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Migration as a Win-Win Process in the Euro-Mediterranean Area: Remittances and Intergenerational Transfers between Countries with Different Demographic Cycles

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1. Introduction

This contribution reviews the main economic challenges linked to migration from Mediterranean Partner Countries (MPCs) towards European Union countries (EUCs). The United Nations define a migrant as "any person who changes his or her country of usual residence". Tourists and business travellers are not included in the international migration statistics. The starting point is the recognition that MPCs and EUCs have different demographic trends, with rapidly ageing populations in EUCs and still young populations in most MPCs. This situation leads to monetary transfers such as remittances between countries at a given point of time, or intergenerational transfers between populations in an intertemporal perspective.

In a first section, we take as an assumption the "migratory pressure scenario" put forward in the Spanish contribution and we review both the concept and trends of so-called "replacement migration". Being relatively young and abundant, the population of MPCs can provide a replacement migration in EUCs and may help these latter countries to overcome the expected scarcity of labour in the near future. This first section also aims at clarifying the issue of ageing on labour and capital markets in a macroeconomic perspective. The second section is devoted to current transfers between MPCs and EUCs. Migrants from MPCs to EUCs are a source of funding for their origin countries through the remittances they currently send back. Are remittances fostering development thanks to external financing of small and medium enterprises in origin countries? Or, conversely, is this external funding mainly spent on consumption and thus not invested in firms or education? What are the impacts of such remittances on growth in the sending countries? These are the key questions addressed in this section. The third section extends the analysis to intergenerational transfers likely to occur within the next decades due to population ageing in the EUCs. The risk of imbalances in the financing of social protection is the third major issue related to the expected demographic evolution in both MPCs and EUCs. The key question is, then: is migration a solution to the expected financial unsustainability of pension systems in developed countries? Two arguments are generally given to support the intuitive support for a positive answer. The first one relies on the idea that the lack of labour force in an ageing society can be overcome by the flow of migrants of young countries. This flow stimulates employment and therefore pension contributions levied on labour. It also reduces the old-age dependency ratio which contributes to a better balance of pay-as-you-go pension schemes. The second argument focuses on the possibility of investing in under-capitalised economies. Ageing economies such as in the

European Union are likely to be exposed to the famous "asset meltdown hypothesis" (i.e. the assumption of a severe fall of the rate of return on capital, the massive generation of baby boomers selling their assets to finance their consumption needs during the next three decades). Since developing countries have an inverted demographic cycle compared to developed countries, this means that investing in under-capitalised developing countries can yield higher returns on capital and thus a better financing of funded pension systems. The question is: is it possible to have the two channels operating together? Our intuition is that, depending on the degree of substitution between labour and capital, both channels could operate. This leaves room for a discussion on what could be the optimal degree of replacement migration from a welfare view point.

2. Replacement migration as a solution to labour scarcity in EU countries

2.1. What is replacement migration?

2.1.1. Definition

At the time of intense debate about the role of immigration as a demographic salvation from an unprecedented ageing of the developed economies, the United Nation Population Division Report (2000) *"Replacement migration: Is it a solution to declining and ageing population?"* defined and estimated the impact of the so-called "replacement migration" concept. Replacement migration refers to "the international migration that would be needed to offset declines in the size of a population, and declines in the population of working age, as well as to offset the overall ageing of a population" (United Nations, 2001). This report gave the impression that immigration, sometimes at very high levels, could be the only solution for a declining population, a declining work force and a declining potential support ratio. Since the population size and age structure of any country depends on three components, namely fertility, mortality and international migration, the UN report focuses on the three variables at hand. Because mortality increase is an unacceptable solution and because the incentives to increase fertility rates are hard to control, the only possible solution to offset, at least partly, population decline and ageing is international migration. The report evaluates future migration in eight countries (France, Germany, Italy, Japan, Republic of Korea, Russian Federation, United Kingdom, and United States) and two regions (Europe and European Union) where the fertility ratio ranges from 1.2 to 2.0 children per woman.

2.1.2. The UN scenarios

Building upon the medium variant of the *World Population Prospects: the 1998 Revision* (United Nations, 1999a, 1999b and 1999c), the study considers six different scenarios to assess future population and migration. Without migration, the size of the working-age population declines faster than the overall population. In countries where the fertility levels are close to the replacement levels (France, United Kingdom, United States) the population estimated for the year 2050 includes 8% to 14% post-1995 migrants and their descendants, while in the other countries it includes between 26% to 39% post-1995 migrants and their descendants. All these levels of migration are plausible. However, the levels of migration needed to prevent population ageing, that is to maintain the potential support ratio (PSR, defined as the population aged 15-64 in proportion of the population aged 65 and over) are significantly larger (greater then 59%) and extremely unlikely to happen. For example, under this scenario, Germany and Italy would require admission of some 188 million and 120 million immigrants respectively by 2050 (who then would account for some 80 % of the population). For the EU as a whole, the scenario would produce a flow of 700 million immigrants (accounting for 75 % of the 2050 EU population). The main conclusions of this report may be briefly summarized as follows: in countries with very low fertility rates, stopping the progress of demographic ageing via immigration policy would require extraordinarily large numbers of immigrants.

2.1.3. Other scenarios

Starting from single scenarios for fertility, mortality and economic activity, Bijak *et al.* (2007) make population and labour projections for 27 selected European countries for the period 2002-2052, focusing on the impact of international migration on population and labour force dynamics. Three scenarios are foreseen. The baseline scenario assumes a sustained improvement of the economic, political and social situation worldwide, with a moderate, positive net inflow of migrants to Europe. Under this scenario, the overall population size of the 27 EU countries is hardly going to change over the next 50 years (from 494.2 million inhabitants in 2002 to 494.9 million inhabitants in 2052). The expected immigration is on average 1.2 million people yearly. Concerning the population ageing, the PSR is expected to decrease from 4.19 persons in working age (15-64) per one aged 65+ in 2002 to 1.82 in 2052.

The "low" scenario assumes economic stagnation both in Europe and in the rest of the world. The migration pressure on the developed countries will be offset by restrictive migration policies. An overall effect would be a decline of net migration registered in the European countries. Under this scenario, the overall population is envisaged to decline by 10%, to 447 million inhabitants in 2052, mainly due to limited immigration. The expected immigration is less then half a million a year. The projected changes in the age structures look like the ones obtained in base scenario. The average PSR is expected to reach 1.6. The "high" scenario assumes dynamic economic growth and social development. The result is demand for foreign labour and thus some relatively liberal immigration policies. Economic growth in the developing regions is assumed to be a factor contributing to an increased mobility of people worldwide. Under this scenario, total population size is going to increase by 14% during the projection period. Expected immigration is on average 2.2 million people yearly. The shifts in age structures expected are similar to those in the baseline scenario. The average PSR in 2052 is expected to equal 2.05. The low and high scenarios are designed as upper and lower boundaries of a variety of possible, future developments of international migration.

2.2. Demographic models for an alternative plausible scenario

2.2.1. Replacement migration is not enough to maintain a constant high potential support ratio

The mathematical demographic models by Pollard (1973) and Espenshade *et al.* (1982) show that under certain conditions immigration leads to a stationary population with a stable age structure. This framework is useful in considering immigration as a partial measure against the effects of ageing. Espenshade *et al.* show that the only situation in which the annual increments in population through immigration do not converge to a fixed number is when one tries to maintain the potential support ratio at a high constant value. The United States and most countries in Europe experienced a post–World-War-II baby boom that is now concentrated in the working ages. The current potential support ratio in these countries is substantially higher than the potential support ratio one would observe in a long-run stationary population engendered by below-replacement fertility and constant immigration. Due to the fact that the main assumption in the Scenario V of UN report is the constancy of potential support ratio at the higher level, "replacement migration" requires substantially more immigrants than any other scenario.

2.2.2. Replacement migration and expected labour force scarcity in the EU

Particular prominence has been given to replacement migration after the report from United Nations. Certainly, population ageing will have a major impact on the labour market with the arrival of the baby boomers at retirement age. The problem of labour deficiencies seems to be limited at least for the next ten years to some specific sectors of the economy and some regions of Europe. Today, the European Union still has considerable employment reserves due to relatively high unemployment and low activity levels. This reserve employment potential of the EU could become a source for further employment growth in the next 10 to 15 years, with appropriate policies. However given the importance of demographic ageing, Europe may progressively face a more generalised labour insufficiency, but in any case not before 2020 (Fotakis, 2000).

Feld's (2000) conclusions are generally consistent with Fotakis's. His research is based on demographic projections and forecasts regarding labour market participation rates by age and sex for each of the twelve Western European countries over a period of twenty years. He concludes that all countries concerned, except Italy, will either maintain the same level or, more generally, see their labour force grow substantially. Hence, there is no risk of a deficiency of workers between now and 2020, and an increasing supply of labour will make reliance on a greater inflow of immigrant workers unnecessary.

The decrease of labour reserves will determine the growth of skill mismatches on the labour market. Moreover, the new economy creates new demands for skills and competencies across most economic sectors. The growing need for new types of services generates a considerable number of jobs in these sectors. In satisfying this new demand on the labour market, migration could make a substantial contribution. Answering to new demands on the labour market, the migration patterns are changing.

