DEMOGRAPHY OF MEDITERRANEAN COUNTRIES: WHAT DOES IT HAPPEN IN THE TWO SHORES?

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1. The demographic and economic context

Divided among the three continents of Europe, Asia and Africa[1], for a long time the Mediterranean formed an interrelated context or a "world economy": an area of the globe where economies, cultures and societies interacted with one another (Braudel, 2017). Even today, within the global economy, the Mediterranean countries are joined together both by flows of production factors and of migrants. Massive legal and illegal flows of people daily move from the less developed southern and eastern economies towards the North of the Mediterranean (Angeli and Salvini, 2018; Salvini, 1990). The trade of goods between the EU and the Mediterranean countries in the Euro-Mediterranean Partnership (MEDA) represents in 2015 around 9 percent of the total EU external trade (European Commission, 2015)[2]. Energy sources play a central role in these exchanges. The EU nations are the main investors in the countries of southern Mediterranean (Daniele and Malanima, 2016).

The population of Mediterranean countries is driving demographic change. Its total number increased from approximately 475 million inhabitants in 2010 to 522 million inhabitants in 2020, representing 6.7% of the world population. Almost one

[1] The northern (European) shore includes Spain, France, Monaco, Italy, Malta, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, and Greece. The eastern (Asian) shore includes Turkey, Cyprus, Syrian Arabic Republic, Lebanon, Israel, and the State of Palestine. The southern (African) shore includes Egypt, Libya, Tunisia, Algeria, Morocco.

[2] The Union for the Mediterranean aims to establish a common area of peace, stability, and shared prosperity in the Euro-Mediterranean region. EU-Southern Mediterranean relations at bilateral level are managed mainly through the Euro-Mediterranean Association Agreements.

- Nearly all countries have concluded Association Agreements with the EU. Preparations are going to deepen these agreements through the establishment of deep and comprehensive free trade areas.
- Negotiations for a Framework Agreement between the European Union and Libya are currently suspended.
- Steps towards the signature of the initialled Association Agreement with Syria are currently suspended.

third of the Mediterranean population lives in the coastal area and more than 70% in cities. Migration from rural to urban areas continues. The regional demographic context is very different on the northern (NMCs) and southern-eastern (SECs) shores. NMCs are characterized by a low fertility rate, an aging population, and a relatively low share of active population. SEMCs are in a phase of demographic transition, with relatively higher population growth, an overall younger population, and subsequently, a higher share of active population.

Looking at the region we can remember various cultural approaches. The book titled "*Lo scontro delle civiltà*" [The clash of civilizations] by Samuel P. Huntington (2000) argues that the main source of world conflicts after Cold War will depend on cultural and religious identities. Versus this theory, Courbage and Todd (2009) wrote the book titled "*L'incontro delle civiltà*" [The meeting of civilizations] where they reaffirm that the future will be represented by social convergence: despite the different cultures and religions, socio-demographic behaviors will get closer and closer. In the Mediterranean world, Courbage and Todd note the decline in the gap in marriage, fertility and survival between the Islamic countries and Mediterranean Europe. The region has always been a crossroads for the migration of people and communities. Migration only within non-EU Mediterranean countries involved around 7.5 million people, while migration from non-EU to EU Mediterranean countries involved around 5.7 million people. The number of refugees originating from Mediterranean States is particularly high, coming mainly from the State of Palestine and the Syrian Arab Republic (Elnakib *et al.*, 2021). The number of refugees, hosted in Mediterranean countries, is also high, both in terms of absolute numbers and of the proportion of refugees compared to the host country population, in particular in Lebanon, Malta and Turkey. The most significant causes of migration include war, lack of economic prospects, and climate and environmental changes (United Nations, 2020).

Since various years, we wonder if the countries of Mediterranean Sea demographically converge or diverge. The fertility patterns of the lowest-low fertility countries of the northern Mediterranean Sea are very different from those of the South-East, but recently fertility decline has been spreading rapidly in the region, especially in Maghreb countries. In certain countries the Total Fertility Rate (TFR) among women with secondary education is less than two children per woman. These recent developments question the reputation of the South-East Mediterranean (apart from Turkey) as a bastion of family conservatism and as having a high fertility rate. But are these groups of educated women forerunners of a broader and more generalized spread of fertility decline or only a sign of a plurality of behaviours in the increasing heterogeneity of such societies, which are still very traditional but at the same time are undergoing modernization?

As it regards economic convergence, what does it happen? We can analyse economic transformation processes that have taken place since 1995 in member countries of the Euro-Mediterranean Partnership in order to determine whether these processes have contributed to the convergence of the southern Mediterranean economies with the economies of the European Union, that is whether there is a trend toward homogenisation.

The most noticeable finding is the large gap in GDP per capita between the EU-15 and the SMCs (except for Israel). None of the southern countries have income equal to even just 40% of the EU-15 GDP throughout the period post 1995. In recent years the gap has reduced. Economic convergence implies that countries which have a lower than average per capita income at the end of the Second millennium tend to grow faster than the relatively richer countries of the group. In other words, there exists a steady state which all countries tend to converge pending their differences in preferences, technology and institutional settings. Thus, for convergence to occur there must be an inverse relation between per capita income of the initial year and its growth rate of the following years. If we plot the log of per capita income in the initial period and its growth from 1999 to 2017 for the sample of the countries of the Mediterranean Basin, we show that the regression line has a negative slope which shows that there exists an inverse relation between the two parameters. The value of the simple correlation coefficient is -0.69. Relatively poorer countries in 1999 experienced higher growths of their per capita GDP from 1999 to 2017 when this is compared with the relatively richer countries of the Mediterranean Basin.

