Mediterranean fertility: towards a South-North convergence?

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Introduction: the myth of Muslim prolificacy and the theory of the convergence of demographic transition. Current fertility in the Islamic Mediterranean countries is approximately half what it was in the 1970s. The changes, revealed by survey data and estimates of varying degrees of reliability, are such that each year the United Nations lowers both its fertility estimates (now generally speaking moderate and probably destined to decline rapidly) and the consequent population forecasts (Fargues 2000). Libya is an example of this. Included until 1998 among the high fertility countries (in 1998 the TFR was estimated as 5.92), the following year, because of the results of the 1996 Survey, the first since the 1973 Census, it was included among moderate fertility countries, with a TFR of 3.5.

Another example is Morocco. Forecasts made in 1982 estimated the population would be about 59 million in 2025, but the projections were corrected after the 1994 census to a figure of about 40 million; the latest projections (1998) now estimate the population will be about 38 million in 2025. The figures for Algeria and Iraq are analogous[1]. These corrections are due to the particular rapidity of demographic changes in the South-East shore countries, and also to the persistence, «until proven otherwise» (Fargues 2000), of the stereotype of high Muslim fertility. The representation of the patriarchal family, which is characterized by a dual hierarcy – a vertical (the elderly over the young) and a horizontal one (men over women) –, inevitably includes the notion of high fertility, which is highly 'rational' in such a context. Yet although the representation seems to persist, recent surveys reveal that fertility has plunged, to the extent that it is now similar to that of non-Islamic countries of the same socio-economic level.

The main countries (or perhaps only the forerunners) affected by this demographic revolution are the countries facing onto the Southern (Algeria, Libya, Egypt, Morocco, Tunisia) and Eastern (Turkey) Mediterranean. In these countries the period total fertility rate among women with secondary education is often less than two children per woman; consequently, these recent developments undermine the reputation of this area (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 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?

On the northern shores of the Mediterranean, the countries of southern Europe are in turn undergoing a highly singular demographic evolution towards lowest-low

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fertility (Sardon 2002). Family and social evolution is increasingly distinctive and differs greatly from that of central and northern Europe, due to cultural reasons relating to what seems to be a typically Mediterranean view of family ties and gender balances. Are the southern Mediterranean countries undergoing a demographic transition along the lines of those experienced by countries on the northern shores, with which there have always been close ties and cultural mixing? Can we affirm that a South-North convergence is taking place in Mediterranean fertility?

The aim of our study is to investigate the extent and the value of the recent demographic changes. The question is whether they fit into a peculiar Mediterranean fertility pattern, with South-East women therefore moving along the path taken by Mediterranean Europe towards an exceptional low fertility (a sort of 'convergence assumption'), – or whether this 'developmental' theory might be too simplistic and Eurocentric.

The concept of convergence lies at the heart of demographic transition theory (Wilson 2001). Adopting quite a schematic approach, the theory of demographic transition assumes that sooner or later countries must pass through different stages, in the path from high to low levels of mortality and fertility. In fact, apart from some countries in sub-Saharan Africa, fertility decline has now begun all over the world, and this process is substantial (albeit with a significant tail of high-fertility). Wilson's (2001) recent review reconfirms that in order to understand this phenomenon it is necessary to look beyond either economic development or special policy inputs. Well aware of the state of pervasive poverty, high levels of illiteracy and gender inequities in many regions, he states: «it is clear that social and demographic change has progressed far more rapidly than economic development». However, in terms of what kinds of social change are relevant for the process, we may only have reached the understanding that «there are many demographic transitions, each driven by a combination of forces that are [...] institutionally, culturally and temporally specific» (Greenhalgh 1990).

The 2000 World Population Prospects (WPP) demonstrates the current state of the «mobility of countries» down the scale towards low fertility: 21 less developed countries have a fertility at or below replacement level, while the majority of the remaining 122 less developed countries have levels below 5 children per woman but well above replacement level. However, Wilson interprets the trend as one of the growing demographic convergence in the world. He summarizes: «A large majority of the world's population is (or soon will be) demographically modern by any definition».

The WPP prefers to emphasize the opposite, namely growing signs of polarization in the world: «particularly rapid growth is expected to nearly triple between 2000 and 2050 [...]»; 16 countries «exhibit sustained high fertility for which there is either no recent evidence about fertility trends or the available evidence does not indicate the onset of a fertility reduction». With respect to the latter group of countries, the 1998 WPP was too optimistic about incipient fertility declines, and population estimates have been adjusted upwards in the 2000 WPP (Egerö 2001). Given the extent to which fertility has been declining in almost all countries, Wilson

(2001) concluded that the overwhelming trend is for low fertility to become a general feature of poor and rich countries alike and that the distinction between developed and developing countries will therefore be of greatly diminished relevance to fertility.In the convergence theory approach, the timing of the 'narrowing process' is very important because, as it influences the achievement of generation replacement, it affects population increase and consequently the social development of countries as well (Wilson 2001).

First of all we will outline current fertility against the broad background of family formation patterns in the Mediterranean countries, trying to evaluate the 'demographic' distance between the two shores. Secondly, moving from the macro to the micro level and focusing on education differentials, we will ask whether the characteristics of educated southern Mediterranean women are similar to those that were notably at the basis of the determinants of the onset of fertility decline in northern Mediterranean countries[2].

The paper is organized as follows. Section I reviews the level and timing of fertility transition in the Mediterranean area, highlighting current and historical differences between the two shores and similarities that may become factors of convergence. Section II deals with fertility differentials by education, introducing an hypothesis for micro-analyses. In section III, life-table measures are used to describe childbearing patterns, and separate life tables are calculated for the transition from marriage to first birth and then to each birth transition. Fertility summary measures estimated from life tables are the cumulative proportion of women of a given parity having a subsequent birth within 60 months of the previous birth and the median length of the interval between successive births. Childbearing patterns are then analyzed through hazard models. Finally, section IV is devoted to comments and concluding remarks.

1. Levels and timing of fertility in the Mediterranean area: differences and factors of convergence between the two shores

1.1. A recent history of differences between the two shores and heterogeneity among South-East Mediterranean countries. Changes in fertility patterns are very marked in South-East Mediterranean countries (Figure 1). Fertility levels still appear to be over replacement level in all countries in North Africa and the Near East, but fertility rates have declined sharply in recent decades. The fall in fertility has not been equal across countries, however, and the current fertility levels of Algeria, Egypt, Libya, Morocco, Tunisia and Turkey range on average from two to three children per woman[3].

Notwithstanding the large decline, from the comparison between current levels of fertility, we can observe that countries facing onto the two Mediterranean shores still show very different behaviours in terms of timing and quantum of fertility. Looking at Figure 2, which shows the paths taken by countries in the post-war period, it can be said on the basis of analysis of current TFRs, that three southern shore countries – Morocco, Tunisia and Turkey, though with different timing – are 'following' the same course as the northern shore, with a temporal gap of 20 years compared to Spain and Portugal and 30 years compared to France, Greece and Italy.

