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**Population and development scenarios for EU neighbour countries in
the South and East Mediterranean region**

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countries in the South and East Mediterranean region

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Abstract

The European Neighborhood Policy (ENP) was created to reduce unemployment and income gaps between European Union (EU) countries and its neighbors, notably South and East Mediterranean countries (SEMCs). Realization of ENP objectives is influenced by demographic prospects and these have not been explored so far. This article presents four population and development scenarios for 11 SEMCs for the period 2010-2050. Focus is on working age population prospects, demographic dividend potential, and migration pressure in four migrant-sending SEMCs (Algeria, Morocco, Tunisia, Turkey) and five migrant-receiving EU countries (France, Germany, Italy, Netherlands, Spain), together constituting a distinct migration system. Prospects of working age population growth and demographic dividend potential in these countries vary considerably reflecting differences in scenario assumptions and demographic transition stage. Analysis of past population and economic data suggests that some migrant-sending countries, notably Turkey, are unlikely to fully capitalize on future rises of working age population shares which may lead to increases in unemployment and migration pressure. EU countries though are in an advanced stage of demographic transition experiencing working age population decline so that it becomes opportune to explore complementarity of labor forces, including identification of economic and cultural constraints. The plausibility of scenario results are discussed in light of Arab Spring related political upheaval in the region.

Introduction

In 2004, the European Neighborhood Policy (ENP) was developed by the European Commission (EC) to overcome income and welfare gaps between European Union (EU) countries and neighboring countries, notably countries in the South and East Mediterranean region (SEMCs). In 2008, the ENP was revamped with the launch of the Union for the Mediterranean (UfM). ENP and UfM policy goals are implementation of good governance practices in SEMCs, development of effective social and economic ties with the EU, and furthering economic growth (EC 2006). A total of sixteen countries are covered by ENP of which ten are SEMCs: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia (EC 2005, 2006a, 2012). Turkey is a SEMC but not an ENP country because it has an EU access perspective. The country is included because it is a key player in the political arena in the region, its culture and economy is intertwined with its ENP neighbors, it is home to the second largest population in the region, and it is country of origin of the largest non-EU born immigrant population (EC 2012a; Cornell et al. 2012; Fargues 2005a).

Realization of ENP en UfM goals is affected by current demographic conditions and future prospects in EU countries and SEMCs. These differ because they are at a different stage of demographic transition regarding the timing, speed and level of decline in fertility and mortality. In past decades, fertility in EU countries dropped from about 3 children in the 1960s to below replacement level (Total Fertility Rate (TFR) < 2.1 births per woman), and is now in the range of 1.3-1.9 births. Life expectancies have increased to about 79 years in 2010. Population compositions changed considerably. Shares of youth (<15 years old) decrease and shares of elderly (65+) increase, while working-age population shares (15-64 years old) are declining. EU population growth is stagnating and stood at 501 million in 2010. Shrinking populations in the working ages have to bear the costs of a rapidly ageing populations (Lutz and Scherbov 2004; Rees et al. 2012).

Most SEMCs though experience considerable population growth and were populated in 2010 by about 280 million people. Fertility declined from about 6 to 8 births per woman in the 1980s to levels in the range of 2 to 4 births in 2010, which, together with mostly young age structures implies that populations can be expected to continue growing in the decades to come. In all SEMCs, life expectancies increased and are, in most countries, at par with the current average EU level. While shares of youth are declining and shares of elderly remain relatively small and stable for some time in future, most SEMCs can expect working-age population shares to increase in the short term (UN 2011a; UNDIESA 2012; WHO 2011).

While the ENP and UfM policy framework reflects macro-level linkages between SEMC and EU populations, micro-level linkages are framed by international migration. Fargues (2005a) examined migration registers around the world. While acknowledging various types of shortcomings, he estimates that between 2000 and 2004 almost 8 million people born in SEMCs lived abroad. Of these, about 6 million live in EU countries. If children, born and raised in the EU, would be included the estimate would become about 11 million people. Most SEMC migrants in the EU originate from just four countries: 48% hail from the Maghreb (Algeria, Morocco, and Tunisia) and 46% from Turkey. They concentrate in the main urban areas of five EU countries. Most Algerian migrants (89%) live in France, while others mostly live in Germany and Spain. Similarly, most Tunisian migrants (73%) live in France, while Italy and Germany are home to most of the remaining Tunisian migrants. Many Moroccan migrants (44%) live in France, while Spain and Italy have also become important destination countries. About 75% of Turkish migrants live in Germany, and most of the remainder lives in France and The Netherlands (EC 2005; Fargues 2005a; Fargues 2005b).

In the past decades, in times of economic growth in the EU, international migration served as safety valve to economies in both regions. EU economic growth outperformed working age population growth leading to, mostly low-skill, labor shortages while SEMCs faced the opposite situation leading to increased un- and underemployment and emigration pressure. International labor migration

resolved to some extent these labor market imbalances in both regions. Over time, migrant networks emerged comprising relatives and friends in countries of origin and destination, providing an infrastructure to channel remittances, information and assistance, and facilitating new types of migration such as family reunification and circular migration. Family reunification led to immigration of mostly low educated spouses so that SEMC migrant families are generally overrepresented in low income groups (e.g. Dalen, et al., 2005; Fokkema and De Haas, 2011). As such, the aforementioned four migrant sending (MT4) and five migrant receiving (EU5) countries constitute a distinct migration system (Massey et al. 1993; Zlotnik 1992).

While various scenario studies explore the demographic future of EU populations with respect to working-age population growth, economic consequences, and the role of international labor migration in coping with expected labor force shortages (e.g. EC 2007a; Hilderink 2004; Lutz and Scherbov 2004; Rees et al. 2012), such kind of studies for EU neighbor countries are absent. This article aims to contribute filling this gap by exploring (1) what the demographic future of SEMC populations is should they come to live in contexts with entirely different economic, political and social conditions, and (2) what the consequences of working age population prospects are for economic production and migration pressure, with particular reference to countries comprising the MT4-EU5 migration system.

In the following section we discuss about population and development scenarios for SEMCs and about the relationship between population and economic growth. The section that follows describes data and methodological issues and in the result section we present scenarios of (working age) population shares for the period 2010-2050 and we examine whether prospects might be demographic dividend or penalty to economies and what this means for migration pressure. In the concluding section we reflect about the scenarios, implications and plausibility of the scenarios are addressed.

Conceptualization

Population and development scenarios

Two obvious pillars for building a general scenario framework are economic development level and level of EU-SEMC political cooperation. Economic development level is interpreted as total wealth of institutions and households. Figure 1 illustrates how these pillars are used to derive eight potential scenarios. To work out eight different economic-political scenarios is unpractical. Introducing certain restrictions reduces the number of scenarios to four (S1-S4):

- a. One scenario is the reference scenario and reflects a continuation of conditions that prevailed before the start of the Arab Spring protests in 2010.
- b. Future increase in total wealth cannot co-exist or be achieved without interregional or regional cooperation.
- c. Future international economic-political cooperation options of SEMCs are limited to two, mutually exclusive, forms: (1) cooperation with the EU or (2) cooperation with other countries in the region (a Pan-Arab political and economic system akin to the EU).