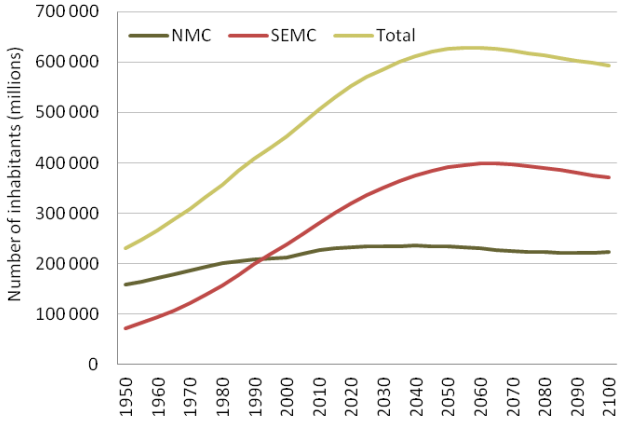
2. Population dimension and demographic growth

From 1960 to 2020, the demographic growth in the Mediterranean Basin (figure 1) was slower than world population growth. Its population has nonetheless undergone profound changes, which may well continue until 2050 due to the significant inertia of demographic phenomena. We assist to the shift of the demographic epicentre from the northwest to the southeast, to the significant generational imbalance between the southern (African) and eastern (Asian) shores, which have a very young population, and the northern shore (European), which is already characterized by marked demographic ageing and the increasing concentration of the population in urban areas, larger in the agglomerations of the southern and eastern coasts. The population growth is due to the eastern and southern shores, which constitute the dominant majority. This demographic dominance is also likely to continue for a long time, because their age structure is young and their fertility is higher than the replacement level of generations. The

combination of these phenomena produces some certainties that in turn, however, open up many unknowns. In the countries of the northern shore, where this is not already the case, deaths will quite soon be more numerous than births, and the stationarity of population depends on immigration from the southern shore (Pan Bleu, 2020).

As above noted, this low population growth in the Euro-Mediterranean countries has also greatly contributed, within the Mediterranean Basin, to a balance shift in favour of the southern and eastern shores. In 1960, 62% of the total population of the countries bordering the Mediterranean Sea lived in a European country, 23% in North Africa, and 15% on the Asian shore. In 2020, there are now fewer people on the northern shore (38%) than on the southern shore (39%). In the eastern coast is accommodating 23% of the 522 million Mediterranean people (United Nations, 2020).

Figure 1 – *Population growth in Mediterranean countries, 1950-2010.*



Source: United Nations 2011.

The diversity of the pace of demographic transition[3] explains the reversal of demographic hierarchies in the Mediterranean basin. In the countries of the northern shore, this mechanism has been completed since several decades. Today, in this region the life expectancy is approaching or exceeding 80 years. At the same time, fertility has declined significantly, to levels now below two children per woman everywhere reaching a TFR of 1,2-1,3 in Italy, Spain and Greece. Despite

[3] Demographic transition is the shift from a situation of low demographic growth, where high mortality and a high birth rate more or less offset each other, to a new situation of quasi-equilibrium in which fewer births just about offset the number of deaths, which is also very low given the size of the populations.

the increase in the female population of reproductive age (15-49 years), this reduction in fertility has resulted in a decline in the birth rate and, therefore, in the size of recent generations, while gains in life expectancy have led to a huge increase in the relative weight of the baby boomers (those born between the late 1940s and the early 1960s) at older ages. So much so that in 2020, the countries of the northern shore have almost as many people aged 65 or over (42 million) as young people under 25 (50 million).

The young age structure of the populations of the SECs favors the excess of births over deaths and the growth of the population at a sustained rate: it is currently +1.1% on average per year in the East (i.e. a doubling of the population in just over 60 years) and +1.8% on average in the South (doubling in less than 40 years), versus barely +0.3% per year on average in the North (doubling in 230 years).

3. Generations

The Mediterranean is often presented as a heterogeneous geographical area. Demography has helped to create this narrative of a Mediterranean of contrasts in which the different shores are systematically opposed: a northern shore in decline, with low fertility rates and an ageing population, as opposed to the young and fertile southern and eastern shores, which are experiencing a rapid growth. However, this spatial dichotomy is gradually diminishing due to the demographic transition of SECs: population growth and fertility are in decline, and the disparities between the different areas of the Mediterranean are decreasing. Moreover, demographic transition automatically gives rise to an ageing population. While the varied populations of the Mediterranean are currently differentiated by their levels of ageing, it is presumably that these levels will converge in the future. Does perhaps this convergence realise in particular as it regards age structure (Doignon, 2019)?

Young generations are growing in SECs (except Tunisia) with respect to European countries, where they are diminishing. These generations represent those that will enter into labour market in the near future. Europe needs migrants nowadays and tomorrow, and even if politicians do not ever agree with this topic, demography does not deny. Policy must help native families to have children they want, and migrants to live decently in the countries of destination, to have a job and a home for their families and to maintain their culture which should not represent a stumbling block for assimilation.

In south-eastern shore (particularly in Egypt and Palestine) young people are growing faster due to the high level of fertility. It is precisely in these countries that

policies to support education and the labour market are needed. The demographic dividend, that is the potential induced by the favourable demographic window, represents only the beginning of the process that requires policies that favour, alongside the equilibrium of generations, a balanced social development.

The demographic window, based on the dependency ratios, brings its significance closer to the demographic dividend. The population structure describes the demographic relationship among generations. When dependency ratios are high due to the great presence of young people, demographic transition must still open itself (Malta and Montenegro). When dependency ratios are high due to a great proportion of elderly (Spain and Italy), the demographic window is already close. When the dependency ratios are the lowest in the period, the window is open and this is the moment in which policy must act to invest in human capital, schooling and labour market, helping young people to be included in the society. A demographic dividend is the accelerated economic growth that can result from improved reproductive health, a rapid decline in fertility, and the subsequent shift in population age structure. With fewer births each year, a country's working-age population grows larger relative to the young dependent population. With more people in the labour force and fewer children to support, a country has a window of opportunity for economic growth if the right social and economic investments and policies are made in health, education, governance, and the economy. Morocco and Tunisia are examples of an open demographic window. While child dependency ratios are strongly decreasing, old dependency ratios are increasing only a little. According to theory, if the governments take advantage of the favourable demographic conjuncture, the two countries will be able to undergo an accelerated development, given that the active population will be in greater proportions. For this to happen, governments need to invest in the school and labour market, to enhance human capital.

