

**THE DEMOGRAPHY OF EUROPE, ECA AND MENA COUNTRIES,  
2000-2050  
(Rapporto per la World Bank, Ottobre 2005)**

*Introduction*

One of the major demographic discontinuities in the world cuts through the Mediterranean region and the Black Sea. To the North, the European countries, including Russia – an area with low or negative natural growth, extremely low fertility and (almost everywhere) high expectation of life. To the South, growth is still high, the birth rate is moderate-to-high, survival well behind the western patterns. North of the divide the population age structure is old, while it is young south of it, and the gap between the two areas in terms of growth and structure is destined to become larger in the coming years. North-South and East-West migration pressures have been building up during the past two or three decades, constrained by restrictive policies enacted everywhere in Europe. These trends have many implications, for society and for the economy, one of the most relevant being the diverging patterns of change of the labor supply. In the European countries the population in working age – in the absence of migration flows – will soon decline. Over the next two decades, the aggregate decline will be the consequence of a rapid fall of the younger age groups, only partially compensated by the increase of the more mature ones. Over the same period of time, the population in working age will increase by a considerable amount south of the Mediterranean divide, so that the demographic component of push-pull forces moving international migration will become more powerful. However, in most European countries, labor force participation rates are relatively low, particularly among women of all ages and among men above age 50. There is a wide consensus that adequate policies could lead to substantial increases in participation rates, thus reducing possible labor force shortfalls.

This paper has three main objectives. In the first place, the recent demographic trends of the area will be presented, and their implications for the future discussed. In

the second place, given consensus assumptions regarding the future development of fertility and mortality, an analysis will be made of population trends up to mid-century, with a particular emphasis on the population in working age. Finally, the possible evolution of the labor force will be discussed in the light of different policy scenarios, allowing a more informed discussion as to migration trends in the area. The main conclusion is that only under a very courageous, innovative and radical scenario – which is unlikely to happen – would Europe keep a more or less stationary labor supply before 2050; on the other hand, under a “business as usual scenario” the labor force stock in 2050 would be smaller than in 2005 by about one third. South of the Mediterranean divide, the demographic buoyancy is such, that labor supply is bound to increase by more than two thirds, no matter what the policy scenario is.

#### *Past population trends and expectations for the future*

The area comprising Europe (including Russia), the Middle East and North African regions, accounts for about one fifth of the world population. The 60-odd countries form an extremely wide spectrum of social, economic and demographic situations. Under the demographic profile, the area includes populations where fertility control is still absent and populations where the majority of women terminate their reproductive life childless or with an only child. A lesser – although considerable- variation can be found for mortality, and countries with an expectation of life at birth below 60 coexist with others where it is close to 80. This variation in fertility and mortality – and their dynamic in past decades - is reflected in the variation of the age structure, the median age being as low as 15 and as high as 45. Finally, future population change depends heavily on the current age structure of the population. All this said, we must acknowledge that a significant process of convergence among sub-areas is on its way. This process may be recognized in figures 1 and 2 where TFR (total fertility rate, or the mean number of children per woman over the lifetime) and  $e(0)$  (life expectancy at birth) are plotted from 1950 to

2005 for six significant sub-areas (Eu-25, Eastern and central Europe, Russia, East Mediterranean, South Mediterranean, Gulf States). Fertility decline in the three less developed areas starts in the 70s, declining from a very high TFR around 7 to a current TFR between 2.5 and 3.5 – more or less where Europe was in the ‘50s and ‘60s. Europe’s fertility seems to have bottomed out at around 1.5 and there are signs of a slight rebound. As for life expectancy, the three less developed areas have now reached the levels of Eastern and Central Europe, while EU-25 conserves a sizeable lead over the group, and Russia has declined way below it.

Although a process of convergence is on its way, differences between countries and areas are still very relevant. A further discussion is useful in order to understand the possible future scenarios. The literature on Europe is abundant and based on a variety of surveys and on a rich official database: a concise review of the situation is sufficient for our purposes.