< Figure 1 about here >

The scenarios were labeled Business-as-Usual (BAU) scenario (S1), Integration scenario (S2), Alliance scenario (S3), Stress scenario (S4). BAU and Stress scenarios represent unfavorable outlooks while the Integration and Alliance scenarios represent favorable ones (Ayadi and Sessa, 2011).

The *BAU scenario* (S1) is the reference scenario and assumes that, between 2010 and 2015, all Arab Spring and EU financial crises related upheavals and consequences will have settled to levels on trend lines that would have emerged in the absence of these events. This means a continuation of decrease

in total wealth which is partly attributable to the ongoing *ad hoc* style of SEMC-EU cooperation that fails to improve political, security, economic, socio-cultural and environmental conditions. The scenario assumes that the EU also pays a price for not expanding EU-membership beyond its 27 Member States by foregoing certain economic and political benefits. Overall, the scenario assumes that, in the 2010-2050 periods, the economic influence of the EU in the Middle East continues to decline. On the political front, the Israel-Palestine conflict will not be resolved constraining economic growth in both regions as well as political stability in SEMCs. The scenario assumes no further breakthrough political, social, technological, and cultural changes and that difference between SEMCs and with EU27 will persist in future.

In terms of demographic behavior, no major changes are assumed to take place. More specifically, the BAU scenario assumes that annual *net* number of migrants remains more or less constant during the whole of the period 2010-2050. All SEMCs, except Israel, experience negative net migration with more people emigrating than immigrating. For the period 2010-2015 figures will be somewhat higher to account for higher emigration in the wake of Arab Spring events. Regarding fertility prospects, this scenario assumes a continuation of past trends in fertility rates in SEMCs. This means that fertility rates for some countries will continue to decline even further, while rates of some other countries may increase. Overall, the speed of fertility decline will slow down because it will take time before institutions (men, kinship group, community) have lowered family size preferences and individual women gained more power to decide about numbers of children to have. By 2050, the average of country-specific TFRs will have settled at replacement level fertility. Improvements in life expectancies will continue but progress will be less than in the more favorable scenarios.

The *Integration scenario* (S2) assumes that SEMCs become EU Member States by 2020. The expanded EU becomes highly integrated at political, economic, social and military levels, whereby total wealth is increasing and where prevalence of poverty in SEMCs improves to the current average EU27 level. As institutional and governance adaptations in SEMCs take time to develop, these countries will only start matching EU27 economic growth rates by 2030. The precondition for EU membership, solution of the Israel-Palestine conflict, is met during the 2015-2020 period, bringing political stability to the region, boosting the investment climate, cultural tolerance and cooperation. By 2050, the new EU38 has become one of three key powers in the world, alongside the USA and China.

During the first phase of EU38 (2010-2030) economic growth, emigration from SEMCs is expected to increase because of labor demand increases in the ageing and shrinking EU27 labor markets, and to outnumber immigration and return migrants. During the second economic growth phase (2030-2050) SEMCs are flourishing. Emigration is declining as finding jobs locally becomes easier. Return migration increases including immigration of children of emigrants born and raised in EU27 countries who seek to explore a future in parent's country of origin. The scenario foresees increased intercultural contact though and adoption of western-style 'individualism' in SEMCs leading to a reversal of the low status, low labor force participation and low decision-making power of women, among others (World Bank 2011). The latter leads to more rapid fertility decline than in the BAU scenario, and by 2050 to fertility rates that have converged to the current average EU27 level. The same economic, social, cultural and psychosocial factors explaining European fertility rates are also perceived to determine rates in SEMC populations. For instance, higher enrolment and attainment rates of women in higher education is expected to lead to debates and changes in the role and status of women in society and households. Parallel to this, the increase in wealth status of households also increases future material welfare aspirations of couples, including a high quality life for their children. Couples both have to work to realize such aspirations and this may require them to postpone pregnancies or lower fertility aspirations. As health infrastructure and services will improve significantly, currently high unmet need of family planning in several SEMCs will decline, also contributing to lower fertility rates (UNFPA 2012). These improvements also positively affect infant and childhood mortality rates, leading to higher increases in life expectancies than in the unfavorable scenarios. However, the downside of this scenario is that SEMC populations will increasingly adopt

unhealthy western-style food habits and lifestyles leading to increases in obesity and related welfare diseases and to higher mortality at older ages.

The *Alliance scenario* (S3) foresees that SEMCs step-up collaboration with other countries in the Middle East (e.g. Iraq, Saudi Arabian, Gulf states) to form a single Pan-Arab Union akin to the EU27. Strategic economic and political alliances are formed with the EU27 contributing to economic prosperity and political stability in both regions. According to this scenario, the Israeli-Palestinian conflict is also assumed to be resolved. However, peace results from a somewhat different political process than in scenario S2 as in this scenario the weight of political influence of Arab states in reaching the peace agreement is higher than in scenario S2. Main point is that a peace solution is reached that removes barriers to internal (south-south) market cooperation and intercultural contact. Eventually, the Mediterranean region emerges as a peaceful and inspiring meeting place with a good investment climate. Contrary to the situation in the Integration scenario, establishment and maturation of an effective Pan-Arab Union takes more time and investments only really start amortizing after 2020.

Initially emigration from several SEMCs is expected to increase with a focus on employment in Gulf States rather than EU countries. During the 2015 period, emigration is expected to level off as economies increasingly provide jobs to its citizens while, later, return migration and immigration from other countries in the region increases, such as from Sub-Saharan African countries. By 2050, it is expected that numbers emigrating and immigrating will be in balance. This scenario foresees two main forces affecting fertility. One is that economic growth will lead to improvements in quality of and access to health services so that the current high unmet need for family planning reduces to zero. The other is that western-style individualism will turn out to have much less effect on the lives of people than in the Integration scenario. Traditional family norms and values largely remain intact and influence of the larger social group and concomitant control mechanisms make that family size preferences, on average, are somewhat higher than in the integration scenario. However, traditions are under pressure as economic growth leads to labor force shortages so that women are increasingly stimulated to participate. Governments increasingly encourage parents to also invest in education their daughters leading to higher levels of educational attainment and occupational skills of women. The currently very low labor force participation rates of women in Arab countries (ILO 2012) are expected to increase rapidly. We assume that the net outcome of both forces is that fertility levels decline, but that the speed of decline is slower than assumed in the integration scenario (S2), so that, by 2050, fertility levels in this scenario will have settled at a somewhat higher level than in the integration scenario (S2). Health status and life expectancy improvements are expected to be better in than in the Integration scenario because adverse western lifestyles and health behavior are not adopted widely due to presence of a strong tradition of social control. Overall, and in contrast to the integration scenario, individuals remain more embedded in social groups and receive more protection in situations of stress, ill-health and need.