Education and skills

The new immigrants in European countries are better educated than ten years ago. In Northern European countries the foreign-born employed population with tertiary education present in the country for ten years or less increased both in absolute and relative terms between 1995 and 2005. The most important increase in relative terms has been observed in Luxembourg, with 27.9%, followed by Austria with 11.3%. This trend has been accompanied by a sharp fall in inflows of unskilled immigration. In the United Kingdom the share of foreign-born

employed population present in the country for 10 years or less decreased from 66% to 10% between 1995 and 2005 and in Luxembourg from 57% to 21%. Some exceptions are France and Denmark with increases both in absolute and relative terms for unskilled migration respectively from 39% to 40% (or from 57.7 thousands to 152.8 thousands) and from 22% to 26% (or from 5.1 thousands to 16.7 thousands).

Southern European countries are characterized by a sharp increase in inflows of skilled workers but a fall in their share of total entries. In Spain, the number of foreign-born employed population present in the country for ten years or less with tertiary education increased from 19.3 thousand to 381.7 thousand between 1995 and 2005. But the share in total number of foreign-born employed population decreased from 40% to 22% for the same period of time. (Table 9)

Mainly, two patterns of immigration can be seen: a European model and an Anglo-Saxon model. The European model corresponds to France, Germany, Italy, Spain, Greece and Portugal where there is mainly unskilled immigration. More then 40% of the foreign-born employed population present in the country for less then ten years (data for 2005) have less than upper secondary education. The Anglo-Saxon model corresponds to UK, Sweden, and Ireland where skilled migration is predominant. In these countries, more than 85% of the foreign-born employed population present in the country for ten years or less have at least upper secondary education. In Luxembourg and Denmark immigrants are more skilled than nationals, with 15% and 2% differences respectively between the share of the foreign-born and native-born employed population with tertiary education.

Employment

Nowadays, in developed countries, tertiary activities account for a preponderant share of employment in general, and immigrant employment in particular. The occupations in which immigrants are likely to be present in large numbers include on the one hand highly skilled occupations like new information and communication technologies, the health sector or teachers, and on the other hand unskilled occupations like waiters, domestic care workers and cleaners. In Switzerland, Austria and Germany more than 40% of jobs in cleaning services and more than 25% of jobs in restaurant services are held by immigrants. Highly qualified professionals show greater variation depending on the host country. In Switzerland more than 40% and in Austria and Ireland more than 20% of College/University teaching positions are

held by immigrants. In United Kingdom and Switzerland about 30% of health professionals are immigrants (table 10).

Age structure

Available estimates of the age structure of immigrants show that the population with a migration background is younger than the native population in developed countries. Immigrants generally account for a larger share of the 20-29 year-old population than the native population or second generation of immigrants, due to students and young working migrants. In France and Germany, the 20-29 population with a migration background account for more than 20% of the total number of 20-29 population. Regarding the number of foreign students there has been an increase by more than 40% for OECD countries since 2000. In Southern Europe, France, Ireland and the Netherlands there are increases in the number of foreign students that exceed 50%. In France and Germany 11% of students are foreign students, most of them African people (for example, in France 51% of foreign students are from African countries, of which 29% are from Maghrebi countries).

Gender

Regarding the participation of women in international migration, there has been an overall increase in the proportion of female migrants. In Europe, women became the majority of migrants (51% of global migrant population in 2000 compared to 48.5 % in 1980). Today more women are migrating as independent wage earners, rather than accompanying their husbands. This average for Europe nevertheless hides some disparities between host countries. In the older immigration countries there are no big differences between female and male migration. In Southern Europe, male migration is still predominant, most of it originating from North African countries. In Spain, for example, women account for 28.6% of the North African population and this percentage is even lower in Italy.

2.3. The macroeconomic consequences of replacement migration

Fast technological change, and particularly expected progress in telecommunications, networking and transport may increase the importance of the immaterial economy, reducing the need for geographical mobility of the workforce. Today, nobody can say with certainty
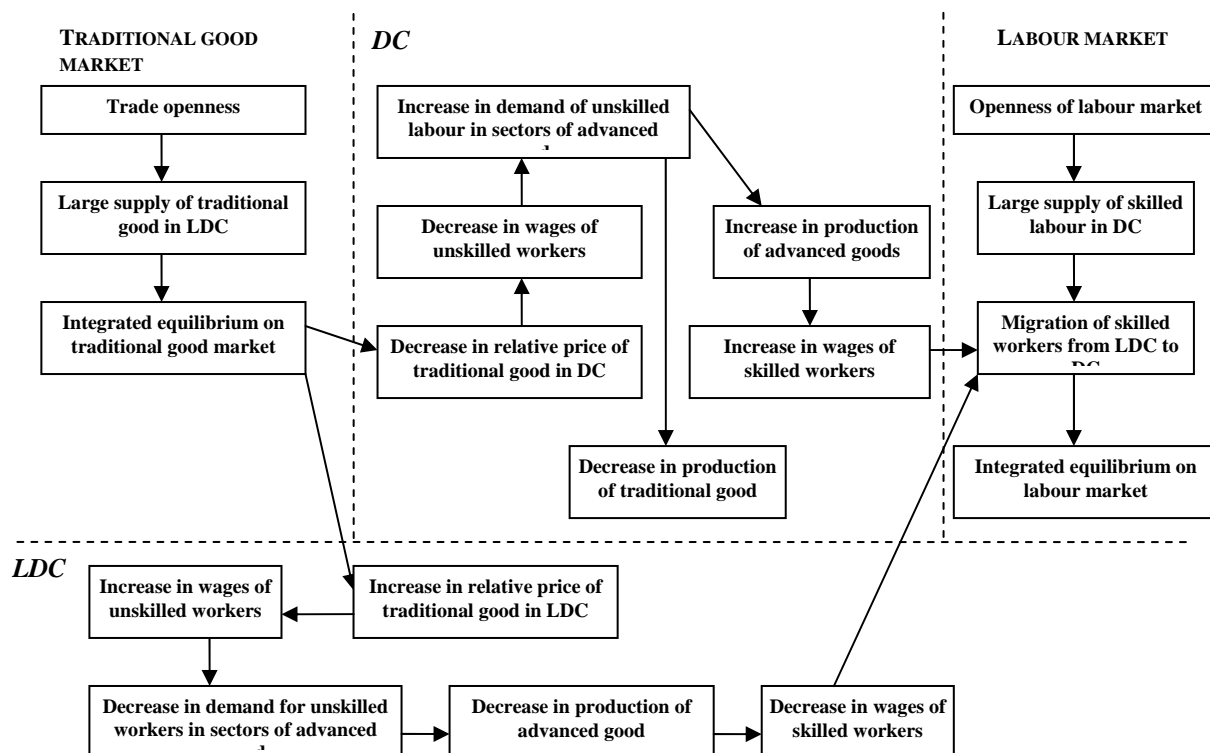
whether or not in thirty years the European economy will need all these millions of immigrants.

As regards both Northern and Southern Mediterranean countries, the impact of openness with different skill levels of labour and different stocks of capital can be assessed within a two-country model. Two countries (or equivalently regions) are considered: a developed country (DC) endowed with a large stock of capital and skilled labour and a less developed country (LDC) endowed with a large stock of unskilled workers. The unskilled labour is used to produce traditional goods. The production of advanced goods (i.e. incorporating high technology) uses both capital, and labour (skilled and unskilled). This leads to an international specialization: less developed countries are specialized in sectors using mainly unskilled labour while developed countries are specialized in sectors using mainly skilled labour and capital. The diagram 1 shows the impact of trade openness between countries on integrated economic activity.

The traditional goods market finds its equilibrium after trade openness. As long as the supply of traditional goods is high in LDC, the relative price of traditional goods decreases in DC (which benefits from the supply of LDC) and increases in LDC (assuming a high demand for traditional goods in DC). Wages of unskilled labour decrease in DC. As a result, the production of advanced goods will increase in DC and will determine an increase in wages of skilled workers. In LDC evolutions are opposite. When the labour markets are integrated (i.e. with a mobile labour force) migration of skilled workers from LDC to DC will contribute to a new equilibrium on the integrated labour market. If perfect capital mobility is assumed, as long as the marginal productivity of capital is higher in LDC then in DC, there will be a capital transfer from DC to LDC.

Diagram 1: The impact of trade openness between countries on integrated economic activity

TRADITIONAL GOOD MARKET — *DC* — **LABOUR MARKET**

Trade openness → Large supply of traditional good in LDC → Integrated equilibrium on traditional good market

Increase in demand of unskilled labour in sectors of advanced → Decrease in wages of unskilled workers → Decrease in relative price of traditional good in DC

Increase in production of advanced goods → Increase in wages of skilled workers

Decrease in production of traditional good

Openness of labour market → Large supply of skilled labour in DC → Migration of skilled workers from LDC to DC → Integrated equilibrium on labour market

LDC

Increase in wages of unskilled workers ← Increase in relative price of traditional good in LDC

Decrease in demand for unskilled workers in sectors of advanced → Decrease in production of advanced good → Decrease in wages of skilled workers

2.3.1. Labour markets

Increasing flows of migrants in Western Europe have raised concerns that immigration might reduce the natives' welfare in host countries by taking jobs away from natives and reducing their wages. Moreover, migrants are expected to affect the natives' welfare in the source countries.

Most cross-sectional studies have found that immigration has no impact, or a very limited impact, on wages or employment of natives (IOM, 2005). If immigrants are attracted to high wage areas, it is difficult to identify the exogenous impact of immigrants on wages. In this case, the researchers correct the endogeneity by using instrumental variables.

