Different cohorts and different periods mean different fertility?

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ABSTRATCT

Is fertility in Portugal different from the European context? Is this a particular situation, is only a transitory moment of postponement, or is a logical consequence from the socio and economical context? To understand the Portuguese (and European) context of fertility is important to comprehend the probable cause-effects that are now influencing fertility postponement and decline, both in period and in cohort, keeping in mind the deep impact of massive education and labour market participation of women. The overall objective of this study is to contribute to the fertility research by exploring in the last three decades the period and cohort dynamic of Southern European fertility, with special attention to the particular case of Portugal. Also the aim of this study is to investigate and explain the transitions to motherhood providing new insights between cohort fertility and educational attainment.

Key words: Fertility, Cohort, Period, Portugal, Education

INTRODUCTION

In 1984 Lídia was born somewhere in Portugal, and in that year born in Portugal on average 1.9 children per woman, Portugal was still two years far from the European Economic Community (EEC – the European Union of today), 18 years far from the EURO, and in the European context Portugal was still one of the poorest countries.

Lídia's mother, the youngest of seven brothers and sisters, was born in 1965, ten years before the end of the dictatorial regime. She belong to a cohort of women with low educational attainment, in fact her mother's educational level is less than the complete secondary school and with the age of 15 she was already at the labour market. Later in 1989 when Lídia arrived to the primary school were in her classroom 25 students. From that group only five of them, including her, had and remain today (2013) without any siblings. Also from these 25 students in the classroom and born in the cohort of 1984, 10 have a university degree but only 3 have today at least one child.

The "narrative" outlined above is not exclusive from the Portuguese society, it is a transversal dynamic to all the Western and European countries. After the Second World War not only the South of Europe but also all western societies have witnessed profound changes in the educational and labour careers and childbearing of the young women. In the European societies we assist to a considerable improvement in the educational system and in the requalification of the labour market as result of higher educational levels. In the meantime, there has been a pronounced postponement of entry into motherhood, due to the simultaneous increase of female participation in the educational and labour markets. The massive postponement and recuperation of childbearing in low-fertility societies have presented important sociological and demographic developments during the past half-century (Frejka 2010). After the pronounced decline of fertility (during the 1990s), between 2000 and 2008, fertility

rose in the large majority of European countries. This trend represents an unexpected reversal from fertility rates below 1.3 in most countries during the 1990s or in some cases in early 2000s. The number of countries with a TFR below 1.3 declined from 16 in 2002 to just one in 2008 (Goldstein et al. 2009).

The low fertility rates in Europe are leading to important changes in age structure and to slowing or suppressing population growth. The immediate impact of low fertility is the reduction of the number of children in the total population and increases the share of the population concentrated in the working ages, raising support ratio and correspondingly raising the income per capita. Afterwards, as the smaller cohorts of children reach the working ages, the share of working age population declines, the share of older adult's increases and the total population ages. So, in a general way the support ratio falls, reducing the income per capita. The shifts of population age distribution have significant macroeconomic consequences that feature prominently in the debate of the economic attitude in Europe.

Nevertheless education is distinguished as the most important factor influencing the timing of childbearing and fertility outcomes of women (Spéder & Kamarás 2008). If in one hand being enrolled in education is increasingly perceived as incompatible with childbearing and thus results in postponement of family formation and childbearing. On the other hand, women with higher educational attainments are more likely to follow a professional career and consequently differ in the process of family formation and dimension. Women with higher formation tend to form smaller families and remain childless more frequently.

Portugal, like the other Southern European countries, experienced a drastic and rapid decline in live births. From 205 077 births in 1950 Portugal declined to 101 381 in

2010, what means a reduction of 51%. During this time Portugal had, in the 60's, the highest emigration movement; between 1961 and 1974 the colonial war and high female employment rates; in 1974 the national revolution; in 1986 Portugal at the same time as Spain became part of EEC; and during the 80's it was observed a rapid education feminisation.

Even that economic context, labour market participation and educational levels, had the major role in the evolution of fertility the family context is also important. The central role of family in the organization of labour market and welfare is considered one of the key traits of a hypothetical Southern European model between and within countries. Bettio & Villa (1998) argue that the Southern family model inhibits female labour force participation since most care services are performed within the family by women, instead of being externalised thereby both relieving women of excess work in the family and creating job opportunities. Such family model is presented as the "root cause" to the low female employment rates in Spain, Greece and Italy. Yet Portugal highlight itself with exceptionally high rates of female employment revealing an "apparent" inconsistencies of such rates with the familialistic features that are said to characterize the organization of welfare and employment in the four countries (Caldwell 1980; Kohler et al. 2005; Tavora 2012; Oliveira 2009), besides these differences Rydell (2002) also highlights difference between Portugal and the neighbour countries in public childcare facilities along with more public aid to families with young children.