During the last three or four decades, change in Europe has been continuous and unidirectional: natural growth (birth minus death rates) has gradually declined, and this trend has been compensated by a positive net immigration. Table 1 reports birth, death, and growth rates (natural, migratory and total) for the five major European countries representing two thirds of EU-25: natural growth has declined and in two out five (Germany and Italy) is negative by the end of the century (a third country, Spain, has now joined them); migration rates that were negative in three countries out of five in 1970-75, are now positive in all of them. During the decade of the 70s, the five “major” had a total net immigration of 1.8 million, that increased to 2.9 million in the 80s and to 7.8 million in the 90s. The excess of births over deaths, equal to 12 million in the decade of the 70s, was only 2 million during the 90s.

Mortality is supposed to continue its declining course at mature and old ages, and there is a consensus that expectation of life will continue to rise. The UN projections medium variant (United Nations 2005) anticipates an increase of  $e(0)$ , both sexes, to about 85 in 2050 for EU-25. However there are several factors of

uncertainty. First, the progress of survival at old ages depends on the universal accessibility to a highly sophisticated health system. Since health spending is increasing as a share of GDP almost everywhere, and there is a pressure to shift part of the burden on the private sector, this might increase inequalities among individuals and groups and may have a negative effect on further progress of survival. Secondly, it is uncertain how fast Russia (now with an  $e(0)$  at 65, 10 to 15 years below the level of western countries)– and part of eastern Europe - might reverse the negative trend of the last decades. Third, the impact of AIDS/HIV, in this area, may further delay convergence of survival with the rest of Europe. So, although mortality is thought to be a relatively stable and problem-free component of projections, deviations from commonly expected trends may emerge and affect the age composition of the population. European fertility is everywhere below replacement: there is a tepid consensus on the likelihood of a recovery in EU 25+3 from the current TFR of 1.4-1.5 to higher levels. The rationale for this expectation is that a continuous increase in the age at childbearing in the last two or three decades has depressed period TFR, but that there are signs that this trend has stopped and might be inverted: this would account for a possible recovery of 2 to 3 decimal points over the coming decades, bringing TFR in line with the fertility of the cohorts born in the late '60s and early '70s. Many think also that the wide gap between the expectations and the realization of young couples in terms of family size (expectations of a mean family size fractionally higher than 2, against a cohort fertility 4 or 5 decimal points below) might be narrowed through appropriate policies. Governments are gradually realizing the negative impact on the economy and on society of a prolonged low fertility, and there is a pressure for more fertility friendly policies. The UN projections reflect this consensus and hypothesize a fertility increase from less than 1.5 in 2005 to over 1,8 in 2050. For Eastern and Central European countries and Russia, where the fertility fall has been fast and dramatic, and is a consequence of the abrupt end of a social system rather than of the gradual consolidation of social change, projections assuming a recovery of fertility rely on less firm grounds.

South of the Mediterranean divide, birth and death rates are declining rapidly, but natural growth, although lower than in the early 70s, is still close to 2 percent per year. Table 2 reports the data for the six major MENA countries (altogether representing close to two thirds of the population of the area): death rates are close to a minimum (increase in survival will be offset by the ageing process), and birth rates have been declining very fast, but natural rates of growth are still included between 1.4 percent per year (Iran) and 2.6 (Syria). Data on migration are of poor quality; estimates of net migration credit Egypt with a net outflow of about 2 million people over the period 1980-2000; Morocco has lost 0,8 million, Iran 0,5, Algeria 0,2, while Turkey is credited with a net inflow of about 0,6 million.