Some panel studies, combining time and cross-sectional effects, have found a significant impact on unskilled natives' wages; in addition unskilled natives have suffered declines in wages due to skill-biased technical change and increased trade. Using data from the German Socio-Economic Panel (GSOEP) DeNew and Zimmermann (1994) estimate that an increase of 1% in the share of migrants in labour force induces a loss of 4.1% in native wages. The impact on wages of blue collar workers is higher, suffering of a loss between 5.1% and 6.3%.,

while the wages of white collar workers increase by 1.4%. In a survey of the impact of migration on European labour markets, Brücker (2002) concludes that the majority of studies indicate that a one per cent increase in the labour force through migration yields a change in native wages "in the range between minus and plus 0.3 per cent".

The degree of labour market differentiation plays a critical role in determining the effect of increasing migration on native and foreign households. Because increasing migration constitutes a clear labour supply shock, one would expect it to affect wages or employment wherever movement in wages adjustment is constrained. The impact on the skilled workers' wages is greater than for unskilled workers. Assuming differentiation between native and foreign-born workers, the impact on native workers' wages in high income countries is slight in absolute terms (-0.04% for unskilled workers and -0.4% for skilled workers). In dynamic terms, nominal wages increased on average between 2001 and 2025 by 3.6% and 4.6% respectively for unskilled and skilled workers, in high income countries. In case of perfect substitutability of natives and migrant workers, natives' wages decline more quickly than the foreign born workers' (IOM, 2005).

A number of studies based on individual data sets shows that an inflow of migrants may affect employment levels rather than wages. Angrist and Krueger (2002) find that increased immigration in Europe is associated with a significant decline in natives' employment, particularly for the low-skilled. Based on individual data from the German Socio-Economic Panel, Winckelmann and Zimmermann (1994) find no significant correlation between migrant density and the increase in unemployment frequency of natives. Other studies show that immigration reduces native unemployment in the long run, most likely because of rises in demand for labour determined by the increased consumption demand from immigrants.

Some articles sustain the idea that unskilled immigrants are relatively close substitutes for native workers. Many low-skilled immigrants with limited education and language skills take jobs that natives are unwilling to carry out. Since 1980, the rise in immigration in high income countries has been accompanied by increases in native educational levels. Essentially, natives move out of certain kinds of jobs, creating a demand for immigrant labour.

Some other studies in Western Europe show that the impact of migration on employment is weak and ambiguous. There is little evidence that immigration leads to higher unemployment. Moreover, Gross (1999) found a negative impact of migration on the unemployment rate in the long run using time series analysis. He found that increasing the annual immigration rate by 0.1% from 0.1% to 0.2% reduces the long-run equilibrium rate of unemployment by 0.15

percentage points, while in the short run the unemployment rate may increase by up to 0.05%. As for the impact of migration on wages, there is little evidence of a significant displacement effect of migration on native employment.

Over the next twenty years, migration could make a substantial contribution in compensating the mismatches on the labour market if there is a sustained rate of employment growth to meet this extra labour supply. In the absence of sustained employment growth, migration inflows could not have the expected positive balancing effect on labour markets and social protection (Fotakis, 2000).

2.3.2. Capital markets

The impact of ageing on capital markets has been extensively analysed in closed economies. At the microeconomic level, the life-cycle hypothesis leads to the famous hump-shaped pattern of wealth accumulation over the life-cycle, bringing a concave relationship between savings and age. A large variety of amendments to the basic life-cycle model (ranging from inheritance, to liquidity constraints, to precautionary savings) did alter the main message, and lead to a widespread prediction: ageing in developed countries is expected to induce a decline in aggregate savings rates alongside fertility slow-down and rising longevity, through a decline in the savings rate of the usual high-saving age-groups. Although the theoretical prediction of a hump-shaved saving pattern is consistent with empirical findings based on individual panel data, empirical evidence at an aggregate macroeconomic level is scarce: saving rates seem not to be affected by age and the age profile of the population.

Does the age structure of populations affect asset prices? Here again, empirical findings contradict theoretical predictions. In a standard growth model, the decline in labour force is expected to raise wages, inducing a capital to labour substitution. The subsequent increase in the capital/labour ratio leads to a fall in the return on capital. For example, given the pattern of housing demand, a fall in home prices should be expected as the proportion of the population over age 50 increases. This prediction is not consistent with empirical evidence so far. The same discrepancy between theoretical and empirical findings applies to risky assets: contrary to the age neutrality suggested in a Merton-Samuelson setting and contrary to the popular investment advice which recommends reducing risky exposure when getting older, individual investors still have substantial equity investments at old ages, both in absolute and relative terms. At the aggregate level, the so-called "asset meltdown hypothesis" which predicts a

sharp decline of return on financial assets as the baby boom generations retire is dubious (Bosworth *et al.*, 2004).

Even if saving behaviour exhibits a "home bias", an open-economy perspective is needed to assess the impact of ageing on capital markets. Since savings and capital are internationally mobile, asymmetric demographic cycles in the world can lead to a discrepancy between national savings and domestic investment, to cross-border capital flows and to international adjustments in asset prices (rates of return and exchange rates). Most studies conclude in favour of net capital outflow from the most rapidly ageing regions to the less rapidly ageing areas (emerging countries) with low capital to labour ratios and (relatively) high returns on capital. These emerging countries can provide new investment opportunities for developed countries but this requires major improvements in macroeconomic management and prudential regulation of financial markets, since the higher returns in emerging countries are associated with enhanced risks. McMorrow and Röger (2003) provide a comprehensive study of the cross-border and global issues linked with demographic changes over the next decades, in the European Union. They emphasize that investing European excess savings in emerging or developing countries has limits. With ongoing capital inflows, these countries will increase their capital to labour ratio at European standards with a correlative decline in returns on capital. Moreover these countries will experience themselves the same demographic transition as the European countries experienced in the 20th century. McMorrow and Röger's general-equilibrium framework favours the normative conclusion of a Pareto-improving globalization: if we assume large net capital inflows in developing nations, the worldwide risk diversification could be efficient and could lead to an eventual increased convergence in regional incomes and wealth.

2.3.3. Foreign Direct Investment

While migration theory predicts a negative impact on source countries (through a 'brain drain' of high skilled workers) Federici and Gianetti (2006) construct a dynamic model to analyse whether and to what extent an increase of labour mobility may affect FDI flows and in turn contribute to the growth of source countries. They consider that (temporary) migration flows reveal cultural characteristics and labour force properties of the source country which may stimulate bilateral business networks, strengthening the complementarities assumption between capital and labour flows. Their conclusion is that the relation that links FDI and (temporary) migration can be positive and complementary. By acquiring skills abroad,

returning migrants increase the spread of technological progress in their home country which in turn attracts more FDI. Both migration and FDI contribute to the economic growth of home and foreign countries.

2.3.4. Overall macroeconomic impact of migration

What is the overall macroeconomic impact of migration? This question can be answered through computable, interregional, intergenerational, general equilibrium models with heterogeneous agents. Fehr & al. (2003, 2004) found that immigration by itself, no matter how large (they consider a doubling of immigration between 2001 and 2050) will do essentially nothing to help the developed world. Although the immigration increase has some beneficial macroeconomic effects, they are extremely small. Comparing the base case with the doubling of immigration case at the 2050 horizon, they found that migration helps maintaining the level of capital stock (which would suffer from an 8% decrease otherwise), increasing the labour supply (+0.20 point), preserving the current account (+0.02 point) and the interest rate (+0.01 point) in the European Union.

3. Remittances and catch-up of Southern Mediterranean Countries

Remittances are financial resource flows arising from the cross-border movement of nationals of a country (Kapur, 2003). We study remittances between the EU and the MPCs in order to better understand the motivations to remit and to assess the economic impact of remittances on receiving countries, with a focus on their impact on the catch-up of Southern Mediterranean Partner countries (MPCs). Are remittances fostering development thanks to external financing of small and medium enterprises in origin countries? Or, conversely, is this external funding mainly spent on consumption and thus not invested in firms or education? What are the impacts of such remittances on growth in the sending countries? To answer these questions, we will first focus on an assessment of the importance of remittances for receiving countries. Second, we will briefly survey the economic role of remittances. More precisely, we will focus on the determinants of money remittances and the macroeconomic effects of remittances.

3.1. Remittances in MPCs: stylised facts

3.1.1. Global outlook

More formal channels to transfer remittances, due to reduced costs through technological progress in banking, as well as frequent economic and financial crisis in developing countries, explain the fast increase of remittances in the early 1990s. However, a statistical factor due to improvements both in data quality and foreign exchange markets and an easing of the movement of money across borders also contributes to the rise (Kapur, 2003; Chami et al., 2005).

More than half of all remittances received by developing countries flow to lower middle-income countries while 28% flow to low-income countries and 17% to upper-middle income countries. The middle-revenue countries have the highest expatriation rate compared to the richest and poorest Third World countries and thus receive more remittances. Remittances are more evenly spread among developing countries than are capital flows and appear decisive for economies facing difficulties to attract FDI. Thus, remittances to low income countries are larger as a share of GDP and imports than those to middle income countries. While they equal Official Development Aid (ODA) in low income countries, remittances are considerably lower in middle income countries. The opposite holds when comparing them to FDI (see table 1).

Table 1: Remittances received by developing countries in 2000* (*billions USD*)

	Low income	Lower middle income	Low & middle income	Upper middle income
Total remittances	21 704.9	41 947.0	76 786.9	13 135.0
as % of GDP	2.5%	1.2%	1.3%	0.7%
as % of imports	11.7%	4.7%	4.5%	2.1%
as % of domestic investment	12.1%	4.8%	5.4%	3.6%
as % of FDI inflows	203.2%	47.6%	n.a.	18.8%
as % of total private capital inflows	143.7%	39.0%	41.3%	20.7%
as % of official development aid	107.0%	220.0%	135.7%	384.3%
as % of international tourism receipts	n.a.	53.9%	55.1%	26.0%

* We use the World Bank's income classification of countries.