We can then argue that the erosion of the familialistic tradition in Portugal ended when in the 60's and 70's the female labour force participation increased and the female employment rates exceeded the Spanish, Italian and Greece employment rates. This rapid and marked growth results from a high male migration that is consequence of

strong emigration to Europe and military recruitment of young men to the colonial war (1961-1974), which created severe labour shortages in a period of strong industrial development. The weakness of wages in Portugal and the demand for better living conditions have long led the Portuguese women to abandon the concept of "housewives" (Mendes & Rego 2006).

The traditional low rate of female employment is not conventional for the Portuguese women, and even the erosion of familiastic model in a first moment showed "*no negative impact of motherhood on women's employment, implying that mothers of young children are even more likely to be employed than non-mothers*" (Tavora 2012). If Portugal had already in the 60's and 70's a extraordinary female employment rates and at that time fertility was still considerably high it's expected that the changes in fertility trends are due to other factors that not the increase participation in the labour market.

In the last three decades fertility analysis for the European regions shows that birth decline and postponement are fundamental characteristic in fertility trends (Frejka 2010; Frejka & Sardon 2006; Kohler & Ortega 2002; Kohler et al. 2005; Sobotka 2004). Birth postponement has been the subject of comparative analyses in different European countries, resulting in the idea that higher levels of educational attainment and the extension in the duration of schooling are key factors in explaining birth postponement.

In this framework Portugal is an attention-grabbing case for analysis, since in one hand the country has a high percentage of working women and this element constitutes a distinctive and long-established feature of the Portuguese society, and on the other hand, the general educational levels of the population are considerably lower than in most European countries. Portugal is still subject to significant shortcomings in its

education when set against other OECD countries. In part, the persistence of low levels of educational provision in Portugal can be seen in the legacy of the past. In 1950, around 46% of the Portuguese population aged 15 years and over were unschooled. Only 20% completed primary education (Pereira & Lains 2012). Some progress was made and by the late 1960s, universal primary schooling was finally attained (Amaral 2003), some decades after the European core. Even so, by the end of the *Estado Novo* (1974)[1], one third of all the Portuguese were illiterate, one third of those aged 15 or older had full primary education, 3 percent had completed secondary education and a residual 0.6 percent had undergone university education (Neave & Amaral 2012). Between 1974 and 2000, public expenditure on education rose from 1.8 percent of GDP to about 3.7 in 1980 and to 6.9 of GDP in 1999. The average years spent in school steadily rose, almost doubling from 4.7 years in 1974 to 8.26 years in 2010. The number of those reaching upper secondary and tertiary education grew substantially since the return of democracy and tripled since 1975, even that the school dropout rate remains very high, greater than that of other OECD countries, with the exception of Mexico and Turkey (Pereira & Lains 2012).

Overall, higher education today caters for ten times more students than it did 30 years ago, in truth an 'educational explosion'. This fast 'catching up' with traditionally 'more educated' countries unveils a very rapid drive onwards towards higher training, which took place within the space of one generation. From the year 2000, however, the numbers of new students entering directly from secondary schools have dropped, as have birth rates (Almeida & Vieira 2012).

The explosion in higher education is inseparable from the massification of access to education at basic and secondary levels and the outcome of strong and effective

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[1] Estado novo is the name of the political regime prevailed in Portugal for 41 years without interruption since 1933 until 1974, when it was overthrown by the Revolution of April 25.

investment via the public sector in democratising the school system since 1974. It was also a result of a new and intense demand for education by families in their daily quest to improve their children's educational attainment. The vertiginous drop in the Portuguese birth rate since the second half of the 1970s is a pointer to this watershed, which went hand in glove with a new notion of childhood and infancy, and their relationship to schooling. The idea of the child as a small adult, working for the family since earl age, and thus, quite literally, just passing through school, has not entirely vanished.

Another specificity of Portuguese high education level is its early feminisation. It was in the course of the 1960s that the drive of women into higher education became unstoppable. In 10 years, female participation grew from 29.5% in 1960 to 44.4% by the end of the decade. During the 1980s, the 'turning point', i.e., when the number of women students exceeded the number of male students in Portugal, was reached. Against a broader European backdrop, Portugal, together with France, were the first countries to achieve this point. Iceland, Sweden and Norway reached it in 1985 and with a few years delay, countries such as Denmark, Spain, Italy, Finland and more recently, Ireland, Luxemburg and the UK attained this condition (Almeida & Vieira 2012).