Fig. 1. *Fertility trends in South-East Mediterranean countries*

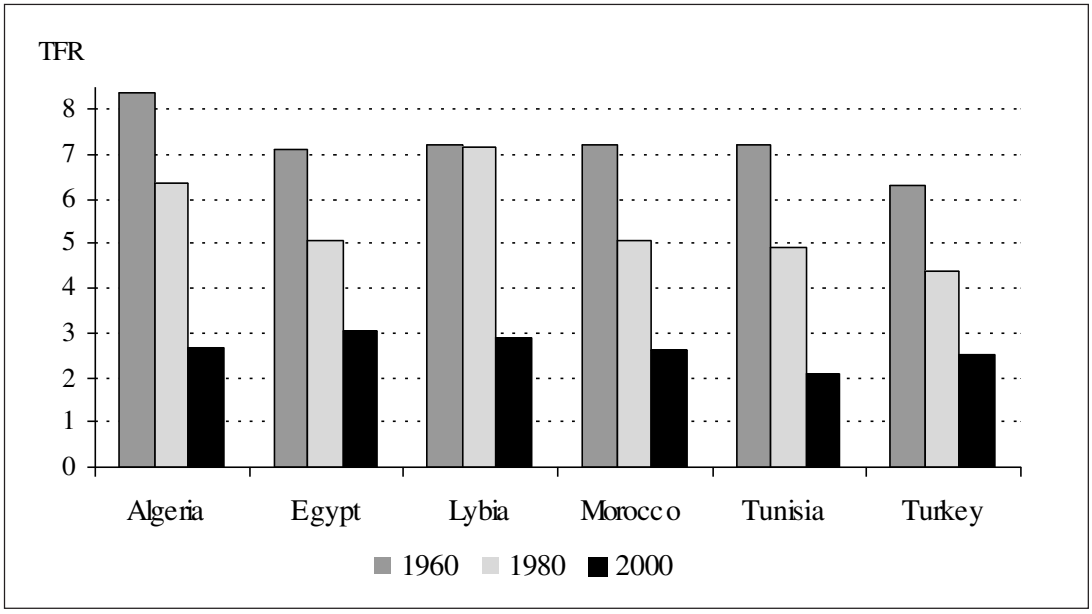
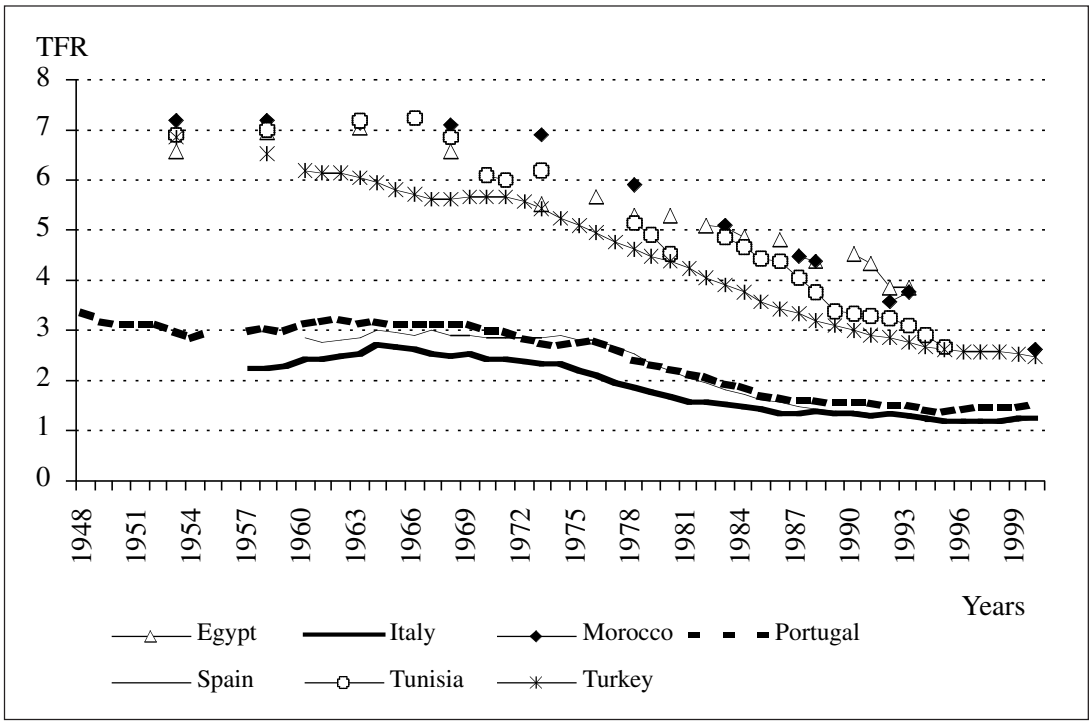


Fig. 2. *Fertility trends in the Mediterranean area: a comparison between northern and southern shores TFRs*



In describing the changes in North Africa (though the same holds true for Turkey as well) from 1970 to 2000, Tabutin *et al.* (2001) point out that these recent changes are such that the demographic transition of this part of the world can be qualified as:

a) late: fertility decline has occurred at a later date than, for example, Latin America and Eastern Asia;
b) rapid: the pace of decline more than compensates for this delay (Rashad 2000); it has evolved from a classic model of high fertility (with 7/8 children per woman) and precocious and universal nuptiality to a controlled reproduction model (less than 3 children, with a contraceptive prevalence of over 50%, see note 3), with a trend towards late marriage and the emergence of a certain percentage of definitively never married women;
c) convergent: the pace of change and the trend may be considered non-homogenous, but the whole region seems to be converging towards a comparable demographic model (with the exception of southern Egypt).

Transition has not been an uninterrupted process (Fargues 1988). In Morocco, for example, fertility did not decline in a linear way in the period 1962-1972, but actually increased and then declined, while Egypt's first fertility transition between 1965 and 1970 was followed by a bi-decennial stagnation with annual fluctuations. Between 1970 and 1980 fertility increased significantly from 5.30 to 6.15, fell and then rose again to 6.31 in 1987. Even in Tunisia, which is regarded as a textbook case, fertility decline stalled briefly in the early 1990s, suggesting that three children was the basic irreducible minimum (Courbage 1999), but recently it fell sharply to about two. Given the pre-transitional uniformity, during the process the differences exceed the similarities, whereas recent data suggest that the region is converging towards a comparable fertility model.

The proximate determinants are relatively clear: later marriage and, to a lesser extent, increased access to family planning services, have given women a greater degree of control over their fertility (Salvini 1990). Consequently, a delay in entry into marital union has been the first step towards the process of convergence of the Islamic Mediterranean shore countries towards the Catholic ones.

The transition in Morocco offers a good illustration of how the two factors (delayed marriage and increased use of contraceptives) have gone hand in hand, except at the beginning. Between 1960 and 1971, the singulate mean age at marriage of only 17.3 years increased, but there was no decline in the general fertility rate. Between 1971 and 1982, the rising singulate mean age at marriage caused a fall in the total fertility rate from over 7 children to 5.5. Of the average annual reduction of 2.40%, nuptiality accounted for 1.45% and contraception for 0.95%. From 1982 to 1987, fertility decline accelerated and most of the decline was attributed to the rising age at marriage. Finally, in the years 1987-1994, the role of contraception increased (Courbage 1999).

Union patterns can explain the heterogeneity in fertility between Egypt and Morocco as well; among the older generations the difference used to be negligible (age at marriage was around 17 years); today, Egyptian women born in 1965-70 marry, on average, at the age of 20, while Moroccan women marry at 23.8 years.

The major differences in the process of transition between the southern- and northern shore countries (apart from the persistent imbalance) can be summed up as follows:

The spectacular nature of the process. In just thirty years the southern shore countries have experienced a transition in fertility which often took the European countries about a century (Vallin and Locoh 2001); they also started with much higher pre-transitional levels of fertility (6/7 children per woman).

The role of modern contraception. While the transition in the North took place without safe contraceptive methods, in almost all the southern shore countries there have been programmes explicitly aimed at limiting births[4]. However, it is worth underlining that various different approaches have been adopted by family planning services in the region. In Tunisia, for instance, the state took the initiative in family planning in the 1960s, reinforcing its efforts with policies aimed at improving women's status and explicitly recognizing the links between declining population growth and socio-economic development; Morocco only started giving strong support to family planning in the 1970s. After the 1994 ICPD, emphasis was given to services only for health reasons and for social benefits (UNICEF 2001).

Women's role in society. In Muslim societies women's empowerment is still a burning issue. The concept is a multidimensional one that encompasses areas such as the practice of arranged marriages, the gender gap in educational enrolment, the low proportion of working women (in particular in the tertiary sector) and the incompatibility in these countries between working and fulfilling the role of wife (more than that of being a mother, as is usually the case). However, significant changes are also taking place in the Arab world as regards views of male and female identity, family roles, relations between the sexes and the position that women occupy in public life (Lapidus 1995). There are also marked differences between countries, because gender roles are an ideological and political issue that are closely linked with religious considerations (Obermeyer 1992).

However, in the area considered, the drop in arranged marriages, the increase in the level of education, the increase in age at marriage and the fall in the age difference between spouses can all favour the trend towards the weakening of female inequality in the family, a cardinal factor in women's *empowerment* in society[5].

The gender gap in education enrolment is narrowing, but the rates of female labour are still low and have grown little since the 1980s[6]. Work activity varies in inverse proportion to fertility, but with strong differentials between married and single women, more so than between women with or without children (Fargues 2000). In fact, women tend to abandon work when they marry, effectively making it a prerogative of single people. (In southernouth Europe, although the percentage of working women is much lower than in northern Europe, the 'competition' is between the role of worker and that of mother).

The Muslim countries have also seen the emergence of a not insignificant proportion of economically independent women who do not marry (in countries where until recently non-married women were socially almost ignored and had no status of their own whatsoever); there are also a certain number of working mothers, a figure that has grown to the extent that various means of support, including the setting up of nurseries and the provision of small-scale loans, are beginning to be a subject for political debate (Rashad 2000).