(Source: calculus of the authors, from WDI database)

As far as MPCs (i.e. Algeria, Egypt, Morocco, Tunisia and Turkey) are concerned, remittances appear as the most important financial inflow. They even outmatch FDI inflows,

except for in Turkey, not to speak of ODA, or of private capital inflows. Moreover, remittances are a more stable source of financing than short-term capital. Among MPCs, Morocco was the foremost receiving country in 2003, before Egypt, Jordan, Algeria, Tunisia and Turkey (see table 1). When comparing remittances to GDP, Jordan appears as the first receiving country in 2004 (19%, after a maximum of 24% in 1984). The second receiver is Morocco (8%), where remittances' share is steady. While representing 5% of GDP in Tunisia, remittances inflows into Egypt fell sharply in 1993, and after a maximum of 15% in 1992, they hardly reach 4% nowadays. In all other countries, for which international data were available, remittances represent less than 3% of GDP (Table 2).

Table 2: Remittances received by MPCs in 2003 (*billions USD*)

	Algeria	Egypt	Jordan	Morocco	Tunisia	Turkey	TOTAL
Total remittances	1 750	2 961	1 981	3 614	1 250	729	12 285
as % of GDP	2.6%	3.6%	19.4%	8.2%	5.0%	0.3%	2.6%
as % of imports	10.8%	14.6%	28.4%	22.5%	10.5%	1.0%	8.5%
as % of domestic investment	10.7%	21.9%	94.8%	34.4%	21.4%	2.0%	14.4%
as % of FDI inflows	307.7%	14 096.9%	589.6%	148.8%	257.5%	48.6%	204.1%
as % of official development aid	746.5%	300.1%	158.8%	670.6%	420.0%	442.5%	354.0%
as % of international tourism receipts	1 562.5%	62.9%	156.5%	95.0%	64.62%	21.5%*	

* 2002 for Turkey
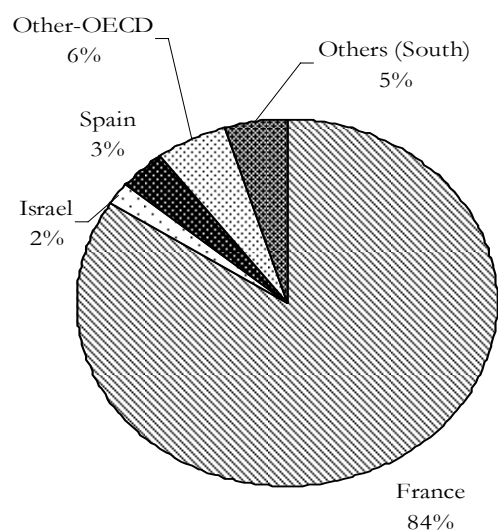
(Source: calculus of the authors, from WDI database)

3.1.2. Assessment of bilateral links

Between 1963 and 1972, Maghrebi countries experienced great labour migration towards Europe. For Morocco, and to a lesser extent, Tunisia, it went along with a diversification of migration beyond France. Unskilled 'guest workers' went also to Germany, Belgium and the Netherlands. Algerian migration remained overwhelmingly oriented toward France. The 1973 oil crisis was a turning point. Algeria formally suspended all migration to France in 1973. Tightening of visa policies made migrants fear that coming back to Europe might be impossible if they returned to their origin country and pushed migrants into permanent settlement. Unexpectedly, larger number of Maghrebi migrants therefore ended up staying permanently. The 1991 Gulf War led to massive labour force repatriation from the Gulf countries, in particular of Egyptians, thus reducing the potential of migration for unskilled
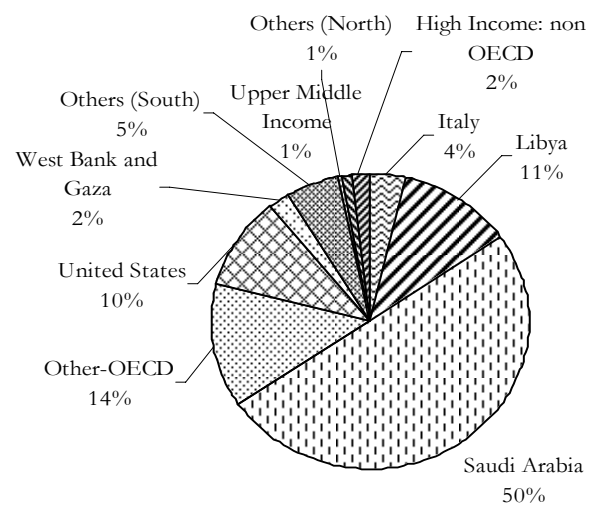
workers to Arab countries – which has stimulated Egyptian migration to Italy. In reaction to the UN air and arms embargo between 1992 and 2000, Libya started to encourage Sub-Saharan Africans to work in Libya and thus became a major destination and transit zone for those migrants. After 1995, an unexpected resumption of labour migration occurred not only from the Maghreb but also from Egypt to southern Europe. Spain and Italy have emerged as new major destination countries for Moroccan, Tunisian (mainly to Italy), Algerian (mainly to Spain) and Egyptian (mainly to Italy) migrants since the mid-1980s. North African migration to Europe has generally been the migration of unskilled and semi-skilled workers from rural areas who obtained manual jobs in industry, agriculture and formal and informal service sectors (De Haas, 2007b).

The historically different patterns of migration are reflected in the geographic distribution of remittances. Maghrebi countries receive the majority of remittances from Europe: mainly from France for Algeria (84%), migration of which is highly concentrated, and Tunisia (68%), while Morocco's receipts are more diversified and nearly equally coming from France (31%) and Spain (29%). Turks also received the main part of remittances from Europe, where Germany is the main sending country (64%). In contrast, Gulf countries do provide the lion's share of remittances to Egypt (50% from Saudi Arabia) and Jordan (41% from West Band and Gaza and 28% from Saudi Arabia) (see figure 1).
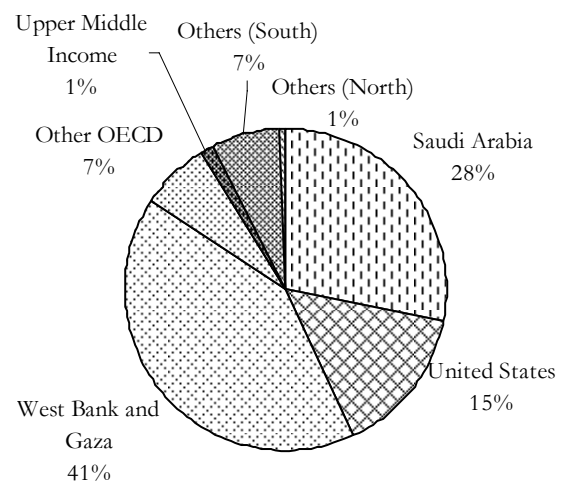
Figure 1: Breakdown of remittances by sending countries for MPCs (in 2000 and %)
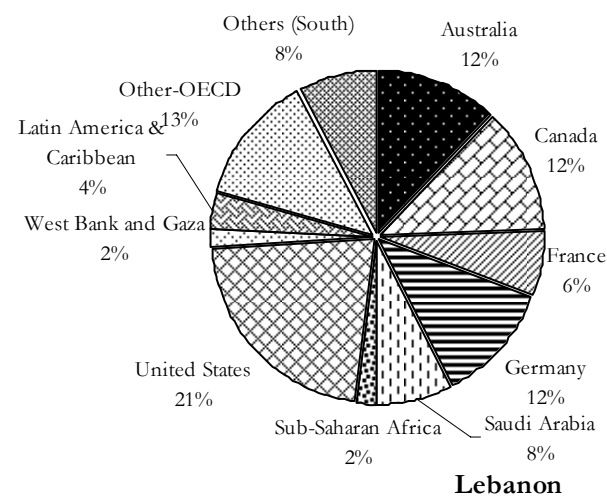