The *Stress scenario* (S4) foresees that the Mediterranean Sea becomes a dividing line between two opposing and competing cultures. Within the Arab region, the Israeli-Palestinian conflict lingers on, periodically escalates, and deepens social, economic, cultural and political divides between Arab and Jews in the region, and between Muslim communities and Christians in EU countries. Though SEMCs pay the highest price in terms of decrease of prosperity, security and well-being, EU countries will suffer from negative spill-over. Enterprises find it increasingly difficult to sustain their business leading to a decrease in jobs. Governments, employer to about 45% of all people employed and generous in terms of subsidies and salaries in exchange of political support (World Bank 2011), see their tax-base and income declining so that they are forced to lay off a large share of employees, who cannot be absorbed by the shrinking market sector, leading to increases in unemployment, poverty, social and political unrest, and further deterioration of the investment climate.

SEMC emigrate in large numbers in search of income opportunities, especially those who already have relatives and friends living abroad and receive assistance from them. Other emigrants venture

into the EU and Gulf States as illegal immigrants where they eventually become exploited and live as outcasts. Some will be recovered by jihad and other terrorists organizations that prosper and politically destabilize the region. As EU economies suffer from shrinking economies and high unemployment, attitudes towards immigrants become even more negative than they are today. This scenario foresees that emigration will rapidly increase to historical high levels such as in the period shortly after gaining independence from colonial powers, or after establishment of new political structures such as the State of Israel (1948) in Mandatory Palestine. Return migration practically comes to a halt, while immigration mainly consists of transit migrants from Sub-Saharan African countries on their way to enter, mostly as illegal immigrants, EU destinations. Only well-educated citizens overcome restrictive EU entry measures and succeed in finding a paid job, and, later, reunite with their family in countries of destination. Despite stagnation in EU economic growth, ageing and shrinking working age populations permit immigrants to find a job. This scenario also foresees a deterioration of health and family planning infrastructure and user fees rising leading to couples getting more children than they actually want. Stagnation of economic growth also proves to be detrimental to female labor force participation and their wages, resulting in more women staying at home, losing independence and decision-making power, leading to women getting more children than they would otherwise get. Parents invest less of scarce resources in daughters leading to higher future fertility rates as uneducated women bear more children than educated ones. Overall, this scenario foresees that fertility decline comes to a halt and even increases in some countries so that TFR eventually settles at above replacement level.

Deteriorating health infrastructure leads to higher morbidity and mortality. Furthermore, due to large-scale emigration traditional social group support systems break down and local communities start disintegrating, leading to higher poverty levels and a deterioration of health status, notably among vulnerable groups such as pregnant women and children. Infant-, childhood- and maternal mortality rates are increasing leading to stagnation or even decreases in life expectancy. We expect that, in times of stress, the tendency of people of this region is that they flock together and provide support to each other leading to a revival of social support systems within descent groups, clans, and neighborhoods, and that this will have a positive effect on mortality rates in vulnerable groups. Overall, the stress scenario foresees that the net effect is that life expectancies will still increase, but at a much slower pace than in the other scenarios.

Operationalization

The above descriptive scenarios for migration, fertility and mortality behavior require operationalization.

International migration. The UN Medium Variant net migration assumptions (UN 2011b; UN 2011c) served as reference. For the BAU-scenario 2010-2015 estimates were adapted to account for increased outmigration due to Arab Spring-related upheavals in Tunisia, Libya, Egypt, and Syria. By 2015 all those who fled are assumed to have returned home. The Integration scenario assumes that, during the period 2010-2030, countries will first experience emigration to increase rapidly until 2020, while immigration remains constant. After 2020 emigration will decrease so that by 2030 emigration and immigration are in balance. This is because the expansion of the EU with SEMC countries will initially make it very attractive for SEMC citizens to migrate to EU countries for work and income as it takes time for SEMCs to generate sufficient employment for their own citizens. After successful economic take-off, by 2030, numbers emigrating will increasingly start outnumbering numbers immigrating so that, by 2050, the historically highest (positive) net migration numbers is reached since 1950. The Alliance scenario assumes a similar pattern of change in emigration and immigration but initial numbers emigrating are only half the numbers assumed in the Integration scenario while it also takes longer for emigration and immigration to be in balance: 2050 instead of 2030. The Stress scenario assumes that emigration quickly reaches historically high (negative) net migration numbers during the whole of the period 2010-2050 (UN 2011b). All scenarios apply model age-schedules (Rogers and Castro 1981; UN 1992) to allocate total net migration numbers to age and sex groups.

Fertility. The Integration scenario featured as reference scenario. It assumes the most rapid fertility decline. By 2050, fertility levels are assumed to resemble the current EU average TFR of 1.5. Under the BAU scenario we assume that fertility decline is less rapid and that TFR settles at replacement level (2.1 children) by 2050. Compared to these two scenarios, the Alliance scenario takes on an intermediate position, so that the assumption was made that the TFR, by 2050, will have settled at an intermediate value of 1.8 children. The Stress scenario leads to the lowest average fertility decline and for some SEMCs fertility even increases. It was decided to add the 0.3 difference between TFRs of the previous scenarios to the replacement level figure of the BAU scenario, so that Stress scenario assumes fertility to settle at 2.4 children by 2050. All scenarios assume linear change of TFRs while age patterns of fertility conform to those underlying the 2010-2050 UN medium variant projections (UN, 2011c).

Mortality. Oeppen and Vaupel (2010) examined for many countries annual life expectancy values and found that the highest observed life expectancies increased on average by 2.5 years per decade (i.e. 0.250 per annum, Table 2). The Alliance scenario assumes the highest improvements in mortality conditions, so we adopted this value to estimate life expectancies during the period 2010-2050. The Integration scenario, the second favorable scenario, assumes a rate of change in life expectancy of 75 per cent of the Oeppen & Vaupel estimate, while the BAU- and Stress scenarios we assume values of 50 per cent and 25 per cent of that estimate. The WHO 2008 age pattern of mortality was assumed in all scenarios for the whole of the period (WHO 2011).

In the BAU- and Stress scenarios economic and political cooperation between countries is low while in the Integration and Alliance scenarios cooperation is high. Therefore, fertility and mortality assumptions are such that the BAU- and Stress scenarios assume that relative differences between countries will be consolidated while the Integration and Alliance scenarios assume that differences disappear and converged by 2050 to an SEMC regional average.

Population and economic growth

The relationship between working-age population and economic production can be summarized as follows:

$$\frac{GDP}{P} = \left[\frac{GDP}{W} \times \left(\frac{W}{LF} \times \frac{LF}{WAP} \right) \right] \times \frac{WAP}{P}$$

Where,

- GDP/P = gross domestic product per capita
- GDP/W = gross domestic product per employed person (proxy for labor productivity)
- W/LF = share of employed persons in labor force (the employed + employment seekers)
- LF/WAP = labor force share of working age population (labor force participation rate)
- W/LF x LF/WAP = share of employed people in working-age population (employment rate)
- WAP/P = share of working-age population in the total population

The working age population (WAP) is often defined to comprise persons in the age range 15-64 years old. Given fixed output per worker (GDP/W), employment rate (W/LF) and labor force participation rate (LF/WAP), an increase of the working-age population share (WAP/P) leads to GDP per capita (GDP/P) growth. In exploring the potential for economic growth and policies it is important to examine the rise and fall of WAP shares.