Figures 3, 4 and 5 give a synthetic illustration of the relations between fertility (TFR) and mortality in 1950-55, 1970-75 and 2000-05 for all MENA countries. In 1950-55, the association is clearly negative: TFR was comprised between 3 and 8 and  $e(o)$  between 35 and 65. The association is also clearly negative in 1970-75: TFR is still (mostly) between 3 and 8, but countries are far more compressed as far as  $e(o)$  is concerned. In 2000-05 the fertility-mortality association is almost lost, sign that for the future, mortality levels (easier to project) cannot be used as predictors of fertility. This latter seems to be influenced by factors other than those that condition mortality: culture and policies play an important role. Convergence among countries has been stronger for mortality than for fertility. Given the nature of the factors that affect mortality – and particularly child and infant mortality – that depend also on a gradual and cumulative improvement of health systems and improved individual behaviors, it is to be expected that convergence will continue. Hill (2000) reporting on Arab countries wrote “major differences in infant and child mortality still exist across countries, but the decline in child mortality over the last 15 to 20 years has been rapid, particularly in the high mortality countries studied, resulting in a convergence of mortality levels”.

As for fertility, as we have seen above, the decline has been late, but fast. It has started later than in Eastern Asia or Latin America, but has proceeded at a

faster pace. The UN projections assume that the process of convergence will continue in the future: here below are the TFR as assessed for 2000-5, and projected to 2020-5 and 2045-50, for the major non EU countries:

	2000-5	2020-25	2040-45
Algeria	2,53	2,08	1,85
Egypt	3,29	2,42	1,94
Iran	2,12	1,85	1,85
Morocco	2,76	2,20	1,85
Turkey	2,46	2,03	1,85

In 2045-50, TFR of the 5 countries (with a population about two thirds of the MENA area) would be approximately the same than that of EU 25. DHS surveys have shown that total demand for contraception has increased almost everywhere and that a relatively small proportion of married women (10-15 percent) claims that their family planning needs are not satisfied in Egypt, Jordan and Turkey (Westoff 2001). Although policies in this area can be made more efficient, many believe that they may not have a decisive impact on the future course of fertility.

It is important here to focus on three points particularly relevant in MENA countries. First, the role of marriage. Until the '70s fertility was exceptionally high (TFR of 7 or more) not only for the absence of control within marriage, but also because of the very young age at marriage of women and the universality of the institution. Starting in the '70s, increasing education and a modicum of modernization have pushed up the age at marriage. In some countries (in the Arabian Peninsula) age at marriage remains unlegislated; in others (Egypt, Kuwait, West bank, Yemen) is 16 or less. Early marriage translates also in early childbearing, high total fertility, higher health risks for mothers and children. In general, early marriage has been found to decline "but there are still pockets of high prevalence of early marriage within all societies of the region" (DeJong et al., 2005). Table 3 shows the

median age at marriage for two cohorts of women, surveyed in the early 90s, 15 years apart (aged 25-29 and 40-44) in 10 Arab countries. The younger cohort shows a median age at marriage several years higher than the older cohort (up to 6 years for Algeria and Morocco), thus decreasing the fertile life span (very few children are born outside marriage). The proportion of women who remain unmarried is also increasing almost anywhere, although this is still only a few percentage points among women reaching age 50. More education and higher age at marriage are interpreted as firm signs of modernization and significant factors of empowerment of women, that enhance their ability to break the traditional predominance of men over women. Empowerment that, however, is still missing a third important step, or a massive increase of participation in the labor market.

Nuptiality is an important component of fertility, and an indicator of the degree of modernization of reproduction – but it is not the principal source of modernization of reproductive behaviors. One key to the future course of fertility is the analysis of differentials according to the educational level. Table 4 illustrates this aspect, following surveys carried out in the mid-90s. Women with a secondary level of education (or more) showed a fertility level below replacement in Turkey, Morocco and Tunisia. In the other countries their fertility was above replacement, but conspicuously lower than for illiterate or less educated women (Courbage, 2002). The rapid spread of education is expected to induce a growing number of women to further control their fertility, bringing down the birth rate. Third, and final, fertility tends to be lower in the urban areas than in the rural ones (table 5), and the increasing urbanization will combine its effects with the diffusion of education. Looking at the future, it is expected that increasing education will bring about further increases in the age at marriage, further control of fertility, more empowerment of women and, in turn, increasing participation in the labor force, consolidating the transition to low fertility. Now a caveat: these processes have taken place in the last decades, but not linearly (as in Egypt or Morocco) and not everywhere. In Egypt, for instance, fertility decline has been slow-paced and many have talked of a stalled fertility

transition: this slow-paced decline has become a matter of explicit government concern. Total fertility is about one birth per woman higher than in the other two MENA giants, Iran and Turkey.