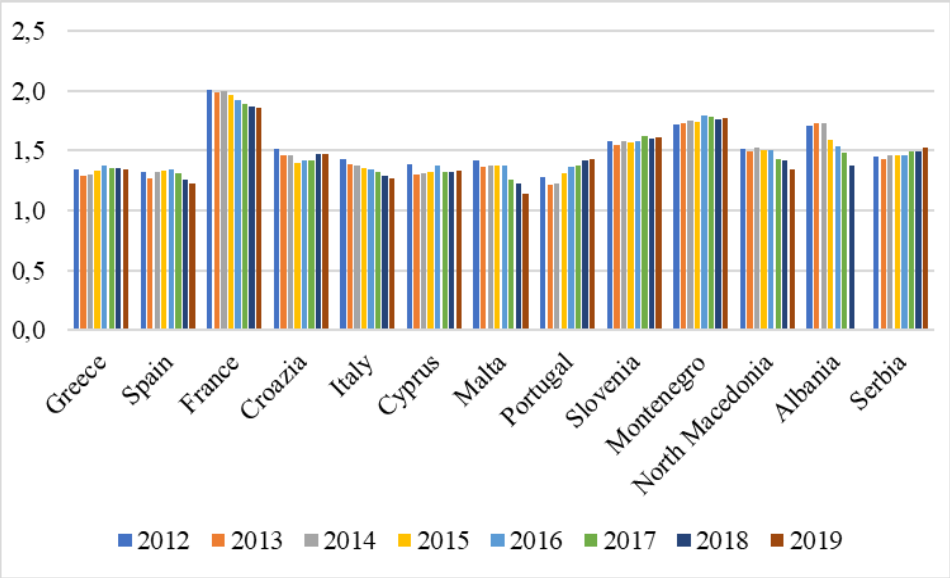
The interactive effect of youth bulge and the deteriorating economic situation in the two decades following the end of the Cold War are considered among the causes of the so-called "Arab Springs". The numerous and complex causes of recent revolutions in the Arab world have been exacerbated by the region's underlying demographics (United Nations 2015). Changing age structure, combined with other demographic trends exacerbated the challenge to governments, mainly regarding unemployment, underemployment and job creation (Mirkin, 2013).

4. Fertility

The component that most affects the evolution and structure of countries is undoubtedly fertility (Jain and Ross, 2012). The countries of the southern shore, with earlier and higher fertility than northern countries (figure 2), still have models of nuptiality, albeit changing, favourable to a high number of children, also in function of cultural and social factors, including the urbanization and the spread of education, which also play a significant role in changing the condition of women, one of the determining factors for demographic transition (figure 3).

In 2020, very few countries in this part of the Mediterranean basin have completed their demographic transition. With the exception of Cyprus and Tunisia, fertility now exceeds two children per woman everywhere, despite the spectacular decline observed since 1960: from 6.7 to 3.3 children per woman in Egypt (on the Egyptian experience we will focus in the following) where, after a period of decline, in the recent years we assist to an increase of children per woman; from 6.2 to 2.1 in Turkey; from 7.7 to 3.1 in Algeria, nevertheless with a recent trend similar to Egypt.

Figure 2 – *TFR for European countries in the Mediterranean and the period 2012-2019.*

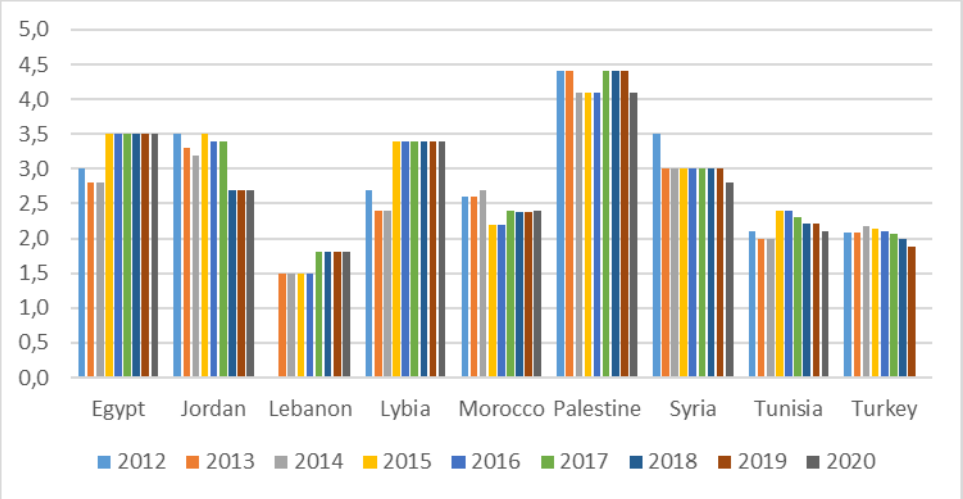


Source: Our elaboration on data Eurostat 2020a) e b).

In these countries, mortality has also declined significantly, the result of a drastic reduction in the mortality of younger members of the population, with mortality at

older ages remaining quite high. This change has led to a very large increase in the number of young adults of reproductive age, while the number of older people has increased more moderately.

Figure 3 – *TFR for the Southern-Eastern Mediterranean countries and the period 2012-2020.*



Source: Our elaboration on data Doignon 2019.

The countries bordering the Mediterranean have in common a millennia-old history, characterized by continuous economic and cultural exchanges. Despite this, during the most recent years, those of the post-colonial era, the elements of differentiation have surpassed those of commonality. The need for work for the post-war reconstruction of Europe and the poverty of the countries of the South-East Bank represented the factors of the social and economic imbalance that led a large part of the population of North Africa and the Near East to move in the richest Europe.

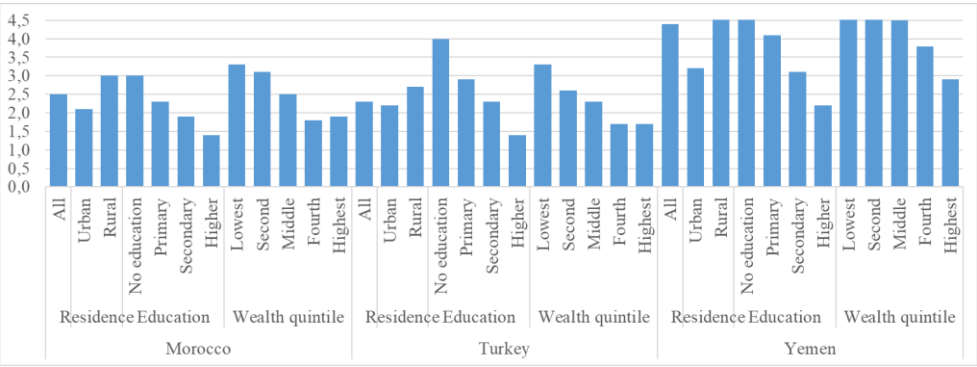
Although migration flows have so far remained limited, the nature of the different labour markets in industrialized countries (highly segmented) and internal unemployment in the countries of the South-East Bank have raised European countries' concerns about immigration, in particular from the Maghreb and Turkey. Some politicians and a part of public opinion express the fear that economic imbalances, together with demographic ones (the massive size of the young generations in the South-East Bank and the marked aging in the North Bank), could cause unmanageable flows of migrants South-North.