1.2. 'Convergence factors': historically strong family ties and marriage in the Mediterranean area. Possible convergence factors between the northern and southern shores should be sought in cultural and social similarities. There are considerable, historically deep-rooted similarities in family structure between the Mediterranean countries. Demographic and family behaviours in southern Mediterranean Europe, in terms of couple formation, fertility and living in the parental household, are currently quite different from those of central and northern Europe. The explanation of these behaviours (whether it is a delayed second demographic transition or whether they are completely different models) may also lie in the socio-cultural specificity of Mediterranean Europe. The 'familism' of southern Europe, where the family in fact takes on many roles that are largely foreign to its tasks in northern countries, contrasts with a 'civic culture' where the organization of solidarity for the needy and vulnerable in society is largely accomplished through public and private institutions (Reher 1998).

Family ties may represent the keystone of socio-demographic evolution. The patterns of familyrelationships (between spouses, between parents and children, between older and younger generations) that largely characterized, at least until a few years ago, southern European families may be considered quite close to the intra-household relationships in North Africa. The concept of *Asabiyyah* (i.e., 'esprit du corps', group solidarity based upon blood ties and reciprocal aid) has the extended meaning of an 'alliance among kin' and resembles the concept of the close-knit network of the Mediterranean area (Micheli 2000).

According to Reher (1998), we can observe strong family ties in the whole Mediterranean region. In other words, the role of family in southern Europe and on the southern Mediterranean shore is undoubtedly important in determining social networks that, in turn, condition some socio-demographic behaviours.

The evolution of marriage patterns also reveal some similarities in the two contexts: during the eighteenth century, female age at marriage continued to be noticeably earlier in much of southern Europe than in the northern part of the continent. It is also noteworthy here that in the southern parts of Spain, Italy and Portugal, age at marriage throughout the pre-industrial period was always lower than in northern parts of the same countries. Moreover, even if age at marriage was never as low as in North Africa, in general southern European women married younger than in northern Europe.

Given that fertility takes place essentially within marriage in all the Mediterranean countries (unlike in central and northern Europe), age at marriage (see Table 1a) greatly conditions mean age at first birth (in turn a key factor determining trends in higher birth orders). In the northern shore countries, in particular in France, Italy and Spain, mean age at first birth has risen sharply since the mid-1970s and during the 1980s and 1990s increases were almost two years per decade (see Table 1b).

Recent changes in the marriage pattern in Muslim countries are also considerable, and regard both the quantum and the timing. In many countries, between 7 and 21 per cent of women remain never married in the age group 30-39. While the proportion never married at age 40-49 is currently quite small, the situation of the cohorts now aged 30-39 suggests that it may increase. It is expected that Muslim

societies with near universal marriage will soon become the exception rather than the norm (Rashad 2000). If we look at the data in Table 2, we can see that a profound modification has also occurred in the timing of marriage. Almost all the countries examined reveal significant changes (Algeria, Libya, Morocco, Tunisia) and the singulate mean age at marriage (SMAM) in some cases is similar to that of women living on the northern shore of the Mediterranean (who nowadays marry much later than some decades ago, probably due to the completion of education at a later age and greater participation in the labour market).

The Arab family is thus evolving towards that of Mediterranean Europe as a result of women's later age at marriage, but also due to a reduction in polygamy and the stabilization of the family unit caused by a drop in repudiation, the institution that for a long time substituted divorce in northern Africa (despite the persistence of a not negligible proportion of arranged marriages; Fargues 2000).

Tab. 1a. *Trend in the mean age at marriage, for women, in northern Mediterranean countries*

Country	1960	1970	1980	1990	2000
France	23.0	22.6	23.0	25.6	27.7**
Greece	25.1	24.0	23.3	24.8	26.6°°
Portugal	24.8	24.2	23.2	23.9	25.2
Spain		23.9°	23.4	25.3	27.7°°
Italy*	24.8	23.9	23.8	25.5	27

*1997; **1998; °1975; °°1999.
Source: Council of Europe.

Tab. 1b. *Trend in the mean age at first child, for women, in northern Mediterranean countries*

Country	1960	1970	1980	1990	2000
France	24.8	24.4	25.0	27.0	28.7**
Greece		25.0^	24.1	25.5	27.3°°
Portugal			24.0	24.9	26.4
Spain		25.1°	25.0	26.8	29.0°°
Italy*	25.7	25.0	25.0	26.9	28.7*

*1997; **1998; ^1971; °1975; °°1999.
Source: Council of Europe.

Tab. 2. *Singulate mean age at marriage (1990s data) in southern Mediterranean countries*

Country	Women 25-29	Women 45-49	Most recent data*
Algeria[a]	21.9	16.3	25.6
Egypt[b]	20.2	18.0	22.3
Libya[d]	21.3	16.0	29.2
Morocco[e]	23.8	17.5	26.3
Tunisia[f]	23.2	19.9	25.0

Sources: [a] Papchild survey, 1992; [b] Demographic and Health Survey (DHS) 1995; [c] 1990; [d] Papchild survey, 1995; [e] Demographic and Health Survey (DHS) 1995; [f]1995, *Rashad, 2000.

2. The effect of education on fertility: evidence and research hypotheses. If the drop in fertility is now significant throughout the Islamic world (Courbage 1995), it has certainly been much faster in the North African countries than in those of the Middle East, probably in part due to the formers' greater exposure to Western models[7]. The control of fertility in the French-speaking Maghreb countries seems to have been closely related not only to a growth in living standards but also in education, which is increasingly egalitarian between the sexes.

The table below shows some data indicating the increasing availability of education over time in the southernshore countries, but also the current differentials according to gender, which do not yet seem to have been eliminated (Table 3).

Tab. 3. *Education in South-East shore countries: enrolment according to gender (most recent data)*

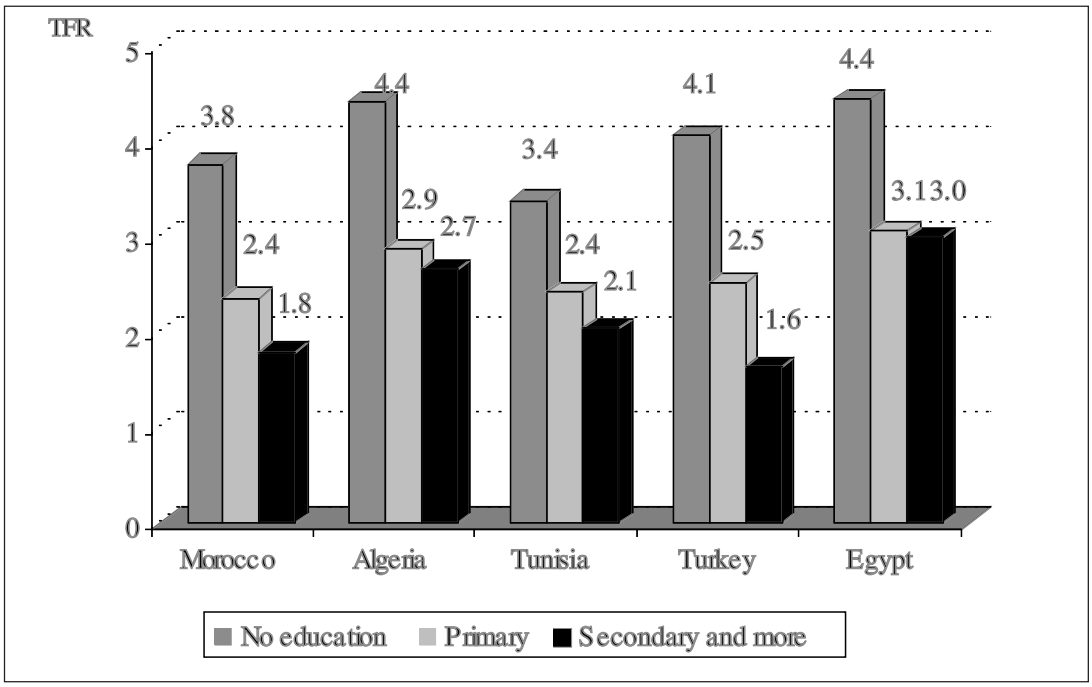
Countries	1st/2nd enrol.	3rd level enrolment		% Illiteracy 15-24		% Illiteracy 25+	
		Women	Men	Women	Men	Women	Men
Algeria	82	10	14.7	37.8	13.8	79.5	50.2
Egypt	81	14.7	23.2	48.7	28.8	78.8	49.7
Morocco	54	9.3	13.3	54.0	28.6	79.7	52.9
Tunisia	86	—	—	27.8	7.4	67.8	42.2
Turkey	69	—	—	11.6	3.4	40.2	13.2

Source: UN, World's women, 2000.

In the countries considered, both in the North and in the South-East, the effect of education on fertility is always inversely proportional (Figure 3 and 4)[8], but there is in any case a very strong variability in the elasticity of fertility in relation to education level (Courbage 1998). In Portugal and Greece (Symeonidou 2002), for example, women aged 45-49 with a higher level of education have a slightly higher average number of children than women with an average level of education (Figure 4).