Algeria

Other-OECD 6%
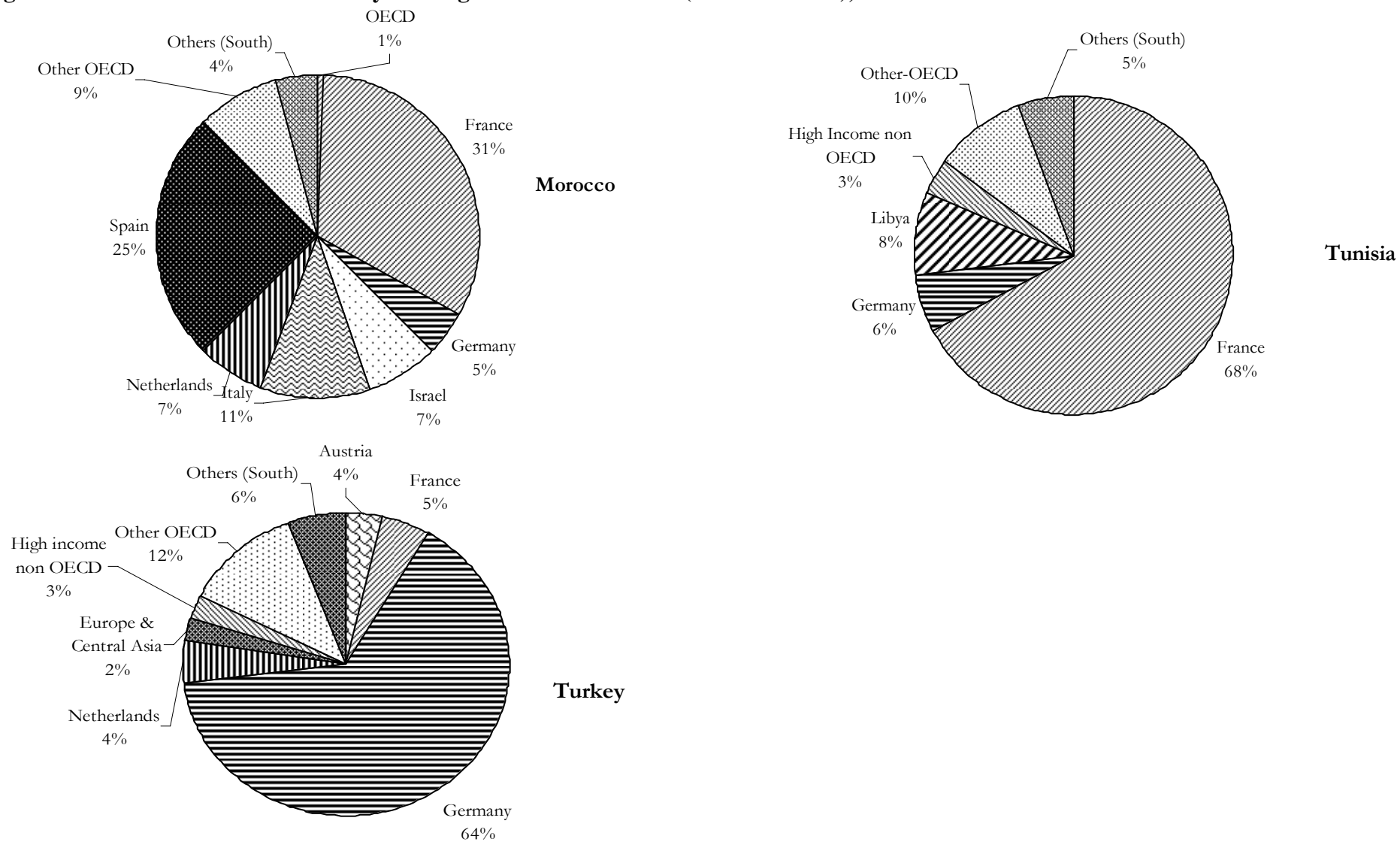Others (South) 5%
Spain 3%
Israel 2%
France 84%

Egypt

Others (North) 1%
High Income: non OECD 2%
Upper Middle Income 1%
Italy 4%
Libya 11%
Others (South) 5%
West Bank and Gaza 2%
United States 10%
Other-OECD 14%
Saudi Arabia 50%

Jordan

Upper Middle Income 1%
Others (South) 7%
Others (North) 1%
Other OECD 7%
Saudi Arabia 28%
United States 15%
West Bank and Gaza 41%

Lebanon

Others (South) 8%
Australia 12%
Other-OECD 13%
Canada 12%
Latin America & Caribbean 4%
West Bank and Gaza 2%
France 6%
United States 21%
Germany 12%
Sub-Saharan Africa 2%
Saudi Arabia 8%

(Source: Calculus of the authors, from WDI and Ratha and Shaw (2007)'s database)

Figure 1: Breakdown of remittances by sending countries for MPCs (in 2000 and %), continued

Morocco

OECD 1%
Others (South) 4%
Other OECD 9%
France 31%
Spain 25%
Netherlands 7%
Italy 11%
Israel 7%
Germany 5%

Tunisia

Others (South) 5%
Other-OECD 10%
High Income non OECD 3%
Libya 8%
Germany 6%
France 68%

Turkey

Austria 4%
Others (South) 6%
France 5%
Other OECD 12%
High income non OECD 3%
Europe & Central Asia 2%
Netherlands 4%
Germany 64%

(Source: Calculus of the authors, from WDI and Ratha and Shaw (2007)'s database)

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As remittances to Maghreb and Turkey mainly come from Europe and thus happen to be more stable than money received by Egypt and Jordan from oil-rich Gulf countries, we have decided to focus our analysis on the former countries. As the main receiver of remittances and the most geographically diversified in terms of migration outflows among Maghrebi countries, a special focus is given to Morocco.

Indeed, Moroccans form not only one of the largest, but also one of the most dispersed migrant communities in Western Europe. France is home to the largest legally residing population of Moroccan descendents, followed by Spain. Migrant remittances from Europe to Morocco have shown an upward trend over the past decades. The so-called "Euro-effect" and concomitant money laundering can only explain part of the recent surge in remittances. The structural strength of remittances is explained by the unforeseen persistence of migration to North-Western Europe; new labour migration towards Southern Europe; and the persistence of cross-border and cross-generation links between migrants and "stay behinds" (De Haas, 2007a and 2007b).

Studies on remittances are split into two categories: (1) identification of factors determining remittances and (2) assessment of macroeconomic impact of remittances. The following sections successively deal with these two issues from both a theoretical and an empirical point of view.

3.2. Economic determinants of remittances

3.2.1. Microeconomic perspective

In contrast to the neoclassical model, for which wage differentials across countries are the leading factors explaining international migration, in the early 1980s, the new economics of labour migration (NELM) assumes imperfect credit and insurance markets so that migration is perceived as a household's response to income risks; the entire family is sharing and trading off the costs and benefits from remittances, which serve as income insurance for household in the origin country (Massey and Espinosa, 1997; Mora and Taylor, 2006). Remittances are then driven by individual (altruism, exchange of services or self-interest) or family (investment, insurance) motives. They also provide a potential source for productive investment in a context of imperfect financial markets in a portfolio approach (Rapoport and Docquier, 2004).

3.2.1.1. Individual motives

Boughga-Hagbe (2004) proposes a model in which the utility of the migrant depends on his/her own consumption, the consumption of his/her family and on his/her asset accumulation, the latter including real estate in the home country. His equations imply clear altruistic motives behind remittances: remittances will increase with poor economic performance in the home country, and with good performances in the country of residence. The 'attachment to homeland', the willingness of Moroccan migrants to build one's own house in Morocco, should imply a positive elasticity between remittances and the amount of construction GDP. Moreover, motivations for portfolio diversification (i.e. interest rate differential between origin and resident country) are not significant among long-run explanatory factors.

3.2.1.2. Family motives or portfolio approach

Glytos (2002a) views remittances as an endogenous variable in the migration decision process: remittances are part of the migration-repatriation cycle in a family network. He developed a model based on the assumption that the family claims for 'warranted remittances' are higher than the required remittances (i.e. the difference between the average income per remaining family member and the average income in the community in which the family lives). In order to obtain grants allowing a higher standard of living than its neighbours, the family is counting on the altruistic feelings of the migrant or on an implicit contract with him. The latter is motivated by the relative return of savings in the host and the home country and is pursuing a saving target (portfolio approach). Then, the claim will depend on the bargaining power of the family members. Glytos (2002a) considers Algeria, Egypt, Jordan, Morocco, Syria, Tunisia and Turkey during the period 1973-1998. Jordan, Morocco, Syria and Turkey show a relatively stronger preference for the future insofar as the family is accepting less than its warranted remittances and allows the migrant financing his/her saving target. Nevertheless, the migrant sends almost all surplus savings to these countries, which suggest a slowly moving upward saving target. In contrast, Egyptian migrants give a high priority to present consumption at the expense of future welfare and are running down the saving target. Algerian and Tunisian migrants demonstrate the same behaviour as Egyptian migrants, but they manage to hardly damage their saving target. Jordanian and Moroccans are capable of providing remittances well above low claims, whereas Turkish remittances cover comfortably the stronger claims of their families. Syrian and Algerian migrants cover much less than the claimed amount, while the Egyptian and Tunisian migrant families go into the red for

supporting their relatives abroad to accumulate savings. Moreover, in Algeria, Morocco, Syria and Tunisia, cooperation between the migrant and his/her family in determining the flow of remittances is closer than in Egypt, in Jordan and in Turkey, which at least for Jordanians and Egyptians may be partly explained by the volatility of migration in the Gulf.

3.2.3. Favourable macroeconomic environment for remittances

Using a gravity model with distance as a proxy for migration costs, Adams (2007) shows the amount of workers' remittances to decrease with distance and the square of migrants' income, but to increase with income. He concludes that an inverted U-shaped curve exists between the level of country income (development) and the receipt of per capita workers' remittances. Developing countries with low or high per capita GDP income receive smaller levels of per capita workers' remittances. The shares of secondary-educated people and poverty have no influence on the amount of remittances, an outcome for which he gives two explanations. The first contradicts the intuition of Chami et al. (2005): migrants do not remit for altruistic purposes. The second seems more likely: countries with high levels of poverty are not producing many international migrants.

According to the OECD (2006a), if some macroeconomic factors such as interest rates, exchange rates, inflation, and relative rates of return on different financial and real assets tend to influence remittances, they only have a short-term effect. Political stability, i.e. an environment of confidence in safety and liquidity of savings, seems more important than options for possible higher returns. The Moroccan case study illustrates that it can take decades before positive development impacts of migration gain full momentum insofar as 'integrated' and settled migrants possess greater capabilities to remit and invest. Then, improvements in general investment conditions, restored trust in political and legal institutions and sensible immigration policies not deterring migrants from circulating are a key element of successful and productive investment of remittances (De Haas, 2007a).