The south-eastern countries have collected important data through the Demographic and Health Survey (DHS data). These data permit to describe the fertility and contraceptive behaviour according to various factors, such as residence, education and wealth status, as we show in the figures 4-7. The availability of individual data permits the application of statistical models, able to outline the association with different variables.

Figure 4 – *TFR for Egypt and Jordan according to residence, education and wealth quintile and to the most recent DHS.*

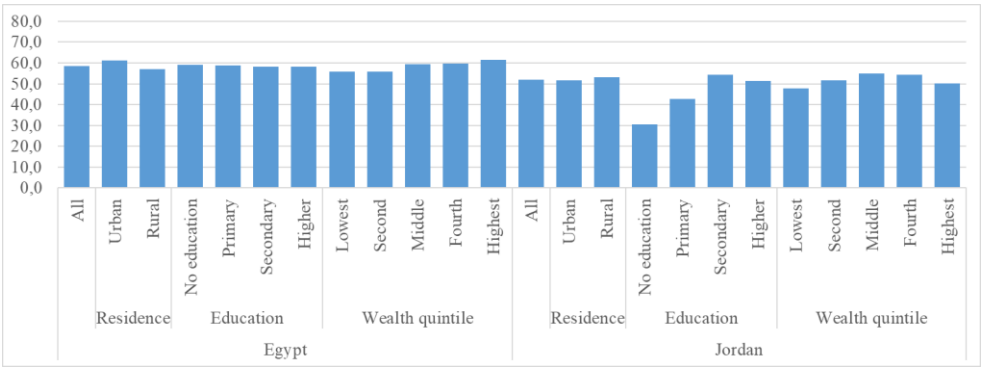
Source: Our elaborations on DHS data.

Figure 5 – *TFR for Morocco, Turkey, and Yemen according to residence, education and wealth quintile and to the most recent DHS.*



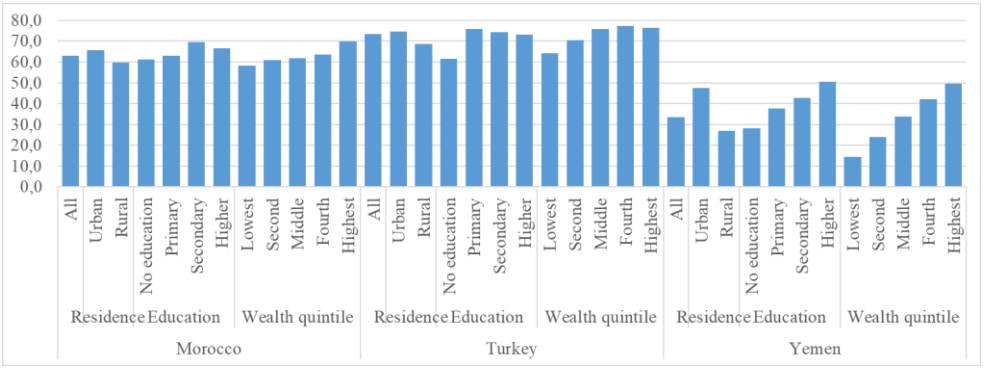
Source: Our elaborations on DHS data.

Figure 6 – *Married women using any method of contraception for Egypt and Jordan according to residence, education and wealth quintile and to the most recent DHS (percentage).*



Source: Our elaborations on DHS data.

Figure 7 – *Married women using any method of contraception for Morocco, Turkey, and Yemen according to residence, education and wealth quintile and to the most recent DHS (percentage).*



Source: Our elaborations on DHS data.

Fertility and contraception vary among the groups of population classified by residence, education and wealth. As education and wealth increase, TFR diminishes and contraception increases, while urban residence is associated with a lower TFR and a higher contraceptive use.

The regression model, we applied to Egypt, Jordan, Morocco and Turkey DHS data, reveals in a compact way the association between fertility and the covariates. We see that the relationship with contraception use is positive, meaning that contraception is used when number of children is higher, presumably because it is reached the desired number of children (Tables 1-4).

Table 1 – *Linear regression. Egypt 2015. Dependent variable: Number of children.*

Model: Linear regression	Not standardized coeff.		Standardized coeff.	t	Signif.
	Beta	Standard error	Beta		
Constant term	0.075	0.085		0.892	0.373
Respondent's current age	0.092	0.001	0.506	63.572	0.000
Using fam. planning after the 1st birth (a)	0.177	0.048	0.027	3.659	0.000
Education (b)	-0.713	0.033	-0.173	-21.706	0.000
Work (c)	-0.437		-0.112	-14.399	0.000

Notes: (a) Reference= No; (b) Reference= Low education; (c) Reference= Not worked in the last week.
Source: Our elaboration on DHS data.

Table 2 – *Linear regression. Jordan 2017-2018. Dependent variable: Number of children.*

Model: Linear regression	Not standardized coeff.		Standardized coeff.	t	Signif.
	Beta	Standard error	Beta		
Constant term	-1.169	0.091		-12.833	0.000
Respondent's current age	0.140	0.002	0.543	72.626	0.000
Residence (a)	-0.148	0.044	-0.024	-3.320	0.001
Education (b)	-0.540	0.052	-0.081	-10.462	0.000
Wealth (c)	-0.641	0.036	-0.143	-17.991	0.000
Contraception (d)	1.238	0.032	0.282	38.267	0.000
Work (e)	-0.467	0.046	-0.076	-10.180	0.000

Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.
Source: Our elaboration on DHS data.

Table 3 – *Linear regression. Morocco 2003-2004. Dependent variable: Number of children.*

Model: Linear regression	Not standardized coeff.		Standardized coeff.	t	Signif.
	Beta	Standard error	Beta		
Constant term	-2,333	0,044		-52,473	0,000
Respondent's current age	0,149	0,001	0,580	104,205	0,000
Residence (a)	-0,352	0,034	-0,061	-10,344	0,000
Education (b)	-0,233	0,040	-0,045	-5,829	0,000
Wealth (c)	-0,546	0,040	-0,105	-13,677	0,000
Contraception (d)	1,535	0,029	0,282	52,492	0,000
Work (e)	-0,561	0,033	-0,088	-17,172	0,000

Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.
Source: Our elaboration on DHS data.