So the vision that accepts a linear process of modernization of family relations and reproduction may be over optimistic. However the UN projections endorse this vision: all countries will achieve replacement or below replacement fertility before 2050; even such countries that still have a relatively high TFR in 2005, like Saudi Arabia (4,1) or Syria and Jordan (3,5 in 2005) are projected to be below replacement by 2040 at the latest. Historical experience in developed countries, as well as in developing ones, that have completed their transition to low fertility “indicates that once a fertility decline is underway it tends to continue without interruption until the replacement level of around two births per woman is reached....It is therefore plausible to assume that the same pattern of uninterrupted transition will be observed in developing countries in which the transition is still underway” (Bongaarts, 2005). Plausible, but not certain, as shown by the experience of a certain number of countries where the transition to low fertility has stalled midway to replacement level.

#### *Main population trends, 2005-2050*

In 2005, the population of Europe (including Russia) represented about 60 percent of the total area (table 6), but its share will decline to less than 43 percent by 2050, in the (unrealistic) absence of migration. Of particular interest is table 7 which shows percent population change by age group and region. Between 2005 and 2025, EU-25 will lose 22 percent of its 2005 population aged 20 to 39. This is the most productive, mobile, innovative age group, and this decline is compensated by a modest increase of the 40 to 65 age group. In absolute terms, EU-25 will lose annually 1.4 million people over the next twenty years, minimally compensated by an annual increase of .25 million people aged 40 to 65. Note that these variations are based on very robust estimates since the people involved are already born. Between



2025 and 2050 the 20 to 39 age group will decline by another 0.7 million annually (cohorts born between 2010 and 2030 – who will be aged between 20 and 40 in 2050 – will have “benefited” of a fertility recovery); no compensation will come from the age group 40 to 65, that will also lose 1.5 million people per year. Population 65 and over will increase (EU-25) 1.25million per year in 2005-2025, and 0.8 million per year between 2025 and 2050. Similar proportional changes will take place in East and Central Europe and in Russia. These changes, read against the abundant increase of the population in active age in poorer MENA countries, are the key to the discussion of future migration flows in the region.

Finally, structural changes in the area can be read in table 8. Given the hypotheses on fertility and mortality (based on the continuation of a convergence process across regions and countries), the necessary consequence is convergence of the age structure, with the necessary delay. The ratio of children to (potential) parents (RCP) and the turnover of young active population (ratio of the population 0-19 to the population 20 to 39, TYAP) in 2005 have a prospective value. As to the current situation (2005), children will not replace their parents, and the young (20-39) active population cannot be replaced by the population below age 20 in the European countries. The latter ratio shows that the shortage is close to 30 percent for EU-25 (35 percent for east and central Europe); for MENA countries there are surpluses comprised between 23 percent (South Mediterranean) and 47 percent (Gulf States). The validity of the ratio for 2025 depends on the fertility course for the next twenty years (for the UN projections, recovery in Europe, continuous declines elsewhere): European shortages and MENA surpluses, although at a lower level, will persist. The ratio of the old to the active population (65+/20-64, or ROAP) can be safely compared for 2005 and 2025 and, with the caution expressed above, for 2050. This is an indicator of the prospective social burden of the inactive population: for EU-25 it would increase by 50 percent between 2005 and 2025 (from 27 to 40%) and another 50 percent between 2025 and 2050 (from 40 to 61%). Compare this with the very low ratios of the Mediterranean (south and east) countries that, although growing, remain

about one third of the corresponding EU-25 ratios: 9 in 2005, 13 in 2025 and 26 in 2050.