3.3. Macroeconomic impacts of remittances

3.3.1. Stylised facts in MPCs

When it comes to Morocco, on average, current and return migrant households invest four and six times more, respectively, than non-migrant households. Housing is Moroccan migrants' first investment priority: 83.7% of all migrants' investment projects were in real estate; 7.5%

and 8.8% in agriculture and other sectors, respectively. Remittances-enabled investments in commercial agriculture in parts of the Sous and the Rif and some oases have created substantial employment for farm workers. The first objective of migrants is to meet the household's immediate needs through providing them with proper nutrition, health, care, clothing and housing. Second, insofar as remittances are sent to one of the men in the household, women wish to have one's own house – away from in-laws' authority. It could also be an effective strategy for migrants to escape from the heavy financial burden of supporting large extended families. Third, housing turned out to be a rational, relatively secure capital investment, through which households can generate additional income (De Haas, 2007a).

Actually, as far as economic activity is concerned, in Morocco international remittances have played a key role in facilitating agricultural investments. Moroccan migrants have shown a preference for investments in the development of new irrigated agriculture. Investments in all kinds of service enterprises have become increasingly more important to the detriment of real estate and, particularly, agricultural investment. Migrants have also played an important role in the growth of small-scale industry in Morocco. Migration and remittances have a positive influence on the educational participation of migrants' daughters and play an growing role in closing the gender gap in education (De Haas, 2007a).

De Haas (2007a) shows that, in Morocco, remittances per migrant head from northwest European countries reveal a peak around 1990, more than two decades after the onset of large-scale migration (versus between 3 and 12 years as usually observed). Migration is 'maturing'; investment priorities tend to shift over the life-cycle. If housing is generally the first major investment, after the first years, migrants tend to diversify their investments towards agriculture, small-scale industry and services. For Morocco, De Haas (2007a) identified a sequence in which real estate investment occurs relatively early in the migration cycle and peaks 5-14 years after initial migration, to stabilise at a high level. Major agricultural investments mostly occurred 15-24 years after migration and investment in non-agricultural private businesses peaked 25-29 years after migration.

Regarding Egypt, a large proportion (46%) of the 1526 Egyptian return migrants analysed by McCormick and Wahba (2001) invested in housing and 10% invested in economic projects.

3.3.2. Short-turn impact on investment and small and medium enterprise creation

Drawing on a probit econometric model, McCormick and Wahba (2001) used a 1988 survey of 1526 Egyptian migrants who had worked abroad at least six months and then returned home. They find that time spent working abroad and total amount of money saved abroad have a positive and significant effect on the likelihood of a return migrant becoming an entrepreneur (i.e.: either an employer, a self-employed individual, or someone with a business project in addition to his/her usual economic activity). For the 70 percent of return migrants in the Egyptian data who are literate, the primary factor affecting the probability of becoming an entrepreneur is the amount time spent working abroad: an increase from 6 to 30 months of overseas work lead to a rise in the probability of literates becoming entrepreneurs from 0.19 to 0.32, in accordance with social capital theory. By contrast, for the 30 percent of return migrants in the Egyptian data set who are illiterate, the total amount of money saved abroad is the most important factor. Thus, according to the paper, illiterate Egyptian migrants may not learn many new skills working abroad and this is the reason why savings accumulated abroad – rather than time spent abroad – is the critical factor affecting the likelihood of becoming an entrepreneur, in line with home capital market restrictions.

3.3.3. Structural impact on growth and poverty reduction

3.3.3.1. General results

Remittances simply go directly to households and their immediate poverty alleviation impact can be greater than traditional foreign aid, depending on the income characteristics of the receiving household. Its long-term impact may be more questionable. Remittances are a better instrument to address transient poverty, which arises due to shocks, rather than structural poverty. To alleviate structural poverty, broad economic transformation may still require external financial resources in the form of budgetary support to governments in many poor countries (Kapur, 2003).

Glytos (2002a) estimated a dynamic Keynesian macroeconomic model based on three behavioural equations for consumption, investment and imports plus an income identity in which the 'national disposable income' is made up of GDP and the volume of migrant remittances. He finds a great structural uniformity among the countries of both shores of the Mediterranean Sea (i.e.: Egypt, Greece, Jordan, Morocco and Portugal): there are generally more good cases where remittances boost growth, or moderate recession than bad cases where

remittances restrain growth or accentuate recession. In Egypt and Jordan, the short-run effects of an increase in remittances on consumption are more delayed than in other countries like Greece and Morocco because of the greater uncertainty concerning remittances. The immediate effect is rather high in Morocco and moderate in the other countries (very small and negative in Egypt). In Jordan, the long-run growth-generating capacity of remittances is three times higher than that of Egypt, Greece and Morocco, with Portugal occupying an intermediate place. The elasticity of long-term induced growth rates of output with respect to the growth rates of remittances rises considerably over time in Egypt and Morocco; slightly in Jordan; falls drastically in Greece; and rises and subsequently falls in Portugal. The growth-destroying capacity of falling remittances is about three times higher than the growth capacity of rising remittances for Egypt and Morocco, and to a lesser extent for Jordan, while Greece and Portugal experience each just about the same elasticities in the rising and the falling years. This diverging impact on output of remittances is explained by their relative weight in the economy (reflection of the Dutch disease problem), the liquidity they generate and the phase of business cycle as well as conditions and policies of individual countries. The impact is asymmetric: the response is stronger to falling than to rising remittances, witnessing the vulnerability of the economies that depend heavily on remittances.

Two studies, the first from the IMF and the second from the World Bank (WB), both published in 2005, reach opposite conclusions on the impact of remittances on growth and poverty reduction.

First, Chami *et al.* (2005) collected a panel of aggregate data on remittances from the WB's WDI databases. Their data set includes 113 countries over the 1970-1998 period. They find a robust negative correlation between the growth rate of remittances and both per capita GDP growth and income gap, which contrasts with the positive correlation of FDI inflows with GDP growth. They conclude that remittances are compensatory by nature and therefore should not be considered equivalent to capital flows. When predicated on the presumption that remittances have similar uses and effects as other private capital flows, policies may have unintended consequences. If remittances are used by recipients to reduce their labour market participation, economic activity might be adversely affected. Another concern would be the incentive effects of these remittances on recipient country governments, who may view such transfers as a stable source of insurance.

Second, using a new database of 71 developing countries, Adams and Page (2005) find that both migration and remittances have a strong statistically significant impact on reducing poverty in the developing world. They base their work on the assumption that migration and

remittances are contributing to growth, which in turn will reduce poverty. After compensating for the possible endogeneity of migration[1], and controlling for income, its distribution and regional fixed effects, their results suggest that, on average, a 10% increase in the share of migrants in a country's population will lead to a 2.1% decline in the share of people living on less than $1.00 per person per day. After compensating for possible endogeneity of remittances, a similar 10% increase in per capita official remittances will lead to a 3.5% decline in the share of people living in poverty. Moreover, per capita official remittances have a negative and statistically significant impact on the level of poverty (poverty headcount index), the depth of poverty (poverty gap) and the severity of poverty (squared poverty gap).

3.3.3.2. The case of Morocco

From data on standards of living in Morocco in 1998/99, Soudi and Teto (2003) projected that 1.17 million out of 30 millions of Moroccans would fall back to absolute poverty without international remittances. In 1998, such transfers represented approximately 6.9% of private consumption and 5.7% of gross national product. The proportion of the population living below the poverty line would increase from 19.0 to 23.2 percent (from 12.0 % to 16.6% for urban areas and from 27.2% to 31.0% in rural areas). The middle classes, particularly their higher income part, profit relatively more from remittances than the lowest income groups. De Haas (2007a and 2007b) finds that the average international migrant Moroccan household's income was 2.5 times higher than the non-migrant household's income, largely because of remittances.

In Morocco, as a result from international migration, new forms of inequality, based on access to monetary resources, have been largely superimposed upon the traditional forms of structural, hereditary inequality based on kinship, complexion and land possession (De Haas, 2007a). The middle and higher income classes profit relatively more from remittances than the lowest income groups, because migration is an increasingly selective process, more dependent on international migrant networks (De Haas, 2007a). For the Moroccan government, remittances are a crucial and relatively stable source of foreign exchange and have sustained Morocco's balance of payments (De Haas, 2007b).

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[1] Reverse causality may be taking place: migration and remittances may reduce poverty in the developing world, but poverty in the developing world may also affect the share of migrants being produced and thus the level of remittances being received. For this reason, Adams and Page (2005) use three instrumental variables.

3.3.4. Impact of remittances on the localisation of activities

In a standard Core-Periphery model with two regions (North and South), two goods (homogenous agriculture and increasing returns differentiated manufacturing), where wage differentials are the only motivation to migrate, we introduce remittances as an element completing workers' income in migrant sending countries. Thus, each region's revenue is defined as the sum of workers' earnings in local agriculture and manufacturing, plus remittances received and minus remittances paid.

All manufacturing activities are initially assumed to be located in the North. Workers then trade-off between the two regions depending on the real earning offered. Insofar as manufacturing goods are more expensive in the South than in the North due to transaction costs linked to their importation, living in the South is more costly for mobile manufacturing workers than staying and living in the North[2]. So if a firm wants to implement a manufacturing plant in the South, it should compensate for the extra cost of living, before workers accept to move. However, as usual in such new economic geography models, the larger the home market, the more attractive the region and the smaller the compensation needed.