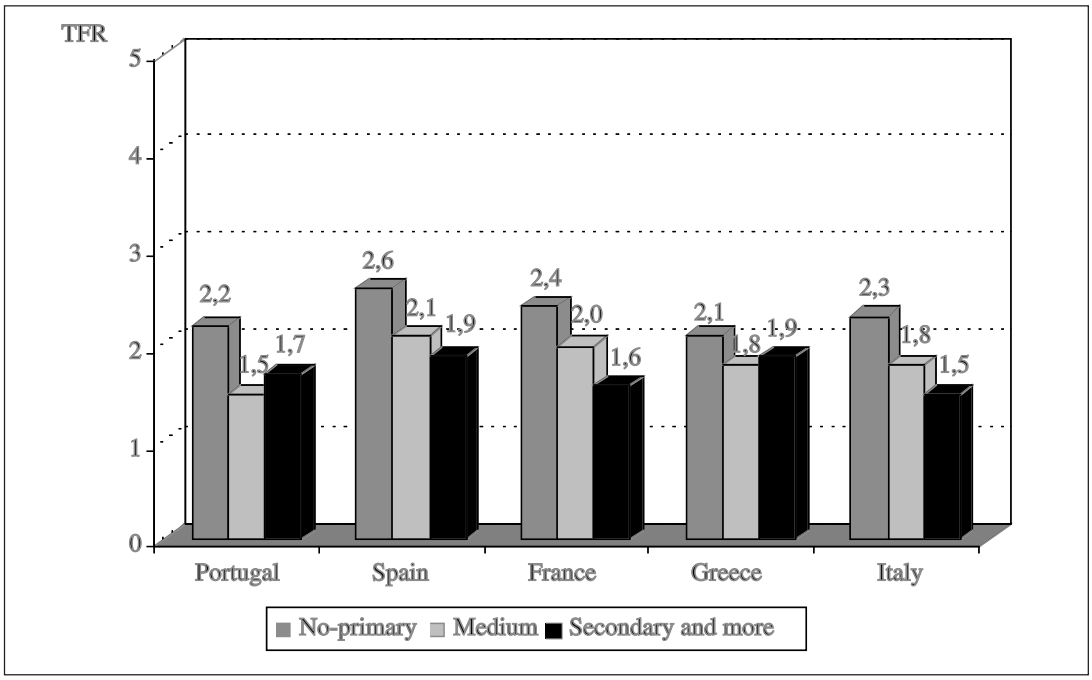
In the South-East Mediterranean countries, the impact of girls' greater access to education and the increasing availability of educational opportunities (although still greater in urban areas) is significant. Girls who reach secondary school are more likely to delay marriage and childbearing, their children tend to be healthier and their participation in the labour force relatively greater. Female education appears to be a determinant factor in the course of fertility whatever the socio-economic level (see, among others, UN 1995; Castro Martin 1995). Education seems to remove the differences in fertility between the different countries; such differences continue to be high only for illiterate women, are still perceptible for women with a low to medium level of education, and are negligible for the more well-educated. From the first half of the 1990s, the average fertility of women with a high school certificate settled in all the Arab countries at generational replacement levels. Even in Libya, for example, the average number of children of women with a high level of education is 2.1, while illiterate women have on average almost 6 children (Fargues 2000).

Fig. 3. *Total fertility rate according to level of education: southern shore countries (mid-90s)*



However, some specific cases among Islamic countries suggest that education is not by itself sufficient to explain the different 'transitions'. For example, the birth rate began to decline in Morocco before it did in Jordan, despite the fact that the former is more rural and has a higher rate of illiteracy.

Fig. 4. *Children ever born to women 45-49 according to level of education: northern shore countries (mid-90s)*



Another contradictory aspect is the link between education and female employment, and between female employment and the drop in fertility. Countries like Tunisia and Morocco, where the percentages of working women are still low (although they have increased), are those where a decline in fertility took place first (Fargues 2000).

However, one might readily hypothesize that the process of convergence in fertility behaviour in the South-East shore countries towards a Western-type 'model', in particular towards the typicity of the countries facing onto the northern shore of the Mediterranean, is led by precursory groups of women who have a higher level of education (or in any case that educational level, in the absence of other variables regarding income or socio-economic status, is a proxy for them).

The relation between fertility and education may change in time and in the course of the transition[9]. Caution must therefore be exercised in making comparisons in time and space. It is nevertheless interesting to focus on older women in northern shore countries and to see the differences by educational level, where fertility levels are approximately equal. The comparison is between current differential levels for the southern shore and the differential fertility of the northern shore some years ago, when the reproductive levels and models were, so to speak, less 'regulated' and total fertility levels were similar. The process of convergence realized by the countries of the southern shore and the characteristics of the 'forerunners' can be better evaluated if we look at fertility differences according to the level of education that existed some years ago, for example in European Mediterranean countries (see Figure 4, where we show data for older women).

Was the distance between the fertility of educated and non-educated women more accentuated in the past transition of the northern shore countries? Have active family planning policies in the South reduced these 'normal' differences?

For the time being we limit the comparison to Italy. Women born in the years 1897-1901 and 1912-1916 show very large differences in the number of children ever born (Table 4); women without education born at the turn of the century

Tab. 4. *Italy: mean number of children per woman according to births cohorts and level of education (Italian Fertility Survey, 1961 Census)*

Birth Cohorts	Level of education					
	Diploma, degree	Primary school	Elementary school	Read and write	Cannot read and write	Total
Italy						
1897-1901	2.2	2.0	3.4	4.1	4.9	3.7
1912-1916	2.0	2.0	2.8	3.7	4.4	3.0
Campania						
1897-1901	2.7	2.7	4.6	4.9	5.4	4.9
1912-1916	2.4	2.7	3.9	4.3	4.7	4.1

Source: ISTAT, 1974.

showed a fertility more than double that of women with a diploma or university degree (very few, in those years). Southern Italian regions – see here the values for Campania – had higher fertility and larger differences by education level (the TFR of illiterate women is more than double that of the more educated). The similarity with what is happening now in Tunisia or Morocco, with a temporal lag of some decades, is highly pronounced.

In more recent times, using data deriving from the First Italian Fertility Survey, differences (Table 5), albeit evident, are a little smaller. More educated women born in the period 1929-1944 have on average 1.82 children versus the 3.14 of women without education (a difference of 72 per cent).

Tab. 5. *Italy: mean number of children per woman according to age group and level of education (1979 Italian Fertility Survey)*

Age group	Level of education					
	No education	Elementary school	Primary	Secondary	University	Total
35 and over	3.14	2.32	2.11	1.94	1.82	2.37
Total	2.96	2.10	1.61	1.47	1.57	1.96

Source: De Sandre 1982.

The previous points can guide us in subsequent research. It is reasonable to suppose that in the future there will be both a continuing spread of education and a narrowing of the gender gap, and the acceptance and adoption on the part of less privileged groups of the family planning behaviours that have characterized the recent behaviours of more well-educated (and modern) women. One might quite well assume that the analysis of current data will confirm that amongst all the age classes there are 'pioneer' subgroups with low fertility, for instance among more educated women.

However, precisely because the group of more educated urbanized women may not be numerically very substantial, the aggregate effect may not be particularly visible. It is thus important to change the focus of the study, and consequently the level of analysis of the data, and to shift from a macro analysis to an analysis of individual data.[10] In the next section of this work, the comparison between the fertility of the South-East and the North Mediterranean is carried out using survival models from one parity to another for groups of women rendered homogenous according to age and educational level. More specifically, due to sample number problems, the level of education is simply dichotomized into the categories of 'illiterate or low level education' and 'with average or high education'; women are grouped by cohort (born since 1970, from 1960 to 1969, from 1950 to 1959 and before 1950).

3. An analysis of childbearing patterns

3.1. Micro Data. The analysis is based on the most recent retrospective survey data available for Egypt, France, Italy, Morocco, Portugal, Spain, Tunisia and Turkey[11],

deriving from Fertility and Family Surveys (Carrilho and Magalhaes 2000; Delgado and Castro Martin 1999; De Sandre *et al.* 2000; Toulemon and de Guibert-Lantoine 1998), Demographic and Health Surveys and Arab Maternal and Child Health Surveys carried out in the 1990s. The surveys (indicated in Table 6) used detailed birth-history data and information on the demographic and socio-economic background of the respondent women. The survey designs are quite similar but the southern shore data are collected only for ever married women; so, in order to compare findings, we took into consideration in the North only ever cohabiting women. As we will see later, this represents a limit for our analysis of age at marriage and fertility of younger generations.