Table 4 – *Linear regression. Turkey 2013. Dependent variable: Number of children.*

Model: Linear regression	Not standardized coeff.		Standardized coeff.	t	Signif.
	Beta	Standard error	Beta		
Constant term	-0.317	0.086		-3.666	0.000
Respondent's current age	0.076	0.002	0.396	33.820	0.000
Residence (a)	-0.089	0.045	-0.023	-1.966	0.049
Education (b)	-0.808	0.043	-0.232	-18.912	0.000
Wealth (c)	-0.588	0.044	-0.165	-13.363	0.000
Contraception (d)	0.869	0.037	0.248	23.388	0.000

Notes: (a) Reference= Urban; (b) Reference= Low education; (c) Reference= Low; (d) Reference= Not using; (e) Reference = Not working.
Source: Our elaboration on DHS data.

Factors associated with contraception (Table 5) are the type of residence (1 = urban, 0 = rural), the number of children (quantitative), wealth / income, expressed in quintiles (1 = lowest, 5 = highest), economic-social state, built by crossing work and education (3 = working and highly educated, 2 = working and low education, 1 = not working, highly educated, 0 = not working and low education) and age (quantitative) as a control variable.

Table 5 – *Linear regression. Jordan, Turkey and Morocco according to the most recent DHS. Dependent variable: Contraceptive use (1=yes, 0=no).*

Model:	Morocco		Jordan		Turkey	
Linear regression	Exp(B)	Signif.	Exp(B)	Signif.	Exp(B)	Signif.
Residence	0.993	0.911	1.157	0.017	1.044	0.457
Rabat-Casablanca/Amman	2.806	0.004			1.174	0.000
Number of children	1.554	0.000	1.962	0.000	1.670	0.000
Income quintile	1.907	0.000	1.699	0.000	1.284	0.000
Age	0.956	0.000	1.025	0.000	0.989	0.000
SES =Socio-economic status	1.218	0.001	1.372	0.000	1.440	0.000
Constant	0.323	0.000	0.091	0.000	0.188	0.000

Source: Our elaboration on DHS data.

A particular issue of the reproductive behaviour is represented by adolescent fertility, very low in northern shore, still high in various countries of the southern and eastern shores. Adolescence is a period with special importance in the life course of an individual. While the “second demographic transition” acting in the northern shore leads new nuptial behaviours, in the South-West some characteristics remain stable, in a picture of “ancient regime”. In fact, during the last decades, western countries have witnessed remarkable socio-demographic changes in the family sphere: a definitive shift from extended to nuclear family forms, an intense decrease in nuptiality rates and a strong delay on its timing, an

important increase in separation and divorce rates, and the emergence of new living arrangements such as unmarried cohabitation. These changes have raised considerable concern among policy makers. These aspects involve Italy, France, Spain, Portugal and Greece.

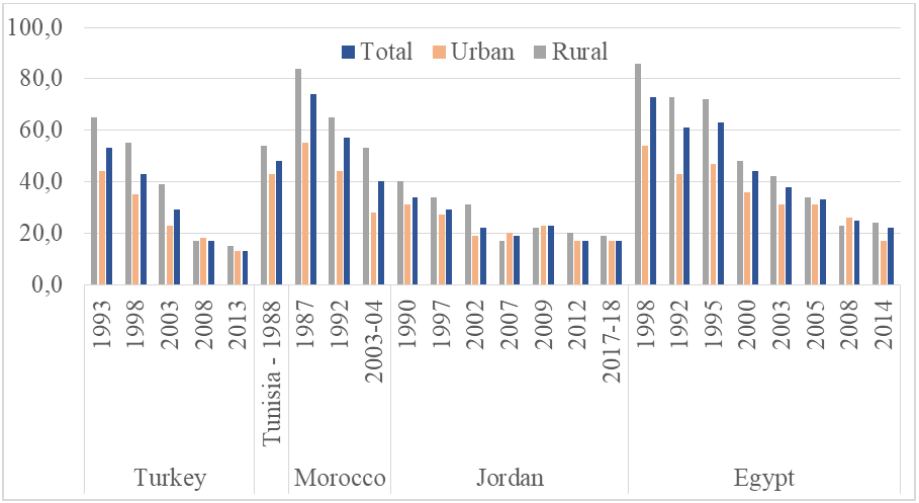
Looking at features of SECs, we note a weak convergence. Even if marriage is still precocious and universal in Palestine, in the other countries average age of first marriage for women is now close to EU countries, even if some regions show still adolescent and child marriages. Focussing on Morocco, Egypt and Turkey, despite the process of social change toward modernization, it is shown that social norms still strongly prescribe marriage and having at least one child. In most of these countries for which data are available, the average age of first marriage for women (for the latest reference year available) ranged from 24 in Egypt (2011) to 29 in Algeria (2008, narrowing to European levels). Only Palestine reported an early average marriage age, at 21.

The consequence of early marriage and the weak use of contraception in those couples where the wife is very young and the husband is much older, is adolescent fertility, that leads to low education and low labour participation.

5. Infant and child mortality

The declining trends in infant mortality are highlighted in figure 8 for the countries of the south-east bank also according to residence, which shows both the continuous decline in rates for the age 0-1, and the convergence process that has characterized the area. Today, the levels of infant mortality are 23 and 18 per 1000 live births respectively for North Africa and Western Asia, very low levels taking into account the conditions of backwardness that in some countries still characterize the countryside and disadvantaged areas of cities. Even if the level decreases, the urban / rural differences partially persist, particularly in Morocco, where the infant mortality rate is approximately equal to that of Italy in 1968 (Istat, 2014). Infant mortality is much lower in southern European countries: in Italy less than 3 children out of 1,000 die in the first year of life, in Spain 3.3 and in Greece 4.5 (Index Mundi, 2020). A victory against death, which can be summed up in the fact that in the most industrialized countries infant mortality is concentrated in the first days of life for strictly endogenous causes, while in the less modernized countries the exogenous causes still lead to the death of several children: in fact, despite the growth of vaccinations against infectious diseases and the decrease in gastrointestinal and lung infections, some children die before the first year of life.