In order to evaluate the remittances impacts on the Core-Periphery pattern, we introduce two situations. The first one without remittances is absolutely equivalent to Krugman (1991) model. Including remittances assuming that the migrant send back one fifth of his/her revenues to his/her native land, the South here, several conclusions emerge.

First, unsurprisingly, the likelihood of a Core-Periphery equilibrium pattern rises while integration deepens. We obtain the seminal U-curve. Second, this model shows that with the inclusion of remittances, the probability of a Core-Periphery pattern occurring is reduced, thus promoting some convergence of the Southern region with the Northern region. Remittances seem apparently a significant way to support growth and catch up for the Southern region. Third, a modification of the value of parameters does not affect these qualitative results. As expected, an increase in manufacturing expenditures or in economies of scale strengthens the probability of manufacturing activity to agglomerate in the North. Finally, a fall in remittances reinforces the concentration of activities in the North. Thus, remittances increase incomes in the South, raising the 'home market effect' of this very region, improving its

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[2] In our model, we assume null migration costs. The inclusion of positive migration costs would only reduce the impact of remittances without any alteration of the model's results.

attractiveness for new manufacturing firms. They are beneficial insofar as integration is not too high; they compensate for the agglomeration effect of such integration.

The slowing down of the concentration process of manufacturing by remittances is our main conclusion. Remittances can thus appear as a way to favour catching up for the Southern Euro-Mediterranean countries with the Northern core European countries. However, this result is obtained with some heroic assumptions and the model needs to be adapted to fit with the particular context of the Euro-Mediterranean partnership. In practice, despite relatively weak integration and increasing remittances, Southern Mediterranean countries do not catch up with the European core countries, unlike the model's predictions. This contradiction can be explained by the omission of six characteristics of the whole region in our model. First, we assume no transaction costs for the agricultural good. Their presence does not alter the qualitative result and reduces lightly the core-periphery pattern probability. Thus the MENA countries can suffer from asymmetrical transaction costs concerning the agricultural goods that constitute their main source of exports; reducing their revenues, and so the home market effect they could benefit from. Second, migration costs were omitted. Their inclusion will lower the impact of remittances on the revenue in the South and thus reduce their effect in slowing down concentration of manufacturing in the North. Third, we assume an identical share of manufacturing expenditures in both regions. Changes in the model's outcome could occur due to a higher share in the European countries. Fourth, regions are assumed identical, not only in taste, but also in technology. In practice, Southern Mediterranean countries are still lagging behind in terms of technology compared to core European countries. This factor could affect the location dynamics in the MENA countries. Fifth, Southern workers are assumed to respond perfectly to a regional real wage differential. An imperfect response could result in more unemployment, reducing the attractiveness of this region. This could lead to emigration (and remittances) inducing future growth in the MENA countries. Finally, remittances act as complementary revenues for the MENA countries, that is, as an increase in their home market. The model does not integrate the way remittances are captured and employed in the MENA economies. Insofar as remittances result in more basic consumption and housing expenditures with few investments in manufacturing sectors or in infrastructures, the catching up perspectives are reduced.

All these MENA-relevant elements explain why remittances do not induce a catch-up in the MENA countries while they are theoretical sources of growth in the Southern region. Remittances indeed increase the probability of reaching a symmetrical distribution of

manufacturing activities between the EU-members and the MENA countries due to increased growth in the latter.

After the complementary/substitution between migration and trade, this section deals successively with these two issues from both theoretical and empirical point of view. A final point is given to an assessment of the impact of remittances on the location of activities based on a new economic geography (NEG) model.

4. Replacement migration in an intergenerational perspective: ageing, migration and pension systems

In the long run, the increasing public expenditure on pensions, social security and health services seems to be an additional and perhaps more important issue of the ageing process, because of the speed with which it will develop once the baby boom generation retires. According to the European Commission Report (2006), "The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)", for the EU15 and the Euro area as a whole, public spending is projected to increase by about 4 percentage points between 2004 and 2050, mainly due to increases in public spending on pension, health care and long-term care. The fiscal impact of ageing becomes visible starting in 2010. However the largest increases in public spending are expected to occur between 2020 and 2040.

4.1 The sustainability of Pay-As-You-Go (PAYG) pension systems: a new challenge

By now, the attention of economists has been focussed on the direct impact of population ageing on pay-as-you-go pension systems. Overlapping generations-models have been designed to analyse intergenerational and intra-generational aspects of the sustainability of social security. In this context, migration is regarded as a possible factor in overcoming the problems of the public pension systems. Population decline could be prevented by immigration, but population ageing could be prevented only at unprecedented, unsustainable, and increasing levels of inflows. This would generate very rapid population growth and rapidly displace the original population from its majority position.

4.1.1 Are migrants net contributors to PAYG pension schemes?

Regarding the overall fiscal influence of migration on host countries there is a large debate in the economic literature on whether immigrants are net contributors to fiscal and social schemes. Immigrants affect a country's fiscal system in many different ways, starting from the moment of arrival and continuing throughout their life cycle (or as long as they remain in the country). While immigrants contribute to public revenues through payroll taxes, valued added tax, and social contributions, they impose public-service burdens whose magnitude depends on age, gender, skill, health, family status and other socio-economic variables. An assessment of the overall impact of migration on fiscal systems therefore needs to take into account the comparative characteristics of native and migrant populations. If immigrants have the same broad characteristics as native residents and in terms of education, health, and life-expectancy and immigrate when they are young, they are expected to provide net fiscal contributions to their chosen host country, as native residents do. However, as shown in section 1, immigrants from MPCs exhibit less favourable characteristics than native European residents and thus may provide smaller (or negative) net fiscal benefits.

The simulations by Fehr et al. (2003) also provide some information on the welfare effect of doubling immigration in the EU between 2001 and 2050. In the European Union, the generation born in 1940 would experience an average increase of 0.2% in its remaining life-time resources (the lower the income, the higher the increase). For the 1970 generation, the situation is slightly worse (with an average increase close to 0.18%), whereas the 2000 generation could expect an increase of 2.64% (low-income group), 2.17% (middle-income group) and 0.35% (high income group).

Blake and Mayhew (2004) suggest that beyond 2020, some accompanying measures such as increasing contribution rates and/or the state pension age will be necessary to manage the pension increases due to population ageing. After 2020 the necessary levels of immigration will increase to unrealistic and unsustainable levels.

4.2 Welfare analysis

4.2.1 Is migration Pareto-improving?

Wildasin (1994) and Razin & Sadka (1995) show that in a static environment all income groups may lose from migration. In contrast to the adverse effects of low skilled migration in a static model, Razin and Sadka (1998, 1999) prove that in a Samuelsonian overlapping generation model, migration is a Pareto-improving measure. They also prove that with a pay-

as-you-go pension scheme, an important pillar of welfare state, even low-skilled migration could be beneficial. For this there are two conditions. The first is that the economy has good access to international capital markets, so that migration exerts no major effect on factor prices. The second is the infinite-horizon. Otherwise, even if the migrants are net contributors to the pension system, their contribution does not suffice to support the increased benefit to the elderly at the time of the migrants' arrival.

4.2.2 Heterogeneity of labour

Leers *et al.* (2003) show that migration may not be a cure for ageing populations. The hypothesis that the decrease in fertility implies the increase in wages, and thus obtaining an inflow of immigrants that moderates the adverse effects of ageing on public pensions, may not hold if labour is heterogeneous. If the rising dependency ratio induces a strong enough increase in the Pay-As-You-Go tax, mobile workers may even decide to leave the ageing country and thus worsen the trouble. In the case of homogeneity, the immigration of workers will take place until the working population is re-established at initial level, preventing the old from a wealth loss. This exceptional case only applies to a small open economy. Otherwise, the inflow of labour will lead to higher wages abroad and ageing will result in less than full replacement of the number of workers before the demographic shock. As a result, wages will increase and pension benefits will decrease.

4.3 Redistributive aspects: who wins and who loses from replacement migration in an intergenerational perspective?

Complementing Razin and Sadka's analysis, Casarico and Devillanova (2003) aim at investigating the joint redistributive effects of migration and pension issues. In their model, migration is not only a demographic impetus on the number of contributors to PAYG pension scheme but also a shock on the labour market of the destination country through wage adjustments between different groups of workers (low/high skilled combined with native born/migrants). Migration thus induces inter- and intra-generational transfers. Casarico and Devillanova consider a two-period overlapping generation model of a small developed economy with skilled and unskilled workers. The home labour force is immobile and an (unexpected) number of workers from a less developed country is assumed to migrate and increase the labour supply of the developed country. The authors distinguish between two alternative scenarios: the "assimilation scenario" assumes that the migrants' offspring behave

as residents; the "return migration scenario" features the idea that retired migrants return to their home country with their descendants. They show that the old at times favour migration, since migration unambiguously increases their pensions. For the young the situation is ambiguous. In the "assimilation scenario", the skilled agents are better off because migration has a positive effect on wages while migration is a burden on unskilled agents because it decreases their wages, which in turn decreases their contribution to PAYG. A third group of agents (those initially unskilled but skill-pushed by the migratory inflows) is worse off: migration pushes them to be skilled; they get higher wages and become net contributors to PAYG pension scheme (they would rather benefit from redistributive pension schemes in the absence of migration). The "return migration scenario" appears to be the most unfavourable for all groups (that the retired migrants return home with their – potentially highly-skilled – offspring).