During a first stage demographic transition, from high to low fertility and mortality rates, the share of youth (<15 years old) in a population decreases while WAP shares rise. Potentially, the net effect is that the average costs of caring and raising children and youth fall because costs are borne by a larger

number of workers. Rising WAP shares are considered *potential* demographic dividend. Whether this potential turns out real depends on whether the working age population growth can be absorbed by the economy. If not this will lead to rising unemployment rates (i.e. decline in W/LF) or lower participation rates (decline in LF/WAP), contributing to social unrest and migration pressure. In a second stage of demographic transition, when mortality and fertility rates and youth shares hover at low levels, the oldest age groups become more populated with persons no longer working. Depending on accumulated assets during the life course these elderly persons are more or less dependent on those who work for survival and care. During this second stage, WAP shares are falling reflecting rising economic dependency of elderly in an ageing population (Bloom and Canning 2001; Lee and Mason 2006; Mason 2005).

Data and Method

Population data such as age-sex distributions, times-series fertility, mortality, and migration indicators were derived from databases of specialized UN agencies and Eurostat (Eurostat 2012; UN 2011a; UN 2011b; UNDIESA 2012; WHO 2011). Economic and labor market data were derived from the ILO database (ILO 2012).

The population scenarios in this article use the same computational method as conventional population projections do (i.e. Cohort Component Projection Method, see: Preston, Heuveline and Guillot 2001). Scenarios differ from projections in the way assumptions about drivers of population change are formulated. Projections derive assumptions primarily from examining trends in time-series of indicators fertility, mortality, and migration, and they assume that the underlying economic-political context of demographic behavior does not alter during the projection period. Scenarios first construct different future economic-political contexts and then derive assumptions of indicators of fertility, mortality and migration consistent with these future contexts. Scenarios are more realistic and more transparent predictions of future population trends as linkages between context, drivers and indicators of demographic behavior are explicitly accounted for.

Scenario results

Table 1 presents main results of the population and development scenarios. Depending on the scenario, SEMC populations, totaling 280 million people in 2010, are expected to grow with a number between 116 and 145 million people. Most growth (60%) will have occurred before 2030 and in the two countries that dominate the region's population: Egypt and Turkey. A considerable part of regional population growth comes from growth in working age populations, which will increase with 69 to 93 million persons, from 183 million in 2010 to a number between 252 and 276 million people.

< Table 1 about here >

Regarding the MT4-EU5 migration system, the migrant-sending countries of Morocco, Algeria, Tunisia, and Turkey comprised about 151 million people in 2010. Scenarios predict a total growth between 45 (Stress scenario) and 58 million (Alliance scenario) people. Their working age populations, comprising 102 million persons in 2010, are expected to grow with 19 million to 23 million during the 2010-2030 period, and with another 3 to 7 million persons during the 2030-2050 period, resulting in a total increase between 22 and 30 million persons.

In comparison, EU27 population growth increases only from 501 to 524 million people while practically all growth will be realized by 2030. The majority (55%) of the EU population lives in the EU5 countries of France, Germany, Italy, The Netherlands and Spain, and these are destination countries for most MT4 migrants. Although general population in EU5 countries is expected to increase with another 11 million until 2030, after which a decline sets in, the population in the

working ages has already started declining. The EU5 working age populations of 178 million in 2010 is expected to continue declining until 2030 with 7 million persons and with another 14 million during the 2030-2050 period, leading to an expected total decline of 21 million. Working age population decline during the 2010-2030 period is largest in Germany and The Netherlands (-15 million and -1 million, respectively), while Italy and Spain only start experiencing a decline during the 2035-2050 period, totaling -3 and -2 million persons, respectively. The size of the French working age population is expected to remain remarkably stable around the 2010 level of 41.9 million during the whole of the 2010-2050 period (Eurostat 2012). This makes France an outlier in the EU5 context which is partly due to long term stable and relatively high fertility rates which are close to replacement fertility (TFR of 1.9 children). Postponement of fertility, decline in marriage and high birth control in France is similar to other EU countries but through a unique family policy, introduced after WWII, which combines measures facilitating couples to combine work and child rearing with fostering a positive attitude towards two- or three child families (Toulemon et al. 2008).

To summarize, regarding countries constituting the MT4-EU5 migration system, working age populations in MT4 countries are expected to increase from 102 million persons in 2010 with a figure between 22 to 30 million during the 2010-2050 period. Conversely, working age populations in EU countries are expected to decrease with 21 million persons during that period, mainly in Germany.

These opposite demographic prospects in SEMCs and EU5 countries bring us to the question what the consequences are for economic production and migration pressure. Figure 2 presents graphs of predicted working age population shares for EU5 countries (combined), MT4 countries and remaining SEMCs for the period 2010-2050.

< Figure 2 about here >

A first glance over the graphs reveals that countries differ widely in patterns of change in predicted working age population shares (i.e. WAP/P). Such differences reflect first and foremost differences in current *shapes* of age distributions and predicted changes therein. The majority of SEMCs experience a rise in WAP shares and they are expected to peak around 70 per cent, or 2.3 workers (.7/3) sustaining 1 dependent persons below age 15 or above age 65. SEMCs differ widely regarding *when* WAP shares reach peak levels and for how many years WAP shares remain at high levels. During this 'window of opportunity' economies must try to take economic advantage of this once-in-a-lifetime-chance of ideal demographic conditions: a combination of a large pool of potential workers *and* a small number of people in the dependent ages.

The graphs also show that in all SEMCs the Integration scenario (S2) is associated with highest levels of predicted WAP shares, while the S3 scenario is frequently second best. This is consistent with the expectation that favorable economic, social and political conditions defining the scenarios result in favorable demographic conditions for WAP shares to increase more than in the more pessimistic scenarios, such as the Stress scenario (S4). In countries with a relatively small population and where, historically speaking, the impact of emigration (Palestine) or immigration (Israel) is large on population growth, long term differences between scenarios are larger because of the long term cumulative effect of the international migration assumption. The general assumption for all countries was that that the volume of future *net* international migration for scenarios S2, S3 and S4 is related to a country-specific historically high figure (e.g. zero emigration vs. exceptionally high immigration of diaspora Jews shortly after establishment of the state of Israel in 1948 and dismantling of the Soviet Union in 1991; the large numbers of Palestinian refugees leaving Palestine after the establishment of Israel, and thereafter during subsequent Arab-Israel wars).

Most scenarios predict that WAP shares of several SMECs (Egypt, Palestine, Jordan, Syria) will be rising during the whole or most of the 2010-2050 period, while for other SEMCs (Algeria, Morocco,

Turkey, Libya) WAP shares are predicted to continue rising until about 2035 after which decline sets in. Tunisia and Lebanon are the odd ones out. Due to demographic transition starting earlier in these countries WAP shares already reached (Tunisia) or are about to reach (Lebanon) a peak level of almost 70%.