Tab. 6. *Data and sample sizes of surveys*

Country	Survey	Year	Sample size[1]
Egypt	DHS - Demographic and Health Survey	1995	14,779
France	FFS	1994	2,566*
Italy	FFS - Fertility and Family Survey	1995	3,353*
Morocco	MCHS	1997	5,096*
Portugal	FFS	1997	3,416*
Spain	FFS	1995	2,755*
Tunisia	MCHS	1995	4,338*
Turkey	DHS	1998	6,152*

* sub-samples of women ever-married or ever-cohabiting

[1] The lowest age at the interview is 15 for all South Mediterranean countries and Portugal, 18 for Spain, 20 for France and Italy.

3.2. Life tables measures: age at first union and at first birth and birth intervals. Individual data are analyzed with life-table techniques. Life-table measures are used to describe union and childbearing patterns, and separate life tables are calculated for the transition from marriage to first birth and then for each birth transition, taking into account birth cohorts and level of education. While the union pattern measure is based on mean and median age at first marriage, fertility summary measures estimated from life tables are the cumulative proportions of women of a given parity having a subsequent birth within 60 months of the previous birth and the median length of the interval between successive births (Eltigani 2000, 2001).

Both in Table 7, showing age at marriage, and in Table 8, showing age at first birth, we can see that younger generations (e.g. born in 1970 and later) have systematically lower ages than previous generations. As already underlined, the fact that the women in the samples are all married (or at least in cohabitation in the northern shore countries) distorts measures.

The increase in education leads above all to a delay in marrying (which in all the countries considered almost universally marks the beginning of exposure to the 'risk' of having children). Therefore, the results, which concern the young generations, lose representativity compared to the whole women population of various countries (even though the samples are statistically representative), not only regard-

Tab. 7. *Mean and median age at first marriage of sampled women*

	median		mean		median		Mean	
Cohort	None/low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed
	EGYPT				*MOROCCO*			
Before 1950	16	19	18	23	18	20	18	20
1950-59	17	22	18	23	18	24	19	24
1960-69	17	23	17	22	18	24	19	24
1970&later	17	23	17	19	17	23	17	22
	TURKEY				*TUNISIA*			
Before 1950	17	21	18	20	18	20	19	22
1950-59	18	21	19	22	19	22	20	23
1960-69	18	21	19	22	20	22	20	22
1970&later	18	20	18	20	18	20	18	20

Source: Our processing of individual data deriving from Fertility and Family Surveys, Demographic and Health Surveys and Arab Maternal and Child Health Surveys.

Tab. 8. *Median age at the first birth*

Cohort	None/low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed
	TUNISIA		*EGYPT*		*MOROCCO*		*TURKEY*	
Before 1950	21.0	22.9	24.4	25.8	20.2	-	23.1	-
1950-59	22.0	24.2	23.7	25.4	20.7	26.4	21.6	23.6
1960-69	22.2	24.5	20.6	23.8	21.2	26.7	21.2	23.8
1970&latter	20.6	21.8	18.8	21.1	20.4	22.8	20.8	22.2
	ITALY		*FRANCE*		*SPAIN*		*PORTUGAL*	
Before 1950	23.5	25.8	22.7	24.2	24.4	25.7	23.3	26.2
1950-59	22.4	25.7	22.1	24.7	24.2	25.0	22.8	26.1
1960-69	21.7	26.7	22.3	26.3	21.9	26.5	22.2	26.2
1970&latter	22.2°	24.4	21.1	-	20.3	23.7	21.2	24.2

Source: Our processing of individual data deriving from Fertility and Family Surveys, Demographic and Health Surveys and Arab Maternal and Child Health Surveys.
° See note to table 9.

ing age at marriage (compare Table 7 with Table 2), but also in the transition to various parities. It is probable that women who marry young are selected in relation to a propensity for a higher fertility.

Age at marriage also has other selective effects. For example, in the southern shore countries, the median interval to the first child (Table 8) does not seem to be much influenced by education, which often displays a link contrary to expectations, above all in Egypt, but also in Turkey and Tunisia.

In the transition to the first child, some results seem contradictory in relation to the expected effect of a higher rate of education. Lower proportions of women with no or little education have experienced first birth within 60 months of marriage (see, for instance, the older Egyptian generations in Table 9). This is probably due to the very low age at marriage, to the extent that the median age of these Egyptian women is approximately 17, compared to 20-23, according to the age group, of educated women (Table 7). Furthermore, for over a quarter of the women over 40 years of age, age at marriage was lower than 15 years, with not infrequent cases occurring around 10-12 years. It is thus logical that these very young girls 'must delay' the birth of the first child (over 60 months, for example, for reasons of infertility related to such a young age).

However, Table 8 shows how in general more educated women have their first child at a much later age than the non-educated. The median age of women at the first child from southern shore countries is not greatly different from that of northern shore countries. In particular, one can see the high age of educated Moroccan women who, belonging to the same birth cohorts, display values in line with those of Spain, Portugal and Italy.

See also Figure 5, which shows, as an example, surviving Tunisian women in the transition from the first to the second child; the survival curves of educated women are systematically higher than the non-educated, and are much higher when passing from the older age group to the younger one.

The different fertility models of educated women compared to those with little or no education are also confirmed by analysis of survival from one parity to another. Look once again at Table 9, where, particularly for Tunisia, Morocco and Turkey, the proportion of women who pass from one parity to another within 5 years is much lower for the more educated women, who are approaching – displaying that oft-mentioned process of convergence – the models of the northern shore countries.

Some differences do, however, remain. This can be seen for the transition from first to second parity. If we compare Spain and Morocco, we see that 10% more Moroccan women in the generations 50-59 and 60-69 have had their second child within 60 months of the birth of the first one. The differences are even more marked when compared with Italian or Portuguese women.

When one looks at the transition from the second to the third child, the gap is consolidated, as it was reasonable to suppose given the low propensity towards a third child that characterizes the fertility choices of southern European women.

Figure 6 shows the transition from the first to the second child in countries of the South-East Mediterranean only for women with a medium-high level of education, according to the generation to which they belong. The curves of this transition are clearly very 'steep'.

The persistence of different models of fertility for the North and the South-East shore is also confirmed by analysis of the various median intervals between births of the different orders (see Table 10). However, the median levels of educated Moroccan women below 40 years old are gradually moving closer to those of women in northern shore countries.

Tab. 9. *Cumulative proportion of women reaching the next parity within 60 months after preceding birth*

Parity	Cohort	None/low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed	None/ low educ	Medium/ high ed
		TUNISIA		*EGYPT*		*MOROCCO*		*TURKEY*	
M-1	Before 1950	82.9	-	46.4	83.2	84.1	-	59.1*	-
	1950-59	87.1	94.8	52.6	90.2	89.2	90.4*	71.7	88.4
	1960-69	89.2	87.6	77.4	88.5	74.3	64.6	85.0	89.7
	1970&latter	75.2	67*	76.2	68.5	74.3	64.4	79.1	72.3
1-2	Before 1950	91.0	-	91.7	84.7	92.1	-	90.4	-
	1950-59	94.1	88.5	91.8	91.8	89.6	75.2	90.3	58.2
	1960-69	93.7	86.5	93.2	92.4	87.2	58.3*	84.4	59.7
	1970&latter	92.5	-	92.7	94.5	81.2	-	83.0	70.0
2-3	Before 1950	88.9	-	86.3	55.6	92.7	-	79.2	-
	1950-59	90.0	63.4	87.9	61.4	88.3	52.1*	73.8	23.7
	1960-69	82.7	58.5	87.3	68.1	82.8	44.9*	59.2	27.6
	1970&latter	91.7	-	86.9	80.2	78.1	-	58.2	34.4
3-4	Before 1950	84.1	-	80.4	39.8	79.6	53.3*	60.4	27.4
	1950-59	83.2	49.1*	80.7	42.9	77.8	57.4*	57.3	26.9
	1960-69	76.3	46.5*	81.2	55.6	84.0	55.0*	64.3	27.1
	1970&latter	72.0*	-	83.6	51.3	80.8	54.4*	60.2	26.3
4-5	Before 1950	81.1	-	69.7	40.4	83.3	-	44.8*	-
	1950-59	75.9	28.3*	68.6	32.4	78.2	-	55.0	-
	1960-69	72.1	-	74.5	54.7	68.9	-	54.8	-
	1970&latter	-	-	83.4	-	-	-	-	-
		ITALY		*FRANCE*		*SPAIN*		*PORTUGAL*	
M-1	Before 1950	89.19	84.86	85.3	74.6	93.97	88.80	93.04	95.65
	1950-59	92.12	83.08	84.4	71.9	92.70	86.87	91.13	84.45
	1960-69	90.63	71.44	76.2	51.1	89.89	71.52	90.03	78.53
	1970&latter	77.78°	50.57	60.0	28.1	76.74	49.45	75.85	50.00
1-2	Before 1950	63.33	53.55	60.3	58.2	74.36	70.69	59.56	51.16
	1950-59	66.53	49.32	63.6	53.3	62.66	63.11	53.01	46.32
	1960-69	65.64	50.79	68.6	48.8	59.96	48.43	42.65	30.96
	1970&latter	-	51.41	64.8	-	47.47	33.67	43.09	29.75
2-3	Before 1950	28.25	19.94	39.6	25.9	43.11	28.71	32.58°	12.90
	1950-59	27.88	14.40	44.7	28.4	23.44	19.12	25.94	12.59
	1960-69	27.68	13.94	52.7	34.0	30.28	15.60	24.85	7.59
	1970&latter	-	18.18°	-	-	64.29°	-	28.99°	25.00
3-4	Before 1950	33.80	14.04	50.0	20.0	29.36	28.33	30.53	-
	1950-59	16.11	10.19	35.5	13.4	30.86	20.95	28.41°	13.37
	1960-69	8.65°	14.99°	22.6	22.6°	28.53°	18.69	31.60°	56.71
	1970&latter	-	-	-	-	-	-	28.57°	-
4-5	Before 1950	21.88°	45.45°	54.8	33.3°	19.57°	5.00	28.74	-
	1950-59	14.25°	13.75°	30.9	20.8°	37.00	21.40	31.22	16.67°
	1960-69	-	-	23.6°	-	20.00°	28.57°	45.74°	-
	1970&latter	-	-	-	-	-	-	-	-