4.4 Political economy: is migration politically sustainable?

Even if immigrants are net contributors "paying for the elderly", is this solution politically feasible? Razin and Sand (2007) analyse a political economy mechanism in which immigration policy (immigration quotas for young entrants) and PAYG pension policy (contribution rates by the young workers, both native and migrants) are jointly determined by a majority voting rule. They develop an OLG political economy model in which the PAYG pension system is based on payroll taxes on the working young to finance pensions to the aged. Immigrants are assumed to enter the economy, work and pay pension contributions when young, and get a voting right only when old. Within this setting, they show that high immigration quotas for young migrants are more likely to occur whenever the proportion of old in the native-born population is high. The intuition goes as follows. When the immigration quota is the only state variable, voters adopt a "demographic switching" voting strategy. Assuming that only the old migrants have a voting right, when the number of young native-born exceeds the number of old, the young voter is the decisive voter and maximises his expected next period benefit by limiting the number of migrants. On the contrary, when the number of old, both native-born and migrants, exceeds the number of voting young, the old voter is decisive and favours a high immigration quota. When the stock of capital per native-born worker is an additional state variable, the model exhibits another "demographic steady" voting strategy for the young whatever the initial number of native-born old: voting for a high immigration quota, which leads to a majority for young at every period. Of course these conclusions could be challenged in a more general setting allowing both young and old

migrants to vote, and allowing different labour productivities among native-born and migrant workers.

4.5 First lessons from an overlapping generation model with ageing, migration and capital flows

In order to assess the overall impact of migration on economic welfare in a context of ageing in the European Union countries, we have built an overlapping generation model in discrete time with two regions, a developed region and a less developed region. The developed region (e.g. European Union) is characterized by a demographic cycle, alternating a low level of population on even dates and a high level on odd dates, whereas the less developed region (e.g. Mediterranean Partner Countries) is assumed to have no demographic cycle. In the less developed region, there are two types of workers, unskilled and skilled, and two sectors of activity: a labour-intensive sector operating without capital and hiring only unskilled workers, and a "normal" sector with a constant return-to-scale technology combining skilled labour and capital. Workers are assumed to live during two periods (working period and retirement); they supply labour and consume in the first period (skilled workers are also assumed to save in the first period). In the second period, they retire and consume their first period saving (since unskilled workers of the less developed region do not save and have no transfer revenues in the second period, they live only for one period). Migration of workers only occurs from the less developed region to the developed one and we assume a "skilled-only" migration[3]. In any case, migration is assumed to be permanent[4]. We assume capital to be perfectly mobile. In a first step assuming no pay-as-you-go pension system and no migration we derive the equilibrium values for wages (skilled and unskilled), migration level, returns on capital, and capital accumulation in both regions; for the developed region, these equilibrium values are contingent to the position in the demographic cycle (small or large generation). In a second step, we allow workers to migrate and we compute the same equilibrium values to see how migration affects the level of wages, real interest rates and capital accumulation in both countries. In a third step we introduce a PAYG pension system in the developed region to assess how this old-age social security provision modifies the previous equilibrium values. A

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[3] This assumption is consistent with the production function combining only skilled workers and capital in the developed region.

[4] This assumption is not essential: provided that portability of pension benefits is granted, temporary migration is equivalent to permanent migration in our setting.

comparative static analysis is performed to assess who are the winners and losers of migration plus PAYG pension system.

Because of its complexity, even if we have specified simple production functions (Cobb-Douglas) and utility functions (logarithm), the theoretical model does not provide many unambiguous results. We can summarize these results as follows:

Provided that the migration level does exceed a given threshold (with no intuitive interpretation), enabling migration of skilled workers leads to Pareto-improvement at odd dates (low level of population in the developed region): the skilled workers are better off and the unskilled remaining in the country are not worse off; this result mainly relies on the increase in pension contributions needed to finance the pension benefits of a relatively small number of retirees (the first generation of migrants is not retired at odd dates);

Migration of skilled workers has an undetermined effect on the rate of return on capital and on capital accumulation; for certain values of parameters (essentially the relative level of labour productivity in the two regions), there is an increase in capital accumulation in both regions, the reverse being true for other values of parameters. This indeterminacy should be solved through numerical simulations

Migration of skilled workers has an ambiguous welfare effect at even dates (large level of population in the developed region): migrating skilled workers deprive their source region from capital accumulation, and do not get higher wages in their destination region (characterized by an abundant labour supply at even dates). Again, this indeterminacy should be solved through numerical simulations.

5. Policy implications

1. Replacement migration is needed but the levels of migration needed to prevent population ageing (i.e. to maintain the potential support ratio, defined as the population aged 15-64 in proportion of the population aged 65 and over) are extremely large and unlikely to happen. For the EU as a whole the United Nations scenario (1998) predicts a flow of 700 million immigrants (accounting for 75% of the 2050 EU population) far above what EU countries can absorb and MPCs can provide without jeopardising their own economy. More plausible scenarios include replacement migration along with changes in labour markets and social security policies.

2. Replacement migration policies must take into account education, skills, age-structure and gender-structure of migrants and changes in demand on labour markets. The new migrants in European countries are better educated than ten years ago. Moreover there is a dual need on the demand side: highly-skilled occupations linked to ICT (both secondary and tertiary sector) and low-skilled occupations (services).

3. Should replacement migration be encouraged for macroeconomic purposes in EU Countries (labour markets, capital markets, growth, and external balance)? Yes, but the macroeconomic gains are likely to be modest.

4. Return policies and temporary migration programs initiated either by European and Maghrebi governments do not seem to be appropriate to reduce and stop migration, in the current socio-economical context. Tightening of visa policies made Maghrebi migrants fear that coming back to Europe might be impossible if they returned to their origin country and pushed migrants into permanent settlement. Excessive restrictions are likely to be very costly, especially for source countries when applied to unskilled migrants, and for destination countries when applied to skilled migrants and students. Given the important gains from migration and remittances for sending countries, governments should aim to reduce or remove the transaction costs and other barriers to sending remittances, which can be quite substantial. Such policies also failed because they were implemented with the idea of complementarity between trade, FDI, capital movements, knowledge and technology (globalisation), on the one hand and migration on the other hand. In contrast, the Moroccan case study shows that policies to increase remittances and channel them through formal channels can be successful if they coincide with general macroeconomic stability and banking infrastructure. Moreover, remittances can be used as a lever to realise development projects in association with,

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for instance, official development aid. Policies aiming at securing stable and increasing saving transfers from migrants and development projects supported by migrants permit a reduction of poverty and a development of public services, transport and public utilities infrastructures in urban and rural areas.

5. Success of migration and remittances to foster development in a more business-friendly environment (i.e. improving trust in political and legal institutions) is contingent on how association agreements with the EU will be implemented, how this will affect MPCs' competitiveness and to what extent market integration will also allow increased access of North African producers to the EU market. Keeping in mind that trade liberalisation will not reduce migration since migration and trade are complementary not substitutes, at least in the short-run.

6. In contrast with other financial inflows (FDI and portfolio investments), remittances are countercyclical in line with their role of compensatory income. Moreover, if remittances tend to slightly increase income and growth, inasmuch as their amount remains limited and they are primarily spent to meet the household primary needs (nutrition, health care and housing) and barely used for productive investments, their role in fostering growth is still limited. In addition, while controversial, the impact of remittances on poverty reduction is still circumscribed to transient poverty reduction, with no effect on structural poverty. For all these reasons, basing a development policy only on remittances is misleading. Voluntary development policies, funded by national and international public subventions, are still needed.

7. Should replacement migration be encouraged for welfare purposes in EU countries (sustainability of fiscal systems in general, and pension schemes in particular)? Here the answer seems to be positive. The age-structure of replacement migration can help overcoming the demographic hump of the post-WW2 baby-boom generation. But there remain ambiguous effects, when we take into account the fact that (young, skilled and permanent) migrants are themselves ageing, and will be a burden in the future.

8. In EU countries, selective migration through facilitating immigration of those with high levels of education and wealth could be desirable but is constrained by the freedom of movement in the EU. If a given EU country has week internal border controls, or a non-selective immigration policy, there are spill-over effects which render the selective migration policies of other EU countries ineffective. Selective

migration policies are subject to coordination among national governments or to EU regulatory mechanisms.

9. The coordination of migration policies in the EU is linked to the coordination of fiscal systems. The spill-over effects of week internal border controls interact with the fiscal competition among EU countries. All aspects of fiscal schemes are concerned: capital tax, payroll tax, social contributions and benefits.

6. Conclusion

This contribution aimed at assessing the financial and welfare improvement of replacement migration from the Mediterranean Partner Countries towards the European Union countries. The main conclusion is that migration can be a win-win process for both regions, through current financial transfers (remittances) and intergenerational transfers (pension benefits). This welfare improvement is more effective when migration is permanent instead of temporary or circular, skilled rather than unskilled (abstracting from brain-drain concerns that have been analysed in a previous working package of the GO-EuroMed Project).

Still, the overall assessment of the welfare improvement of migration needs further research. Our model of international transfers has to be calibrated on real data to provide more (unambiguous) results. We also have to relax too restrictive assumptions. For example, we have assumed perfect capital mobility which leads to a unique rate of return in both the less developed region (MPCs) and the developed one (EU). This assumption should be amended, either by assuming imperfect capital mobility or uncertainty leading to a risk premium in interest rates. Moreover we have considered only skilled migration from MPCs to EU, but this assumption clearly limits the strength of our argument.

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