Furthermore, some SEMCs have a large window of opportunity of several decades to cash in the potential demographic dividend of high WAP rates (Turkey, Morocco, Lebanon), while for other countries (Libya, Algeria) the window of opportunity is much shorter. Regarding countries comprising the MT4-EU5 migration system, most scenarios expect that Turkey, Morocco and Algeria experience high or increasing WAP shares for 20 years (Turkey) or 35 years (Morocco, Algeria). Tunisian WAP shares are in a mostly downward trend, except during a 10-year window of opportunity between 2025 and 2035 of rising WAP shares. EU5 countries are in a more advanced stage of demographic transition than MT 4 countries and several countries (e.g. Germany) are ageing rapidly. The EU5 graph in Figure 2 clearly exhibits a large contrast with those of MT4 (and other SEMC) neighbor countries. Prospects are that WAP shares are expected to decline with 10 percentage points from about 66% in 2010 to 56% in 2050, adding a demographic constraint to future growth of economic production. Whereas declines in WAP *numbers* in EU5 countries is dominated by declines in Germany, declines in WAP *shares* are considerable in all EU5 countries during the 2010-2050 period and are in the range of 7.4 (France) and 11.5 (Spain) percentage points. In the short term (2010-2030), decline is highest in The Netherlands (7.3) and lowest in Italy (3.8) (Eurostat, 2012).

Thus, from a demographic point of view conditions in MT4 countries (except Tunisia), and most other SEMCs, are potentially favorable for growth of economic production because WAP shares are still expected to rise. The likelihood of countries turning WAP shares into demographic dividend in the future depends on how successful countries are in maintaining or increasing current employment and participation rates (W/WAP), and labor productivity (GDP/W). If unsuccessful, migration pressure may rise, in particular in the direction of EU5 countries due to existing migrant networks. To explore this, Table 2 shows how MT4 countries, other SEMCs for which data were available, and EU5 countries fared between 2000 and 2010 in terms of the components of the aforementioned multiplicative model about the relationship between population and economic growth.

<Table 2 about here>

The last column (WAP/P) shows that in all SEMCs WAP shares increased, with large differences between countries in the range of 1 (Israel) to 11 (Algeria) percentage points. The second column shows that all countries, except Syria, experienced growth of GDP per capita, in the range of 38 (Turkey) and 48 (Algeria) percentage points. Regarding the MT4 countries, the potential economic advantage offered by the WAP share increase in Morocco of 8 percentage points (100 to 106) was attenuated by a decline in the employment ratio with 2 percentage points leading to a combined net increase - $W/WAP \times WAP/P$ - of 6 percentage points. In the case of Turkey, the potential demographic dividend of an increase in WAP share of 6 percentage point was reduced to zero because the employment ratio decreased. Since the 1990s Turkey is rapidly transforming from a largely agricultural and rural society to a modern industrial and urban society. During transformation rural dwellers previously employed in agriculture move to urban areas in search for higher returns to their labor. However, among rural-urban migrants not all find work, notably women who once worked, because they often do not have the required qualifications or skills for the type of jobs offered in industries and in urban areas, contributing to rising unemployment (World Bank 2009). The potential demographic dividend of a 6 percentage point increase in Tunisian WAP shares was fully cashed in. In addition to this relatively more potential workers found or maintained a job so that the combined effect resulted in an improvement of 11 percentage points. In Algeria, high economic growth resulted from higher oil prices since 2000 boosting government revenues and funds for social protection programs combatting chronic and high unemployment leading to a rise in public sector jobs and more people employed (EC 2007b). The figures in the last two columns show that working age population growth in Algeria was fully absorbed by the economy and that more potential workers found work.

Thus, between 2000 and 2010, economic growth in Morocco, Tunisia and Turkey was fueled mainly by higher productivity of capital inputs (intensive growth) while in Algeria it was mainly through higher labor inputs (extensive growth).

Conversely, in EU5 countries an opposite development took place as WAP shares stalled or declined though economic production increased, except in Italy. The potential demographic penalty to EU5 economies of declining WAP shares and work force could be avoided by recruiting from the pool of unemployed or inactive potential workers or, in particular sectors, by labor migrants. The combined effect - $(W/WAP) \times (WAP/P)$ - turned out positive and is the range of 2 (The Netherlands) to 6 (Germany) percentage points. Table 2 reveals large differences in employment ratios between EU5 and SEMCs. However, this is mainly due to gender differences in employment as women in SEMCs face various practical and cultural barriers to participate in the labor market leading to very low participation rates. Participation rates of men in SEMCs are mostly at par with rates in EU5 countries (World Bank 2011; ILO 2012).

Thus, of the MT4 countries, Tunisia and Algeria fully capitalized on rising WAP shares, Morocco was less successful in doing so, while Turkey did not manage to do this at all as employment rates declined during the 2000-2010 period, contributing to poverty and migration pressure. The macro-level economic development gap between MT4 and EU5 countries, indicated by large differences in GDP per capita in Table 2, diminished between 2000 and 2010, which potentially contributes to a decrease in poverty and migration pressure. However, macro-level economic growth only contributes to this if economic growth is truly *inclusive* (Ianchovichina and Lundstrom 2009).

Discussion

To date, population and development scenarios for European neighborhood countries are absent, despite the presence of a European Neighborhood Policy addressing future development and cooperation needs. In this article we present four population and development scenarios for South and East Mediterranean neighbor countries (SEMCs), resulting in scenario specific population estimates for the 2010-2050 period. We explored whether working age population prospects lead to demographic dividend or penalty to economies and what the implications might be for migration pressure. For a better understanding we examined how countries fared during the past decade, 2000-2010. In our analysis, we focused on SEMCs with a long migration tradition (Algeria, Morocco, Tunisia, Turkey) to certain countries of destination in the EU (France, Germany, Italy, The Netherlands, Spain), and we made comparisons with these countries. Together these countries constitute the MT4-EU5 migration system.

All scenarios predict EU neighbor countries to grow rapidly during the 2010-2050 period, while EU population growth is stagnating. At the regional and national level, the pessimistic Stress scenario generally leads to the lowest population growth in SEMCs but there is not a particular scenario that consistently predicts the highest population growth in all countries. This is not surprising because SEMCs vary considerably regarding the shape of their age-distribution, stage of demographic transition, relative importance of international migration in population growth, and country-specific assumptions about expected trends in fertility, mortality and migration. In all SEMCs the Integration scenario predicts the highest working age population shares during the 2010-2050 period. A favorable economic and social context contributes to favorable demographic conditions and vice versa, contributing to economic growth.

In MT4 countries working age population shares are expected to increase - lowering the financial burden of depends in the population (youth, the elderly) -, generating potential demographic dividend. Analysis of past data though suggest that main migrant-sending countries may not be able to fully capitalize on this potential demographic dividend in the near future as employment rates in the past decade have deteriorated, notably in Turkey, contributing to increased migration pressure, at least in

the short and medium term up to 2030. This is consistent with assumptions underlying all four scenarios. The optimistic Integration and Alliance scenarios though foresee that migration pressure will decrease after 2030 as conditions for sustained and inclusive economic growth will be in place by then and are starting to pay off in terms of higher income and employment, welfare, return migration leading to overall decrease in migration pressure. In EU5 countries though working age population shares are expected to continue declining leading to (1) an increase in the financial burden of sustaining, mainly, growing numbers of elderly, and, (2) imposing a constrain to economic growth as the size of the potential labor force decreases. In the past decade, the latter has been successfully tackled through increased labor productivity and labor force participation, and redefinition of the concept 'working age' by increasing pension ages, reduction of friction unemployment, and, by recruiting, selectively, foreign labor.