Figure 8 – *Infant mortality rate in the south-eastern shore countries according to residence and the most recent DHS (percentage).*



Source: Our elaborations on DHS data.

There is a strong relationship between fertility and infant mortality. The demographic transition from high to low levels of fertility and mortality is a defining feature of the development process. Historically, the precise timings of fertility and of mortality transitions have varied considerably. Furthermore, there are important questions about how the two processes interact (Hobcraft *et al.*, 1985; Lloyd and Ivanov, 1988; van de Walle, 1986; Knodel, 1986).

There is the complicated question of reverse causality (or endogeneity). Lower (or higher) mortality could lead to lower (or higher) fertility, but it is well known that higher birth rates lead to higher infant and youth mortality. This increased mortality is related to the effect on infants and children of early weaning and reduced maternal care (Haines, 1998).

The determinants of infant mortality are well illustrated in the approach of Mosley and Chen (2003), which is then used by numerous studies based on DHS data. The socio-economic determinants of infant mortality are the characteristics that describe the socio-economic status of the parents (education of the mother and father and employment), of the place of residence (degree of urbanization and location), of the home that reflect the material conditions of family life (quality of water supply, building materials, waste collection methods, disposal, lighting method, type of toilet, etc.) and cultural life (parental ethnicity, religion or language). Data on the key factors of these variables, maternal and paternal education, paternal occupation and degree of urbanization of the place of residence,

are usually provided by censuses and population surveys and therefore are the factors included in most of the analyses carried out.

If we consider for example Morocco, we see the correlation, not so high but significant, between number of children and mortality of children, calculated as the sum of died sons and daughters divided by number of children.

Table 6 - *Correlation between children ever born and child mortality, Morocco 2003-2004.*

		Total children ever born	Child mortality
Total children ever born	Pearson correlation	1	0.278**
	Sign. (two tails)		0.000
	N.	16,798	8,660
Child mortality	Pearson correlation	0.278**	1
	Sign. (two tails)	0.000	
	N.	8,660	8,660

*Note: **. Significant correlation at 0,01 (two tails).*
Source: Our elaboration on DHS data.

The linear regression model for Morocco shows some covariates of mortality, that are all significant and negative: a higher mortality is associated to a lower diffusion of contraceptive use, to a lower income, to the urban residence a to a lower socio-economic status.

Table 7 – *Linear regression. Morocco 2003-2004. Dependent variable: dependent variable child mortality.*

Model: Linear regression	Not standardized coeff.		Standardized coeff.	Signif.
	Beta	Standard error	Beta	
Constant term	0.111	0.003		0.000
Contraception	-0.039	0.003	-0.130	0.000
Income quintile	-0.028	0.003	-0.095	0.000
Rabat-Casablanca	-0.020	0.004	-0.053	0.000
Socio-economic status	-0.025	0.007	-0.039	0.000

Source: Our elaboration on DHS data.

6. Contradictory trends in Egyptian fertility. Ideal number of children

Over the last decade, many events in the countries of North Africa and the Middle East (MENA) have taken everyone by surprise. Reference here is to several domains, from the political domain (the 2011 “Arab spring” or revolutions) to social and demographic trends. The demographic transition and family modernization process seemed to be established and irreversible in many of the

MENA countries, in particular marriage and childbearing, the status of women and care of older persons (De Bel-Air, 2012; Mirkin, 2010; 2013). As already introduced, many of the countries have shown a decline in fertility as from the last decades of the 20th century (Engelhardt and Schulz, 2017; Eltigani, 2009). Afterwards in very recent years suddenly fertility has come back on the rise in some Arab countries. A slight fertility increase has been observed in Tunisia, Morocco, and Lebanon, while a persistent increase was observed in Egypt (and Algeria, starting from lower values) between the 2000-2015 periods. On the contrary fertility has remained stable in Libya, Iran, and Oman, but decreased in the other MENA countries (Mena, 2020): Djibouti, Iran, Bahrain, Jordan, Kuwait, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen, the Mediterranean region enlarged.

The atypical fertility increase experienced in many MENA countries in recent years is particularly striking in Egypt, the most populous country in the Arab world with about 102 million citizens at the beginning of 2022 and set to grow to about 121 million by 2030. In the country the demographic transition seemed an accomplished fact (Al Zalak and Goujon, 2017), even if the demographic regime is still characterized by nearly universal and relatively early marriage, first birth soon after marriage, and a common rejection of the one-child family (Ambrosetti, 2011).

Egypt has a relatively young population, where about 60% of the population is under 30 years old. Now women are more educated and laws are more egalitarian, but the patriarchal tradition is still strong in the country and restrains both men's and women's attitude to change behaviors. The dramatic demographic change is a national political issue in the country.

The fertility trend in Egypt has been quite irregular before the declining trend started in the 1980s under Hosni Mubarak's government, a period when oil prices began to fall and the Gulf States had less need for Egyptian labor. Fertility continued to decline up to the mid-1990s a period when the neoliberal policies involved reduction of both the civil service employment sector and the financial assistance for education, health, and basic necessities.

Between 1995 and 2008 the total fertility rate (TFR) slowly declined from 3.6 to 3 children per woman. Surprisingly, according to the latest Demographic and Health survey fertility rose from 3.0 children per woman in 2008 to 3.5 in 2014. This development is rather unusual for countries that are believed to be in the middle of their demographic transition, where fertility is expected to decline. It is important to underline that the increase of fertility is evident from all women, leading to a narrowing of the fertility gradient by socioeconomic status. The most recent data show a slow decline up to 2020, when TFR fell gradually to 3.24 births per woman.

There is a vast discussion on the causes of these fertility trends in the country. Researchers have provided different kinds of explanations of the recent rise in fertility discussing the role of the past demographic trend, the importance of market labor trends as well as the influence of socio-cultural factors. A lot of analyses have looked at the role of previously high fertility to the "youth bulge" and its relationship to the 2011 revolution. Courbage (2015) suggested that having more children may be an over-investment in future generations due to the economic problems that characterize the country, a kind of "poverty-driven transition". Furthermore, high female unemployment rates, coupled with the fact that many women are underemployed or working in the informal and domestic economy (World Bank, 2018), together with the decline in employment opportunities for women in the public sector, are considered as major factors in the rise of fertility (Assaad *et al*., 2015; Krafft, 2020).