Source: Our processing of individual data deriving from Fertility and Family Surveys, Demographic and Health Surveys and Arab Maternal and Child Health Surveys.
* These values are based on less than 100 events. ° These values are based on less than 10 events. The groups included too few women to consider the same threshold used for Southern countries.

Fig. 5. *Transition from first to second parity in Tunisia, by generation and education level (life-table results)*

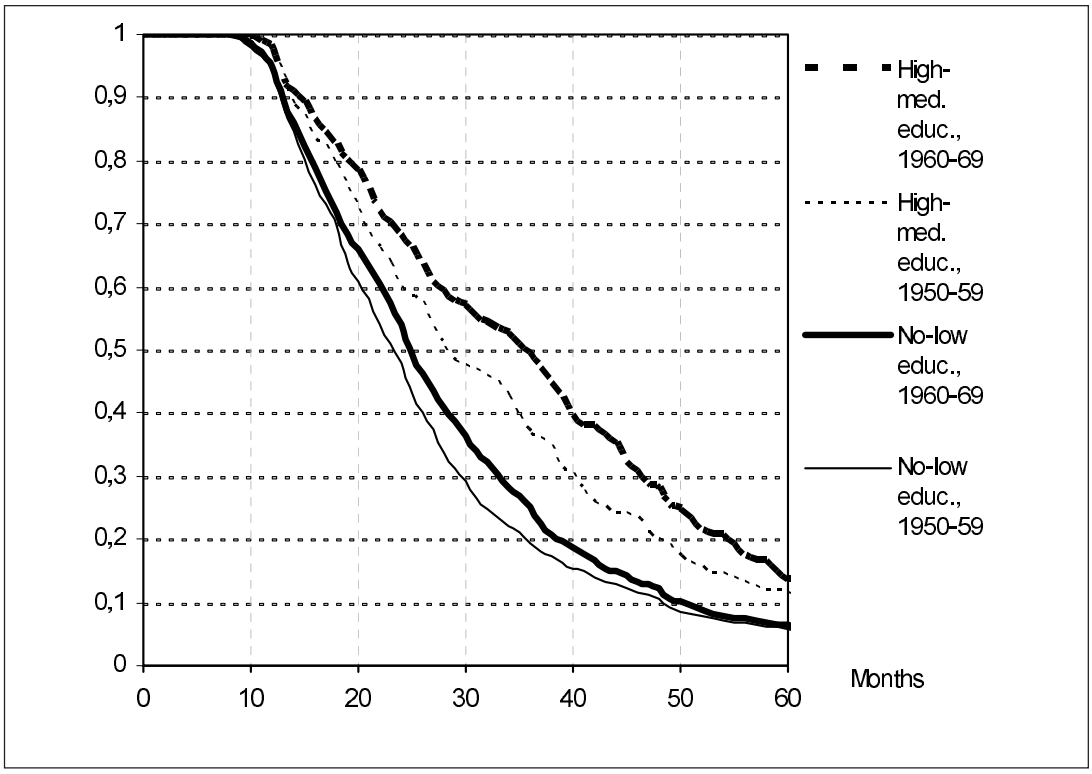
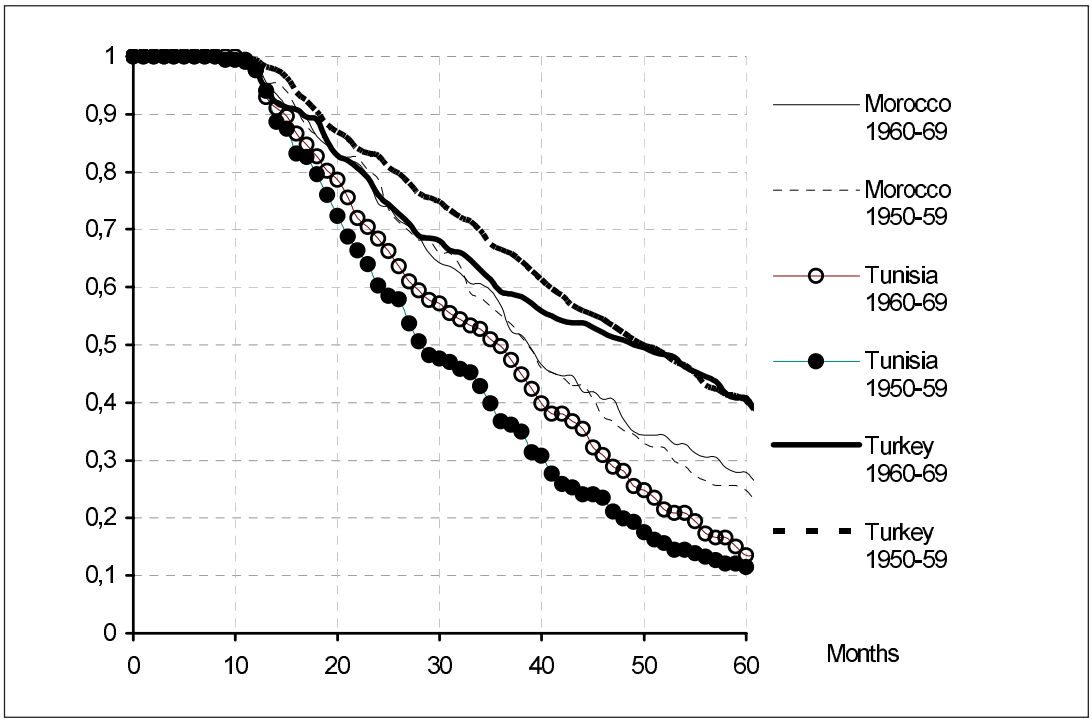


Fig. 6. *Transition from first to second parity in some South-East Mediterranean shore countries of women with a medium-high education level, by generation (life-table results)*



Tab. 10. *Median intervals, in months, from union to first birth, and from one parity to the next, according to birth cohort and level of education*

	No-low education				Medium/high education			
	< 1950	1950-59	1960-69	1970 >	< 1950	1950-59	1960-69	1970 >
Interval Union - First Birth								
France	16	17	25	33	28	32	57	
Italy	15	12	13	15*	15	20	26	55
Portugal	14	14	15	21	18	17	25	57
Spain	12	14	16	13	15	18	28	71
Egypt	65	55	26	20	20	15	14	17
Morocco	19	22	20	20		20	23	23
Tunisia	24	18	17	18	16	14	14	16
Turkey	18	19	29	30	19	16	15	16
Interval First - Second Birth								
France	39	40	40	35	49	55	62	51
Italy	45	43	44	28*	56	60	59	60*
Portugal	49	56	72	67	57	67	81	
Spain	39	44	52		41	47	60	67
Egypt	27	25	25	28	29	27	28	30
Morocco	24	24	28	33	24	39	39	50
Tunisia	23	24	25	26	24	28	35	33
Turkey	31	28	26	27	47	49	49	77

3.3. Fertility models in North and South shore countries: hazard model results. As is well known, life-table analyses are a good instrument of analysis if the number of covariates we want to take into account does not become too large. In the previous section, we considered only women's birth cohort and level of education. Here, in order to understand the contribution of some socio-economic covariates, we carry out comparative analyses applying proportional hazard models to the same data set used previously[12].