Clearly the two regions experience different demographic changes. It would be of interest to examine to what extent working age population prospects in countries of the MT4-EU5 migration system can be complementary. Such a study should examine differences in education and vocational skills, notably in the age range where migration intentions are highest, between 20 and 30 years, and identify strategies to these. Furthermore, the social cohesion consequences in all countries of the MT4-EU5 migration system should be addressed. Last but not least, future labor migration from MT4 to EU5 countries must address acculturation issues, from the perspectives of immigrants and natives. Differences in religiosity, religious tolerance and related cultural behaviors rather than differences in religion may prevent the successful integration of MT4 labor migrants in, mostly secular, EU5 countries. The extent to which this can be successfully addressed determines to what extent potential labor forces in both regions are really complementary. From the perspective of EU countries top bottleneck occupations in the coming years are: medical doctors, nurses and assistants, IT consultants, IT support staff, software programmers, data processing technicians, various engineering professionals, sales representative, telemarketers, accountants and assistants, credit and risk managers (EC 2012b). A related issue is that women in SEMCs, at least in the medium term up to 2030, are unlikely to become labor migrants, although they may possess the ideal combination of educational attainment and vocational skills. Though SEMCs have experienced significant change in terms of gender equality in health status and educational attainment, pursuing a working career meets much resistance of men, notably once women are married. Various traditional institutional, cultural and legal constraints discourage women to work outside the home, let alone emigrate. The nature of the constraints varies by country and region, and in intensity and cannot simply be attributed solely to role of Islam (World Bank 2011). The optimistic Integration (S2) and Alliance (S3) scenarios assume that such differences are indeed overcome.

A few words are warranted on the plausibility of the scenarios. The overall finding was that differences between scenario estimates were not very large when the medium term is considered (i.e. 2010-2030). This is not surprising because, in the medium term future population growth is already implied by the shape of the 2010 base-year age distribution (i.e. population momentum effect). Effects of scenario differences regarding assumptions about future fertility, mortality, and migration become more visible in the long-term though effects are attenuated because fertility and mortality assumptions cancel out to some degree. Another finding was that the rather widely different scenario assumptions about *net* numbers of international migrants turned out to have little overall impact on expected population growth because net numbers turned out to be small relative to total population size of several countries, such as Turkey and Egypt. We compared our scenario results with results of UN Population Division Medium Variant projections (UNMV) and found that UNMV predicted population estimates are within the margins of the four scenarios, at the regional-, country-, age- and sex group-specific level. However, UN results do not consistently resemble results of one particular scenario indicating that the scenarios and UN projections are reflections of two different approaches, cannot substitute for each other but rather complement each other.

Another plausibility issue is that the scenarios were developed while various SEMCs (Tunisia, Libya, Egypt, and Syria) are going through period of political transition. To date, the outcome is still uncertain. We made the assumption that by 2015 this process would have been completed resulting in

a new *status quo* and one that does not lead to major shifts in demographic behavior. But is this assumption reasonable? What would happen if the Arab Spring protests and political mayhem spreading over the entire region would lead to the establishment of anti-western, conservative and pro-natalist Islamic governments in all SEMCs? In other words, can the presented population scenarios encompass population growth trajectories emerging out of such kind of context? We think the answer is affirmative for the following reasons.

Firstly, the ‘population momentum’ embedded in the current age-sex pyramids leaves little room for effects of sudden changes in, say, fertility in the medium term, up to 2030. With respect to the international migration component, even if all persons who even slightly oppose lifestyles according to conservative Islamic law would all intend to emigrate or flee from SEMCs, the actual numbers departing would be limited by immigration and asylum restrictions in receiving countries. Furthermore, after 2030 effects of changes in fertility and mortality rates would gain momentum but population growth effects would still be attenuated if a new political order leads to both higher fertility and lower life expectancies, because effects would to a certain extent cancel out.

Secondly, the establishment of anti-western, conservative Islamic governments may raise fears about a population explosion in these countries. There is little evidence that the presence of a government inspired by conservative Islamic values, Shiite or Sunni, necessarily leads to higher fertility and higher population growth rates. The cases of Iran and Saudi Arabia are illustrative. After the ousting of the western-oriented Shah of Persia, Iran has an anti-western and conservative Shiite Islamic government, initially under the leadership of Ayatollah Khomeini. Before 1979, Iran was open to western modernization and life-style influences but fertility remained more or less at constant high levels between 1960 and 1979 (about 6.5 children per woman). After the establishment of the Islamic government in 1979, fertility rates dropped to below replacement level fertility by 2010, 1.9 children per woman, similar to the fertility level in France. During this period, life expectancy increased from about 53 years in 1979 to 72 years in 2010 (UNDIESA 2012). Though not anti-western, Saudi Arabia is the heartland of Sunni Muslim tradition. There, fertility also declined in past decades, from more than 7 children around 1978 to about 2.8 children in 2010, while life expectancy increased from about 45 years in 1960 to about 74 years in 2010 (UNDIESA 2012).

We conclude by noting that the European Neighborhood Policy (ENP) may become victim of its success because realization of its goals may conflict with EU economic growth needs. The consequence of success is that SEMCs cannot, for a second time in history, serve as labor pool to EU economies because economic growth in EU neighbor countries and closure of welfare gaps is likely to result in lower emigration from SEMCs and to significant return migration of former citizens, including children born, raised and educated in EU countries. In fact, this is what would eventually unfold according the Integration (S2) and Alliance (S3) scenarios. Implication is that future EU labor force shortages have to be complemented by people living in other parts of the world. In that sense France and Spain may have certain advantages as they may recruit from former colonies with whom good economic, political, and cultural ties are maintained, such as in francophone Africa and Spanish-speaking countries in Latin America. However, ageing and shrinking labor forces are not issues limited to EU countries as they also play in other parts of the world (e.g. China). It is yet difficult to foresee to what this may lead in terms of national and regional economic growth and power, globalization of international migration, social cohesion and migrant integration.

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Table 1 Total and working-age population estimates SEMCs and EU (millions)