The recent increase in fertility has also been associated with changes in contraceptive behaviour. A decreased use of contraceptives among women who already have two or more children may have been driven by changes in government policies, with the shortage of both funding for family planning facilities and public messaging about family planning (UNICEF *et al.*, 2022). Moreover, Casterline (2009) outlined that the two-child norm is not firmly and widely established in the Arab region; in particular in Egypt there is widespread indifference between the ideals of two and three children and a corresponding weak attachment to the two-child norm.

In a framework of raising fertility in the most populous country in the Arab world, whose causes are mostly still unknown, we can refer to the ideal number of children, starting from the hypothesis that attitudes towards ideal family size closely correlate with actual patterns of fertility. A series of studies have found or rather a high degree of correspondence between women' fertility preferences and subsequent contraceptive or fertility behavior in many developing countries (Cleland et *al.*, 2020). Ideal family size may be interpreted as a societal norm that is evolving together with major societal changes witnessed in a country during the last decades.

Table 8 shows stability in the ideal number of children during the period 1988-2014 at around 3 children. Data do not show major differences by background characteristics of women: the most striking differences being by age, place of residence, and wealth. Traditionally, the mean ideal number of children was higher among women in rural areas. Women with at least secondary education and whose households were in the middle and highest wealth quintiles had the lowest ideal number of children. The evaluation of 2008 and 2014 data highlights important changes in the fertility pattern: as for the TFR, the ideal number of children raised among educated women (from primary to higher education) and those in the first

two poorer wealth quintiles. It is important to underline that this issue is important for Egypt where Government is for the first time explicitly addressing the reduction of fertility via reduction of the ideal family size (Wahish, 2018; Ambrosetti *et al.*, 2021).

Table 8 – *Mean ideal number of children for ever married women age 15-49 by socio-economic characteristics. Egypt 1988-2014.*

	1988	1992	1995	2000	2003	2005	2008	2014
Educational attainment								
No education	3.1	3.1	3.1	3.3	3.1	3.2	3.3	3.3
Some primary	2.9	2.9	2.9	3.0	2.9	3.0	3.1	3.2
Primary complete/some secondary	2.5	2.5	2.5	2.7	2.6	2.8	2.9	3.0
Wealth quintile								
Lowest	3.3	3.3	3.2	3.3	3.1	3.1	3.2	3.4
Middle	3.1	2.9	2.8	3.1	2.9	2.9	2.9	2.9
Highest	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.7
Residence								
Urban							2.8	2.9
Rural							3.0	3.1
Mean ideal number	2.9	2.9	2.8	2.9	2.8	2.9	2.9	3.0

Note: Mean values exclude women giving non-numeric answer.
Source: Our elaboration on DHS data.

In addition to the various Egypt Demographic and Health Surveys (EDHS), the 2015 Egypt Health Issues Survey (EHIS, 2015) - collected by El-Zanaty and Associates on behalf of the Egyptian Ministry of Health and Population in 2015 - gives original evidence on the ideal number of children for both females and males, married and unmarried, aged 15-49 in the context of a developing country.

Table 9 confirms clear differences by place of residence, in both TFR in 2014 and mean ideal number of children between women and men aged 15-49 in 2015.

In all the geographic areas of the country, the male mean ideal number of children is higher than the female one and, except for Urban Governorates, it is closer to the level of TFR measured in 2014 EDHS.

Table 9 – *Total Fertility Rate (TFR) and Mean Ideal Number of Children (INC) by gender and place of residence. Egypt 2014-2015.*

Place of Residence	TFR 2014	INC 2015	
		Women	Men
Urban Governorates	2.5	2.8	3.0
Lower Egypt	3.4	3.0	3.2
Urban	3.0	2.8	3.1
Rural	3.6	3.0	3.2
Upper Egypt	3.8	3.3	3.7
Urban	3.2	3.0	3.5
Rural	4.1	3.4	3.9
Frontier Governorates	3.9	3.2	3.9
Total	*3.5*	*3.1*	*3.4*

Source: EDHS 2014 for TFR; EHIS 2015 for INC.

Data from Table 10 (published in Ambrosetti *et al.*, 2021) refer to both never married and ever-married men and women aged 15-49, aiming at explore differences in ideal number of children (dependent variable) by age, marital status, gender and gender attitudes. Information derives from the 2015 Egypt Health Issues Survey concerning several topics related to current fertility behavior in Egypt, including ideal family size. Elaboration considers explanatory variables (exposure to mass media, and exposure to family planning messages, attitudes towards wife beating), control variables (age group, marital status, family size) and socio-economic variables (educational level, type of residence, place of residence, working status, household wealth quintile, religion)[4].

Results show whether gender-equitable attitudes have different associations with the ideal number of children between ever and never-married women and men. Traditional gender attitudes (expressed with the justification of at least one reason for wife beating) are positively associated with larger ideal numbers of children for both genders and with a higher coefficient for men. Moreover, exposure to mass media shows a negative association with the ideal number of children for both genders with a more pronounced association for women. In contrast, exposure to family planning messages does not show any association with the ideal number of children. Household wealth emerges as a predictor of ideal number of children as a higher ideal number of children is negatively associated with high wealth index (good socio-economic status); the same relationship applies for not Muslim men. For women, results seem to be in agreement with those obtained for men.

[4] Information included in table 10 allows us to know the items of almost all the variables.