Table 9 presents the ratios (RCP, TYAP, ROAP, see table 8) for 61 individual countries in 2005. Turnover of the young active population is the best indicator of future migration pressures. Among the large countries with 30 million inhabitants or more, Spain (60%), Italy (69%), Germany (77%) and Poland (78%) stand out as the ones with the strongest potential shortages of young actives during the next 20 years; United Kingdom and France are below, but close, to replacement (92%); Turkey (113%), Algeria (115%), Iran (117%), Morocco (122%) and Egypt (145%) are above replacement. As can be seen from figure 6, there is a very close relation between the ratio children/parents (a good proxy of TFR) and replacement levels of the young active population. On the other hand, figure 7 shows the close and inverse relationship between RYAP in 2005 and OAP in 2050, 45 years later. This means that the forces responsible for the social burden of old age at mid-century are already strongly embedded in the current levels of the turnover of the young active population. TYAP is a good predictor of what will happen almost half a century from now – under the zero migration assumption.

#### *Labor projections: assumptions*

In the coming decades, under the no-migration scenario, the population in active age will decline by a considerable amount in the entire area, EU25+3 as well as in Eastern and Central Europe, Russia included (table 7). The population 20 to 65 would shrink from 447 million in 2005 to 407 in 2025 and 316, in 2050: almost 30% over 45 years, a loss of about 3 million potential workers every passing year. By comparison, the population in active age of the United States now at 178 million, would remain unchanged over the same period. The decline would be about the same in the various sub-European regions. Moreover, between 2005 and 2025, the population in active age would also experience a considerable ageing process, as the

large cohorts born in the 50s, 60s and 70s move up the age structure. There is little doubt that a shrinking and ageing potential labor force calls for increasing potential migration flows, considering also that the population of the MENA countries will continue to increase. A step further in the understanding of future developments can be made examining the various options for labor force growth over the next half a century or so. In doing so, the analysis has been restricted to three areas: EU25+3; the other East and Central European countries, Russia excluded, and the MENA countries bordering on the Mediterranean. Russia has been omitted from the analysis, for various reasons, one of these being that its potential labor market extends to the Asian continent and beyond the MENA area. Other MENA countries (Iran, Iraq, Saudi Arabia being the largest ones) have also been omitted from the analysis since their migratory links with Europe are either weak or non-existent.

All over Europe, social change and public policies seem to determine an increasing pressure for more work all over the life cycle. In EU15, the general participation rate (labor force per 100 persons 15 to 64 years) has increased by four percentage points between 1993 and 2004. An intensification of labor is likely to happen in the future in terms of higher participation rates, delayed retirement and more hours worked. This section tries to capture the effects of the first two factors of the intensification process. Four “political” scenarios (plus a business as usual one) concerning participation rates, have been considered and applied to the UN population projections (no migration variant) in order to obtain labor force estimates for EU25+3 and Eastern Central European countries:

*Base Scenario, or Business as usual variant.*

Age specific participation rates, by gender, as estimated by ILO for 2010, are held constant over the entire period.

*Scenario I, or Highest current rates variant.*

Participation rates for each country converge to the highest current levels in Europe. Ranking the countries from the highest to the lowest levels of participation rates, “highest levels” are those of the countries that (pooled together) have at least 20

percent of the total EU-25 population. These include the UK, the Scandinavian and Baltic countries, Czech Republic, Slovakia and Switzerland (23% of the total EU25+3 population). It is assumed that all countries will converge, in 2050, to the "highest" 2005 levels. For 2025, a halfway adjustment of the national participation rates to the benchmark is assumed.

*Scenario II, or Zero-gender-difference variant.*

Assumes that the national female participation rates by age group fully adjust to the corresponding male ones until 2050; for 2025 a halfway adjustment of the national female participation rates to the male profile is assumed.

*Scenario III, or 10 years extension variant.* This variant allows for the transposition of the age profile of participation rates by ten years (for men and women). Current profiles are generally relatively flat between age 30 and 50, start declining after age 50, reaching extremely low levels after age 70. According to this variant, by 2050, a 10-years extension of the profile is achieved, with flat levels until age 60, followed by a decline bottoming after age 80.