		2010	2030				2050			
			S1	S2	S3	S4	S1	S2	S3	S4
Algeria	Total	35.5	45.3	44.3	45.4	43.8	51.6	50.3	52.3	48.1
	15-64	24.2	31.0	30.8	31.1	29.8	33.1	32.9	33.1	30.2
Egypt	Total	81.1	109.3	106.6	109.3	107.3	133.5	125.7	132.2	130.7
	15-64	51.5	70.8	70.6	71.3	68.8	87.6	85.9	87.2	83.9
Israel	Total	7.4	9.6	10.3	9.9	7.9	11.7	13.4	11.8	7.2
	15-64	4.6	6.0	6.6	6.2	4.8	7.2	9.1	7.6	4.1
Jordan	Total	6.2	9.2	8.8	9.1	8.0	12.0	11.9	11.7	9.0
	15-64	3.6	5.9	5.8	5.9	5.1	7.8	8.3	7.8	5.7
Lebanon	Total	4.2	4.9	5.6	5.4	4.0	5.0	7.1	6.1	2.8
	15-64	2.9	3.3	3.9	3.7	2.7	3.2	4.8	3.9	1.7
Libya	Total	6.4	8.0	7.3	7.8	7.0	9.7	8.6	8.9	6.9
	15-64	4.2	5.5	5.1	5.3	4.8	6.1	5.5	5.5	4.1
Morocco	Total	31.9	38.7	37.1	39.0	37.9	42.7	41.5	44.3	40.5
	15-64	21.2	25.9	25.1	26.1	25.1	28.0	27.5	28.5	26.2
Palestine	Total	4.0	7.2	6.8	7.0	6.2	10.8	9.9	9.8	8.5
	15-64	2.2	4.1	4.1	4.2	3.5	6.8	6.9	6.6	5.2
Syria	Total	20.4	29.7	28.4	29.2	28.2	38.4	35.1	36.4	35.1
	15-64	12.1	18.8	18.5	18.8	17.7	25.2	24.4	24.5	22.5
Tunisia	Total	10.5	12.3	12.0	12.4	11.7	13.2	13.0	13.4	11.6
	15-64	7.3	8.4	8.3	8.4	7.9	8.3	8.3	8.3	7.2
Turkey	Total	72.8	87.7	86.6	88.3	87.0	96.1	92.5	98.4	95.3
	15-64	49.2	59.6	59.6	59.9	58.7	62.0	60.6	62.2	60.9
All SEMCs	Total	280.4	362.0	353.9	362.8	348.9	424.5	409.0	425.2	395.8
	15-64	183.0	239.4	238.5	240.9	229.0	275.5	274.2	275.4	251.7
MT4	Total	150.6	184.1	180.0	185.1	180.4	203.5	197.3	208.5	195.5
	15-64	102.0	124.9	123.8	125.5	121.5	131.4	129.3	132.2	124.5
EU-27	Total	501.0	522.3				524.1			
EU-5	Total	269.4	280.2				279.0			
EU-5	15-64	178.0	170.7				157.3			

Note: MT4= The Maghreb countries Morocco, Algeria, Tunisia plus Turkey
EU5= Germany, France, Italy, Spain, The Netherlands

Table 2 Working age population and economic growth (GDP in constant 1990 US\$, PPP, source: ILO, 2012).

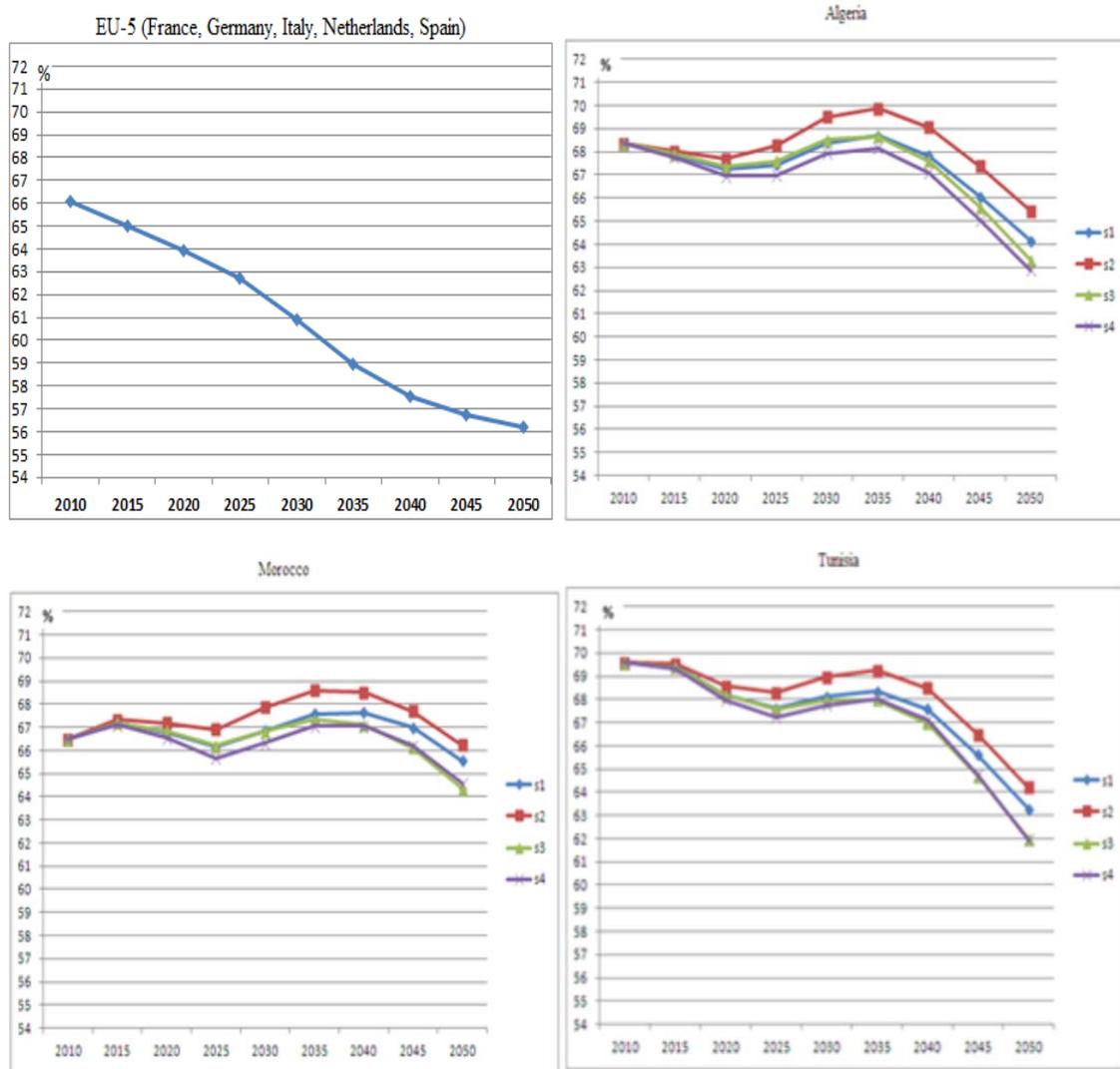
		Economic production		Output per worker		Employment ratio		Working age population share	
		GDP/P	Index	GDP/W	Index	W/WAP	Index	WAP/P	Index
SEMCs									
Algeria	2000	1,585	100	7,831	100	0.33	100	0.62	100
	2010	2,349	148	8,334	106	0.41	126	0.68	111
Egypt	2000	2,734	100	10,119	100	0.45	100	0.60	100
	2010	3,906	143	12,897	127	0.48	105	0.63	107
Israel	2000	14,610	100	41,122	100	0.57	100	0.62	100
	2010	17,195	118	44,167	107	0.62	109	0.62	101
Jordan	2000	2,939	100	13,630	100	0.38	100	0.57	100
	2010	3,975	135	17,679	130	0.38	101	0.59	103
Morocco	2000	2,427	100	7,925	100	0.50	100	0.62	100
	2010	3,493	144	10,794	136	0.49	98	0.66	108
Syria	2000	6,263	100	22,946	100	0.49	100	0.56	100
	2010	5,852	93	23,911	104	0.41	85	0.59	105
Tunisia	2000	3,790	100	13,494	100	0.44	100	0.64	100
	2010	5,374	142	17,246	128	0.45	101	0.70	109
Turkey	2000	6,398	100	19,826	100	0.50	100	0.64	100
	2010	8,847	138	27,530	139	0.47	94	0.68	106
EU-5									
France	2000	20,656	100	51,311	100	0.62	100	0.65	100
	2010	22,986	111	55,033	107	0.64	104	0.65	100
Germany	2000	18,507	100	40,847	100	0.67	100	0.68	100
	2010	20,645	112	43,050	105	0.73	109	0.66	97
Italy	2000	17,232	100	47,247	100	0.54	100	0.67	100
	2010	17,062	99	44,855	95	0.58	107	0.66	97
The Netherlands	2000	21,658	100	43,434	100	0.73	100	0.68	100
	2010	23,925	110	46,949	108	0.76	104	0.67	99
Spain	2000	15,094	100	38,910	100	0.57	100	0.68	100
	2010	16,785	111	41,641	107	0.59	104	0.68	100