Table 10 – *Poisson regression coefficients with [p-values], and (standard errors). Egypt 2015. Dependent variable: ideal number of children by gender.*

Model: Poisson regression	Women	Men
Number of household members	0.019 [0.000] (0.003)	0.021 [0.000] (0.003)
Age group (ref. 15-24)		
25-34	0.037 [0.068] (0.020)	0.019 [0.389] (0.025)
35-49	0.166 [0.000] (0.020)	0.126 [0.000] (0.022)
Marital status (ref. never-married)		
Ever-married	0.055 [0.001] (0.020)	0.080 [0.000] (0.022)
Working status (ref. Not work./not work. cash)		
Working for cash	0.081 [0.000] (0.013)	0.087 [0.000] (0.015)
Education (ref. No educ. + incomplete primary)		
Complete primary + incomplete secondary	-0.014 [0.476] (0.020)	-0.045[0.047] (0.022)
Secondary and higher	-0.022 [0.219] (0.018)	-0.047[0.018] (0.020)
Place of residence: (ref. urban Governorates)		
Lower Egypt	-0.014 [0.512] (0.022)	-0.014 [0.567] (0.024)
Upper Egypt	0.132 [0.000] (0.022)	0.125 [0.000] (0.024)
Frontier Governorates	0.108 [0.000] (0.030)	0.182 [0.000] (0.032)
Type of residence: (ref. urban)		
rural	0.083 [0.000] (0.015)	0.054 [0.002] (0.017)
Wealth index	-0.212 [0.001] (0.065)	-0.170 [0.019] (0.072)
Religion (ref. Muslim)		
Other than Muslim	-0.117 [0.000] (0.030)	-0.142 [0.000] (0.034)
Exposure to family plan. messages: (ref. not exp.)	-0.003 [0.834] (0.015)	0.008 [0.631] (0.017)
Exposure to mass media: (ref. never exposed)	-0.193 [0.017] (0.015)	-0.014 [0.904] (0.115)
Tolerance for wife beating: (ref. No to all 5 items)*	0.083 [0.000] (0.014)	0.064 [0.000] (0.016)
Constant term	1.031 [0.000] (0.086)	0.871 [0.000] (0.118)
Observations	7,779	6,204
Log Likelihood	-13,821.47	-10,971.78
Akaike Inf. Crit.	27,677	23,100

*Note: Poisson regression coefficients are in bold; standard errors in brackets ( ) and p-values in square brackets [ ]; *Five items on the possibility to justify wife beating by the husband in specific situations.*
Source: Ambrosetti, Novelli and Angeli 2021.

For both men and women the desire to have a large family is positively associated with being in the age group 25-34 and 35-49, being married, with working for cash, with a large number of household members, with residence in all the rural environments (rather than the urban environments), and living in Upper Egypt or Frontier Governorates (rather than Urban Governorates). Finally, an

increase in women's and men's levels of education is associated with lower fertility preferences.

7. Conclusions

According to the projections of the United Nations (medium variant) the southern shore with 289 million individuals expected by 2050 (87 million more than in 2020) will impose by demographic consistency in the Mediterranean Basin, positioning itself far ahead of the European shore (188 million, 10 million less than to 2020) which will be closely followed by the east bank (158 million, 36 million in more than in 2020). This expected demographic imbalance calls for a second equally important, namely the unequal age distribution will follow on both sides of the Mediterranean. In fact, according to the projections' scenario, in 2050 111 million young people under the age of 25 will live in the countries of the African shore against the age of 50 million of those on the Asian side and 42 million on the European side. More than 50% of the "Mediterranean youth" will be concentrated in only five countries: Morocco, Algeria, Tunisia, Libya and Egypt. Forecasts estimate that almost one in two people aged 65 and over will reside in the North Bank towns: 61 million against 37 million in the countries of the southern shore and 29 million in those of the eastern shore (Carella et al. 2021).

What about convergence or divergence in the Mediterranean shores? The Euro-Mediterranean region represents an area of possible collaboration, but also of possible conflict, between EU nations and countries in the Mediterranean region that are not EU members. The reasons for effective cooperation have been evident for decades, and may be summarised as follows: increased trading and economic assistance in exchange for lasting peace. Over the years we have also begun to realise that the environment and cultural heritage of the Mediterranean need to be protected, also in the interest of EU countries with no direct access to the Mediterranean Sea. Covid-19 and the measures introduced to combat it are changing many of the ways our societies work. Human mobility, for example, in the form of migrant and tourist flows, is being transformed from a global phenomenon to a proximity relationship. The concept of proximity is still being defined. The Mediterranean may well be considered, in the near future, as an area of enhanced accessibility for all EU countries.

By the demographic point of view, we note a narrowing of reproductive and survival models, but the two shores present nevertheless many differences. In particular, some countries of the South, such as Egypt and in a lower measure Algeria, have revealed a rise of fertility after a long period of decline. The reasons

are perhaps cultural and religious, due to a more precocious age at marriage linked to a halt in women's emancipation and the growth of Islamic fundamentalism.

At the same time, other countries on the south-east bank have moved forward on the path of demographic transition and there has been a certain convergence, in particular as it regards infant mortality which, as is well known, represents a strong indicator of social development.

Alongside the migratory flows, which draw close to the cultures of the two shores, these phenomena of convergence represent the vehicle for future homogeneity and the possible elimination of conflicts.

Data on Egypt confirmed the importance of governmental policy. In Egypt, despite a long tradition of population policies, the amount of governmental resources and efforts dedicated to family planning and reproductive health rapidly declined during the last years of Mubarak presidency and then during the early years after the revolution of 2011. Afterwards, in a context of economic instability coupled with high youth unemployment rates, population policies gained again new energy with the implementation - among other measures - of the *Two is enough* policy.

The in-depth analysis on ideal number of children showed that for Egyptian women particular attention must be devoted to the context they belong to as a major factor affecting their empowerment: education and/or employment do not necessarily enhance autonomy if traditional factors remain strong. In a society that does not give women many opportunities outside the household, having children endows them with power in the household and acceptance at the societal level, while childless women may experience social isolation.

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SUMMARY

The population of Mediterranean countries increased from approximately 475 million inhabitants in 2010 to 522 million inhabitants in 2020, representing 6.7% of the world population. Almost one third of the Mediterranean population lives in the coastal area and more than 70% in cities. Migration from rural to urban areas continues. The regional demographic context is very different on the northern (NMCs) and southern-eastern (SECs) shores. NMCs are characterized by a low fertility rate, an aging population, and a relatively low share of active population. SEMCs are in a phase of demographic transition, with relatively higher population growth, an overall younger population, and subsequently, a higher share of active population.

In recent years the gap of income has reduced. Economic convergence implies that countries which have a lower than average per capita income at the end of the Second millennium tend to grow faster than the relatively richer countries of the group. In other words, there exists a steady state which all countries tend to converge pending their differences in preferences, technology and institutional settings.

In this study we focus on fertility and infant mortality differences according to various characteristics: Residence, education and wealth, showing that the richest, the most educated and the urban present lower fertility and lower infant mortality. Then, we deep the situation of Egypt, that presents an increase in fertility in the most recent years. We conclude focusing on demographic convergence or divergence between the two shores.

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