*Scenario I+II+III, or combination variant.* Scenarios I, II and III are combined in such a way that highest participation rates in 2010 have been taken as 2050 benchmark for all countries (scenario I), and with no gender differences (scenario II); the transposition for 10 years of this profile (scenario) has than been obtained.

For the MENA Mediterranean countries, beside the business as usual scenario, a second one has been applied, implying convergence of participation rates to the combined profile of the European Mediterranean countries. The notion is that the former countries, that still have a considerable labor force in the primary sector, might follow the model of the countries of the opposite Mediterranean rim. Other scenarios, although possible, have not been considered, also in view of the relative weakness of labor force statistics in this area and – therefore – of our understanding of the ongoing trends. The scenarios are as follows:

*Base Scenario, or Business as usual variant.*

Age specific participation rates, by gender, as estimated by ILO for 2010, are held constant over the entire period.

*Scenario I, North Mediterranean countries variant.*

National participation rates, by gender and age, converge to the average of the 5 North Mediterranean countries: (Portugal, Spain, France, Italy and Greece). For 2025, a halfway adjustment is assumed.

*Labor projections: results*

The main results of the labor force projections for the three areas are shown in tables 10, 11 and 12: details by age and gender can be found in Appendix A, and for major individual countries in Appendix B. For each scenario, and for the three dates considered (2005, 2025 and 2050), a series of indicators is available: total labor force, relative and absolute variations, mean age of the labor force, percent females in the labor force and participation rates by age. Let us compare the Base Scenario (no change in participation rates) in the three areas: total labor force, in 2050, would be 29% lower than in 2005 in EU25+3; 37% lower in ECE; 81% higher in MENA-Mediterranean; the mean age of labor force would increase 2-3 years in the first two areas, 5 years in the third one. Due to the ageing process, the participation rate of the entire 15-74 age group would decline by 6 points in EU25+3, by 8 points in ECE, and by 2 points in MENA-Mediterranean countries. Combining EU25+3 and ECE, the European labor force would lose some 2 million people per year over 45 years, at a rate of -0,82% per year, while experiencing a further ageing process. Note also that the share of women in the labor force would either remain the same or decline slightly.

Let us now consider the alternative scenarios for EU25+3. Scenario I (Highest current rates), labor force hemorrhagic decline would be considerably reduced between 2005 and 2025 (with a total loss of 11 million), but would resume in the following 25 years (a further 32 million); mean age of the labor force would increase 3 years; overall participation rates (15-74) would increase 2 points, while the gain at

older age (60-74) would be 11 points; women in the labor force would account for 46 percent of the total in 2050. The conclusion is that, in the long run, the adoption of the “virtuous behavior” of United Kingdom, Scandinavian, Baltic & others selected countries would “buy time” but it would not be enough to stem a rapid general decline after 2025. Scenario II (zero gender-difference) is similar to Scenario I, in rationale and results. In rationale, because the benchmark countries of Scenario I are also those with the lowest gender differences in participation rates. Similar in results, because losses are moderate during the first 20 years (-14 million) but very large (-34 million) in the following 25. Note that, in comparison with scenario I, that the effect of an almost 50 percent share in total labor force in 2050 is compensated by a much lower increase of the participation rate at older ages.

Scenario III (10 years extension) yields, as expected, the “best” results: decline would be small (-4 million) between 2005 and 2025, but still important between 2025 and 2050 (-25 million). The implications of this scenario are the strong increase of participation rates at older ages (from 14% in 2005 to 51% in 2050) and a considerable ageing of the labor force (mean age from 39 to 45 years); the share of women on the total labor force would remain unchanged and relatively low.

Finally, Scenario I+II+III (combination variant) would allow an increase of the labor force in the first period (+19 million) and a decline in the following one (-11 million); in 2050 participation rates at older ages would reach 79%, the mean age of the labor force 47 years, and half the labor force would be women.