Index results are affected by rounding

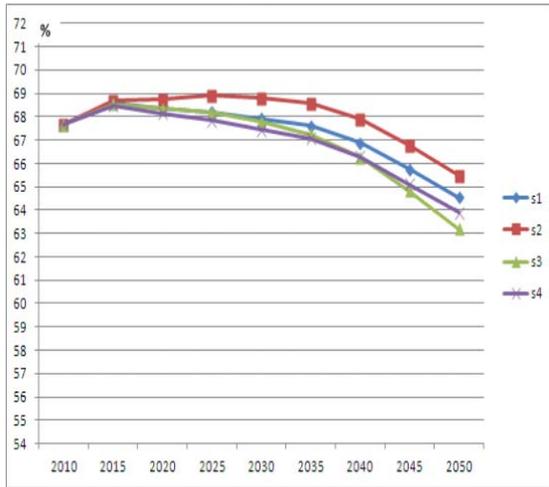
Figure 1 Framework for population and development scenarios

		Total wealth	
		Increase	Decrease
EU-SEMC cooperation	Success	S2	
	Failure		S1
Mediterranean Alliance cooperation	Success	S3	
	Failure		S4

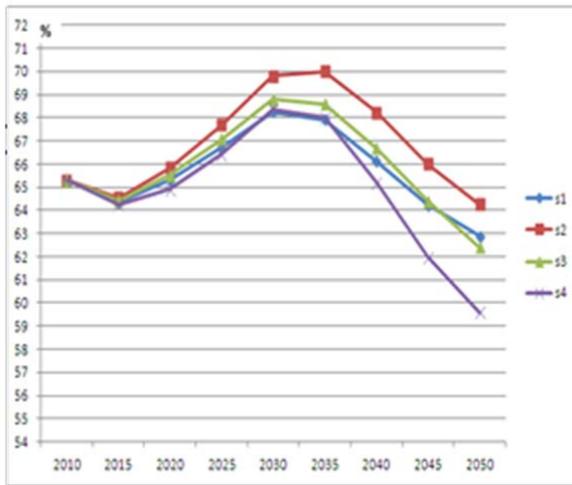
Figure 2 Working-age population shares (WAP/P, %) for EU5 and SEMCs, 2010-2050



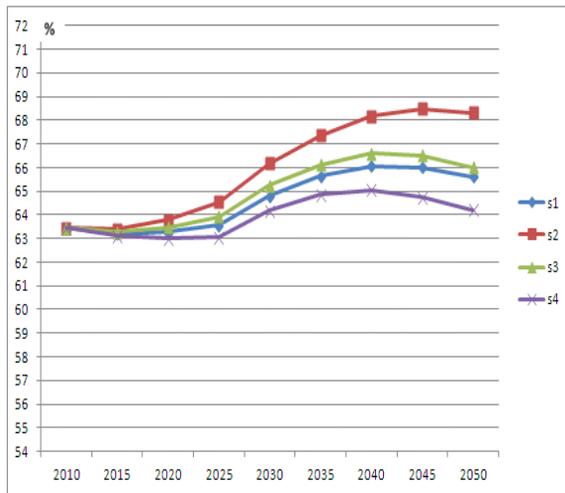
Turkey



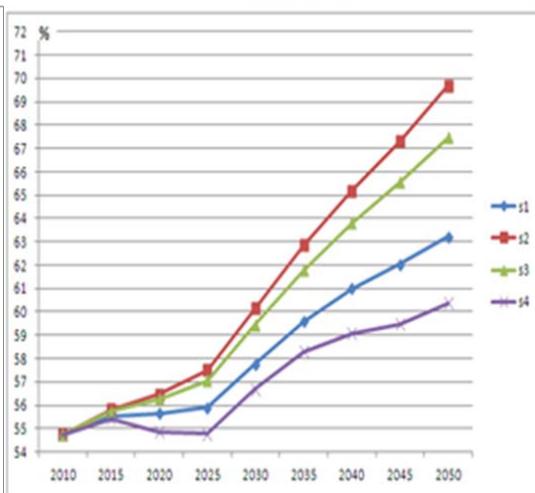
Libya



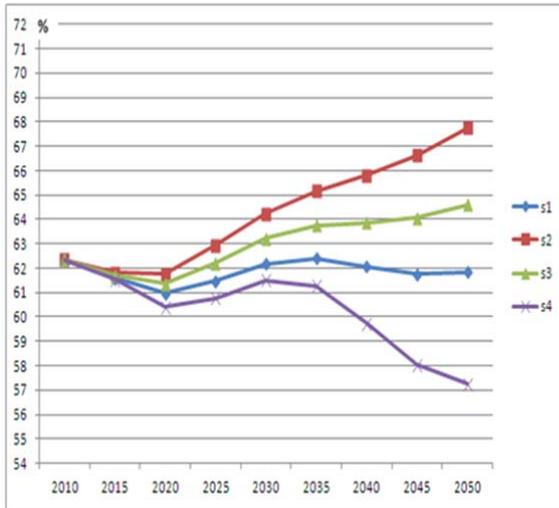
Egypt



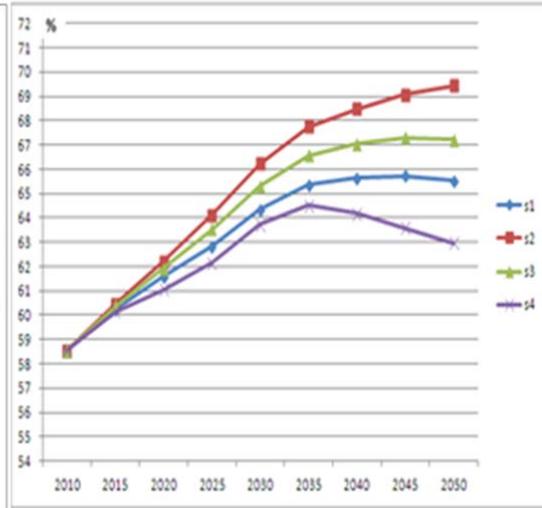
Palestine (O.P.T.)



Israel



Jordan



Lebanon



Syria