In some cases, which we will highlight during the discussion of the results, it has not been possible to consider all the covariates or the same modalities for the variables[13]. The covariates, chosen according to the availability of information and following the results of previous analyses and literature on this issue[14], can be divided into 'control variables' (birth cohort, previous birth interval, age at first union, age at previous birth) and 'explanatory variables' (place of residence, level of education, professional status of the woman and of the partner).

The dependent variable is represented by the length of interval (measured in months) between union and first birth, between first and second birth and between second and third birth (for southern European countries); for the other countries the next two birth intervals are also analysed.

In order to test the proportionality between time (duration of the intervals) and

the covariates, we included in the models 15 – one by one – the interactions of the first order between time (duration of the intervals) and the covariates[16]. Then, in the final models, we included only the interactions that were significant at this first step. In many cases some interactions lose significance in the final models (see table 11 for some results concerning first-second and second-third birth intervals).

The duration of intervals between births currently seems to be significantly influenced by education and by female working status both in the southern European countries, and in the Islamic ones. More educated women show longer intervals, and a lower hazard, than less or not-educated women, in the transition from one parity to the next. But the effects are generally different in different contexts. In Spain and in Portugal the risk of passing from one parity to the next is lower by about 20% for educated women compared with the reference category, while in Morocco, Tunisia and Turkey this risk is halved. An exception is represented by Italy, where the differences between more educated and reference groups of women are larger and quite similar to the developing countries (in particular for the second-third child interval).

Among the South-East countries, an important effect of education emerges in particular in the higher intervals (especially in Tunisia, where the hazards are much lower for more educated women, around 0.5). For the first interval, education effects are less evident, probably because all women who marry have at least one child (with the exception of those with fecundity problems). Interaction terms relative to education, often significant, are generally positive (with the exception of Tunisia for the third and fourth parities and Egypt for the first interval). This might mean that the greater the duration of the intervals, the more the negative effect, measured by the main effect coefficient, is reduced.

In the northern shore countries working status also generally tends to reduce the hazard for all parities. The high values of coefficients seem to confirm the negative relationships between work and fertility in contexts where the organization of society, work arrangements and gender roles are not 'mother-friendly'. In the southern shore countries the results are less evident. Only Turkey shows a pattern similar to the European countries also at low parities, while the other countries sometimes have significant negative coefficients only for the higher birth orders.

Residence, as it was reasonable to assume, does not in general have a significant impact on timing of fertility in the lowest-low fertility countries, while the effect is often significant in South-East countries. Living in an urban context decreases the hazard of passing from one parity to the next, apart from in Tunisia, where the coefficients are never significant.

The duration of the previous interval and often the age at the beginning of the interval considered are the most significant of what we have called the 'control variables'. In particular, in the northern shore countries only age at union (marriage or cohabitation) shows an important effect – the higher the age at union, the longer the first interval. As regards this, it is important to emphasize that the results concerning the interval marriage-first birth for the southern Mediterranean countries are difficult to interpret. One possible explanation may lie in the composition of the

Tab. 11. *Logistic model: dependent variable Duration of intervals First-Second Birth, Second-Third Birth Odds-ratios*

	ITALY		SPAIN		PORTUGAL		TUNISIA		MOROCCO		TURKEY		EGYPT	
						First – Second birth								
Variables	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.
Main effects														
Cohort 50-59	0.750	**	0.712	**	0.776		1.046		0.902		1.235		1.277	***
Cohort 60-69	0.615	**	0.355	***	0.415	***	0.905		0.612	**	1.140		1.294	***
Cohort >= 70	0.817		0.451		0.371	***	0.698	***	0.333	***	0.866		0.949	
Duration 1st int.	0.995	**	0.990	***	0.995	**	1.000		0.996	***	1.006	***	1	
Age at 1st child	0.978		0.981	**	0.999		0.993		0.966	***	0.988		1.03	***
Medium-High Educ.	0.686	**	0.871		0.853		0.504	***	0.560	***	0.439	***	0.75	***
Currently working	0.645	***	0.784	***	0.616	***	0.996		0.896		0.863	***	0.955	
Student etc.	0.771	**	0.752	**	0.498	***								
Urban	1.296	**	1.087		n.a.		1.009		0.743	***	0.887	**	0.946	**
Work of partner	0.931		1.035		1.004		1.040				0.949		0.967	
Interactions														
Time*Coo50-59	1.005	**	1.004		1.002				1.002		0.995		0.995	**
Time*Coo60-69	1.009	**	1.014	***	1.010	***			1.008	*	0.993		0.995	**
Time**>= 70	0.994		0.994		1.007				1.014	**	0.998		1.003	
Time*age first child							0.999	**					1.009	***
Time*Education	1.003		1.002		1.002		1.011	**	1.011	***	1.007	**		
Time*Curr. Work.					1.002									
Time*Student					1.005	*								
						Second – Third birth								
Variables	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.	Odds-ratios	Sign.
Main effects														
Cohort 50-59	0.639	*	0.487	***	0.891		0.8340		0.816		0.834		1.249	**
Cohort 60-69	0.355	**	0.386	**	0.715		0.5080	***	0.466	***	0.663	***	1.291	**
Cohort >= 70	0.907		0.013	*	0.511		0.5850		0.230	***	0.525	***	1.022	
Duration 1st int.	0.991	*	0.992	*	0.997	**	1.0010		0.999		1.011	***	1.005	***
Duration 2nd int.	0.979	***	0.981	***	0.977	**	0.9920	***	0.990	***	0.985	***	0.993	***
Age at 2nd child	1.000		0.955	*	0.993	**	0.9620	***	0.964	***	0.948	***	1.007	
Medium-High Educ.	0.496	***	0.818	*	0.604		0.4490	***	0.413	***	0.47	***	0.504	***
Currently working	0.732	**	0.631	***	0.699		1.0330		0.801	*	0.915		0.994	
Student etc.	1.048		0.639	*	0.850									
Urban	0.909		1.118		n.a.		0.9030		0.725	***	0.776	**	0.822	***
Work of partner	0.910		0.908		0.992		0.9720				0.956		0.99	
Interactions														
Third int.*Coo50-59	1.008	*	1.004				1.0040		1.006				0.996	*
Third int.*Coo60-69	1.018	**	0.998				1.0090	**	1.014	***			0.996	*
Third int.* >= 70	1.011		1.080				1.0070		1.024	***			1.003	
Third int.*lav											0.997			
Third int*Education	1.007	**					1.0070	*	1.008				1.009	***
Third int*urb											1.003		0.997	*

*** Significant <= 0.001; ** Significant > = 0.01; * Significant > = 0.05; Categories of baseline Odds-ratios function; Cohorts = Cohort < 50; Education = no-low education; Professional status = Housewife; Residence = Rural; Work of partner = low.

group of respondents in the first years of marriage, when first births occur. These groups include women who have married very young and who are therefore selected from many points of view. The variables taken into account in our study may not entirely explain this complex situation.

4. Discussion and open issues. The fertility transition is now underway in almost all the countries of the South-East Mediterranean, and the prospect of convergence in the long run with the demographic course of the northern shore countries is no longer improbable.

Widely available education (particular female) and urbanization have influenced reproductive behaviour. Despite the limited presence of women in the labour market, the irreversible drop in fertility seems to prefigure considerable social transformations (erosion of patriarchy and modification of the status of women in society) (Fargues 2000).

In comparing the North-South fertility transition path by education level, an important role may be played by family planning programmes. The rapid diffusion of family planning in the southern countries, even amongst less educated women, due to ad hoc campaigns may 'flatten out' differential fertility levels.

Trends in period fertility are, then, the net result of modifications in timing and in intensity. Analysis of tempo is important in countries where the tempo effect is changing rapidly. Of course, period fertility is lower than cohort fertility when the mean age at childbearing rises (the effect has been sized as one year's worth of births lost for every year's rise in the timing of childbearing during a specific interval of time; Bongaarts, 2001). For South-East Mediterranean countries, contemporary TFR is depressed by the rise in the mean age at childbearing.

The question is: how will this postponement effect continue in the future? We believe that the trend will continue, if only as a result of the ongoing trend towards greater education amongst women. Education is related to a later entry into both married life and fertility life. In the short run, in demographic forecasts for the Mediterranean region made by Courbage (2002), the proportion of educated women is expected to grow and this fact in itself, given the same differential fertility for groups, will continue to mean an increasing average age at marriage and at first birth, and therefore a decreasing period TFR. What the quantum of fertility will be when the rise of timing indicators ends in the long run and that particular fertility-depressing effect stops is of course impossible to say.