For Eastern and Central Europe the results can be seen in table 11, and they are very similar to those for EU25+3, except that the relative declines for Scenarios I, II and III are considerably larger. Note that even Scenario I+II+III would not prevent the aggregate labor force in 2050 to fall below the 2005 level.

A full discussion of the plausibility of the various scenarios cannot be made in this context. However, one should note that:

- a) Scenario I looks quite possible and, at least partially, coincides with the targets set by the EU;

- b) Same considerations are valid for Scenario II, although zero-gender differences might be difficult to achieve (particularly without a considerable effort on the part of the social protection system), also in view of a needed (but hypothetical) recovery of the birth rate.
- c) An extension of 10 years of the retirement age is, on theory, possible given the improvements in length and quality of survival. A little more than one person out of two – among those aged 60 to 75 years - would have to be at work under this scenario. This does not seem impossible to achieve. However it may be politically and socially very difficult to obtain: note that expectation of life at age 55 – currently at 25 years (both sexes) – is going to increase by less than 5 years over the next 45 years (according to the UN projections) against a stipulated extension of 10 years of the retirement age.
- d) The combination of the most favorable aspects of the three variants is clearly a pure abstract development, good only for illustrative purposes. Only in this event –but at the price of a considerable ageing process- European labor force would avoid decline. Note, however, that this would imply that, in 2050, 4 persons out of 5 (aged 60-74) would have to be at work. At the same date, one fourth of the total labor force would be above age 60.

Table 13 shows the aggregate results for the 6 major European countries: with the base scenario, all six would experience a decline of the aggregate labor force, included between –14% for France and –40% for Italy. France would show a modest increase with scenarios III and I and the UK with scenario III; the remaining 4 countries would experience a decline under the three scenarios (declines included between 17 and 30 %). Even with the combination of the three scenarios, Germany, Italy and Poland would experience a modest decline of the aggregate labor force.

In the MENA-Mediterranean countries, the buoyancy of demography is such, that labor force would be destined to a rapid increase under a plurality of not-absurd scenarios. Scenario I (north Mediterranean variant) yields the same results than the Base, business as usual, one (table 12). The explanation is that north-Mediterranean countries have, on average, participation rates higher than MENA countries below age 60, but much lower ones above that age (26% against 41% in 2005). If MENA countries conform to the patterns of the north-Mediterranean area, their participation rates will have to increase below age 55 and decrease above that age, with little variation in comparison to the Base Scenario. This is plausible: MENA countries still have a considerable proportion of their labor force engaged in agriculture, where participation rates are high. An increase of the secondary and tertiary sector, and a decline of the primary one, as it is likely to happen, would imply a decline of the aggregate participation rates at older ages.

Results for the 5 major countries of the region are shown in table 14, and the increase in the projected labor force reflects the stage of the demographic transition: relatively advanced in Turkey, followed by Algeria and Morocco; far behind in Egypt and Syria. Aggregate labor force in 2050 would be more than double the 2005 stock in Syria and Egypt; with scenario I, Turkey would have the smallest increase (less than 30 percent).

### *Conclusive remarks*

Current demographic trends and plausible future developments and projections, confirm that the population of Europe in working age – notwithstanding a possible future recovery of fertility – is bound to decline rapidly over the coming decades. Social and labor policies may attenuate the decline and in some areas – those with higher birth rates, like France, the UK, Scandinavia – may even keep the aggregate labor force at a more or less



stationary level. Elsewhere, labor force is destined to decline conspicuously and to age rapidly. The implications for international migration are evident, given the fact that labor supply is expected to increase in MENA countries at rate as high as 1.5% or more.

Further research may improve on the models employed here. Breakdown by sector of activity, in MENA countries – where the primary sector is still relevant – could provide further interesting evidence. Breakdown by educational level (a proxy for skills) could show the extent to which migratory pressures might build up in the highly educated and urbanized sectors of the sending countries

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