development index x 1000 in 2000