In the short run, the trend of convergence of period TFRs between the two Mediterranean shores (although fertility levels are still quite different) should also continue not only because of the postponement of fertility in the South, but also because of the current mechanism in the North. In fact, from 1999 there has been a small increase in the level of period TFRs in France, Spain, Greece, Italy and Portugal,although it is unlikely that South Mediterranean fertility will rebound to replacement level (Bongaarts 2001); this is partly due to a recuperation effect by the cohorts, and also to the contribution of immigrant women with a higher fertility.

In South-East countries the role of women may represent one of the key factors

in the process. Even if at the present moment women have a low participation in the labour market, we can hypothesize that in the future, with the increasing enrolment in higher levels of education, this commitment will increase. Courbage (1998), for example, states that only university and professional education ensure active participation in the labour market, and that fertility seems more sensitive in the transition from inactive to active women (even if they belong to the blue-collar sector) than between uneducated women and primary educated ones.

On the other hand, what Reher (2001) has to say about the social realities considered also seems reasonable, when he talks about the «changing role of women more as a consequence of demographic change rather than its cause [...] there are countries (such as Morocco – our note) that have experienced sharp fertility decline in recent years where women continue to play only marginal social roles».

Reher observes, from empirical studies, that once fertility has decreased dramatically, the opportunity cost of children for working females increases but the reproductive process occupies a shorter period of women's active lives, thereby allowing them to increase their labour force participation. Whether this is the description of the future of the Islamic countries that we have considered in this study we cannot say, also because the evolution may be influenced both by underemployment and unemployment, which is very high and increasing in the southern Mediterranean region, and by the unpredictable relationship between women's role and Islamic traditional culture.

[1] Caution is required regarding the quality of data shown. Surveys carried out with criteria that are not always clear and compatible and estimates undertaken by super-national organizations often lead to contradictory information. Our micro analysis will be based on survey data that are relatively reliable for the southern shore countries as well, while various data sources are used in the macro analysis.

[2] Here we analyze the most recent survey data (micro data) available for Italy, Spain and France in Mediterranean Europe (and Portugal as well, because of cultural and demographic similarities), and Egypt, Morocco, Tunisia and Turkey on the south Mediterranean shore. At the macro level we also considered Greece, Algeria and Libya.

[3] The fertility rate remains moderate (greater than three children per woman) in Jordan, Libya and Syria and high (greater than five children per woman) in the WBGS, where demography forms part of the broader political struggle with Israel. Indeed, the total fertility rate in Gaza – an average of more than seven children per woman – is one of the highest in the world.

[4] Data deriving from surveys carried out in the 1990s show the following level of contraceptive prevalence among women between 15 and 49: 51% in Algeria, 48% in Egypt, 45% in Libya, 50% in Morocco, 60% in Tunisia, 64% in Turkey. Source: World Bank, World Development Indicators 1998.

[5] See the positive relations that emerge from DHS surveys between dialogue between spouses and the characteristics of female 'autonomy', generically correlated with the use of instruments of family planning and a lower number of desired children (for example, see El-Zanaty *et al.*, 1996).

[6] Participation of women in the labour force in 1980 and 1996 were respectively the following: 21% and 25% in Algeria, 26% and 29% in Egypt, 19% and 21% in Libya, 34% and 35% in Morocco, 29% and 31% in Tunisia, 35% and 36% in Turkey. Source: World Bank, 1998.

[7] See Courbage(1998) for a discussion of the

influence of the French language mass media on the educated urban minorities of the Maghreb countries and of the diaspora towards Europe. We can assume that a key role in the westernization is played by migration, and in particular by returning migrants.

[8] Note that the comparisons have been made on different quantities: on one side, on the southern shore, we have period TFRs, aggregating experiences of contemporary women cohorts, while on the northern shore, we have the cumulated children ever born for women aged 45-49, a cohort of women who lived through the most intensive period of fertility on average 15-20 years before. This bizarre comparison is due both to the different nature of the data and to the aim of highlighting the temporal lag that divides the two shores in terms of the evolution of fertility.

[9] At a macro level, in comparing countries and placing side by side data relating to education levels and those of fertility, one notes in general a reversed U-effect of education. The effect is weak in poor societies, constituted mainly by illiterate people, pronounced in societies in transition, and weak again as soon as fertility transition is accomplished (Courbage, 1998).

[10] The 'optimum' level of analysis concerning the convergence in demographic behaviours is still subject to debate. Following a so-called classic process and basing our study on the available data, it seemed natural to us to shift from a descriptive study of the differences between states carried out with average measures to one based on individual data, in the search for differential 'propensities', understood in a probabilistic sense (Billari and Wilson, 2001).

[11] Some preliminary results of this study have been presented in Mencarini and Salvini (2001; 2002[a] and 2002[b]).

[12] Ideally, to better highlight the similarities or differences in fertility patterns and timing during different phases of demographic transition between South-East Mediterranean countries and northern ones, we should have compared individual data of current southern women to those of northern women, when the aggregate level of fertility was similar. The non-availability of individual data is of course the main obstacle to such a comparison.

[13] As concerns women's jobs, only data for countries belonging to the northern shore countries distinguish current working women from those who are retired or students and from housewives. In the case of the Morocco data, it has not been possible to include the variable regarding the husband's job, whereas for the Tunisian data we have only information on agricultural and non-agricultural workers.

[14] See, among others, Ongaro's study on the First Italian Fertility Survey data. She showed the determinants of birth interval length in Italy (Ongaro, 1990, 1993).

[15] Using SAS software.

[16] The overlaps of the survival curves previously showed suggested an absence of proportionality of risks.

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Summary

Mediterranean fertility: towards a South-North convergence?

The fertility patterns of the lowest-low fertility countries of the northern Mediterranean 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 period total fertility rate 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? Furthermore, are the characteristics of these women similar to those that were notably the determinants of the onset of fertility decline in northern Mediterranean countries? The aim of our study is to investigate the extent and the value of these recent demographic changes. The issue is whether they can be described in terms of a peculiar Mediterranean fertility pattern and whether South-East women are therefore moving along the same path taken by women in Mediterranean Europe towards exceptionally low fertility (a sort of "convergence assumption"), or whether this "developmental" theory is too simplistic and Eurocentric. We will seek to sketch an outline of fertility against the broad background of family formation patterns in the Mediterranean countries, using a macro-level description to build a grid of reference comparing the experience of northern and southern shore countries. We will also present some results of analysis of individual data with a view to outlining the determinants of fertility timing according to parity.

Riassunto

Fecondità mediterranea: verso una convergenza nord-sud?

I modelli di fecondità dei paesi della riva Sud-Est del Mediterraneo sono ancora molto diversi da quelli dei paesi della riva Nord, caratterizzati da livelli di fecondità estremamente bassa. Tuttavia, il declino della fecondità si sta diffondendo in tutta la regione, in particolare nel Maghreb. Infatti, in alcuni di questi paesi il tasso di fecondità totale di periodo, tra le donne con un'istruzione secondaria, è ormai inferiore ai due figli per donna. Questi recenti sviluppi mettono in discussione alcuni stereotipi relativi all'area sud-orientale del Mediterraneo, ad eccezione della Turchia, e che la descrivono come il "bastione" del conservatorismo familiare e dell'alta fecondità. Ma questi gruppi di donne istruite sono i precursori di una più vasta e generale diffusione del calo della fecondità o solo il segnale di una pluralità di comportamenti in società dalla crescente eterogeneità, ancora molto tradizionali ma, allo stesso tempo, sottoposte ad un processo di modernizzazione? Inoltre, le caratteristiche di queste donne sono simili a quelle che sono state le determinanti dell'inizio del calo della fecondità nei paesi del Nord del Mediterraneo? Il nostro studio vuole investigare la portata e il valore di questi recenti cambiamenti demografici. La questione è se si può rintracciare uno specifico modello Mediterraneo di fecondità, e se, quindi, le donne del Sud-Est stanno percorrendo la stessa strada delle donne Mediterranee Europee verso una eccezionale bassa fecondità (in una sorta di "assunzione di convergenza"), o se, invece, questa teoria "evolutiva" sia troppo semplicistica ed eurocentrica. Con dati di tipo macro compariamo il quadro della fecondità e dei modelli di formazione familiare dei paesi delle due rive del Mediterraneo; con dati individuali indaghiamo invece le determinanti della intensità e cadenza della fecondità per parità.