Although that the education levels in Portugal had experienced remarkable changes that may directly affect the evolution of fertility, few studies were conduced in the country with the aim to observe the impact of education in fertility postponement and decline. Almeida et al. (2002) after quantify fertility in its intensity and diversity, claimed that the decline of fertility in Portugal is mainly explained by the increasing access and use of medical contraception after 1974; and by the new personal values about the sexuality, conjugality, childbearing and the role of the child in the modern

family context. Nonetheless the authors consider that *" the instruction level introduces a clear diversity among Portuguese women (mothers)"*. Cunha (2004) denotes that education as *"a decisive role as one of the principal component in explanatory studies related with procreative behaviours and representations in the field of fertility"*. Moreover, Oliveira (2009) identified a nonlinear relation between education and fertility in the specific case of Portugal, and a *"reduction in the fertility of lower educated groups along with the inverse tendency in the most educated people"*.

The interplay between education and fertility has been an important topic of discussion in the scientific literature. Typically, the aim of research is to explore how a woman's education affects her childbearing behaviour. Empirical investigations have focused not only on the impact of female education on the level of childlessness or the ultimate number of children, but also on educational differentials in the timing and spacing of births (Tesching, 2012). Controversially, less attention has been paid to two other possibilities, the first is that is not just the education of a woman that influences her childbearing behaviour, the birth of a child might also lead to changes in her educational career; secondly and although researchers have frequently argued that the relationship between fertility and education is extremely complex, little attention has been given to the possibility that the connections in the period and cohort have different dynamics.

The main goal of this paper is to investigate and describe the period and cohort fertility dynamics in Portugal in the recent decades (1990-2011), and to identify the similarities and differences between the two fertility dynamics. Our other goal is the reconstruction of cohorts observing the evolution to motherhood with special detail of analysis in two cohorts.

DATA AND METHODS

METHODS

Our analysis is essentially descriptive: besides the traditional analysis of period and cohort fertility rates, survival curves (probabilities) will also be use. For the analysis of fertility evolution it will be used the traditional fertility indicators and measures such as total fertility rate, age specific fertility rates, parity specific fertility rates for period and cohort perspectives. Human Fertility Database and EUROSTAT provided the used data. For the analysis of transition to motherhood, it will be applied the fertility table methods (or life table). The analyses of survival curves are the result of data reconstruction of two cohorts by educational levels in the years of 1991 and 2001, using for that the IPUMS database.

SELECTION OF THE SAMPLE

From the Portuguese census, a five-percent sample of the population residing in Portugal is extracted by IPUMS. These samples are available for the years of 1981, 1991 and 2001. Each one of the mentioned samples, covers standard socio-demographic characteristics such as age, nationality, educational attainment, region of residence, household composition, etc.

Before we discuss the selection of the data set, it is important to draw our attention to a particular shortcoming in the IPUMS samples. The fact that IPUMS does not provide the fertility history of the respondents is the major drawback from the samples in regards to the analysis of demographic events.

Our analysis is restricted to children living in the same household as the mother in the years of 1991 and 2001. However, for the mother from old cohorts, it is possible to

identify two scenarios. On the first scenario, we have the children who are still at the parental home; and on the second scenario, we can identify the children old enough to take care of their parents and in this case is possible that the household head is the child and not the parents. For this reason, we restrict our analysis to the birth cohorts born later than 1950; furthermore we restrict to birth cohorts between 1950-1960, combining from the samples, mothers aged 40 at the census time in 1991 and in 2001. This constrains provide us homogenous samples and allow to do small reconstruction of cohort fertility also by the educational level. The final sample used in the analysis comprises 3001 and 3415 women, aged 40, in 1991 and 2001, respectively, who are exposed to transition to motherhood.

RESULTS

THE CONTEXT OF PORTUGUESE FERTILITY IN THE SIMILARITIES AND DIFFERENCES BETWEEN SOUTHERN EUROPEAN COUNTRIES

The fertility transformations in Portugal, although with a time lag, are analogous to others in the context of Europe. The fertility patterns have been featured strongly by the number of births in decline and by the increase in the average age of fertility. When we observe the evolution of total fertility rate (TFR) (Figure 1, panel 1), for the four Southern European countries is immediately identifiable the behaviour time gap between Portugal and them. From a TFR higher that 3 in 1960, Portugal declined to 1.35 children per women in 2011. The population replacement was observed for the last time in Portugal in 1982 (the moment when TFR registered for the last time values of 2.1 or higher), while in Italy that was registered in 1975, Spain in 1980 and Greece in 1981.

Only after 2000 Portugal fits into the group of countries with the lowest rates of fertility, with values below 1.5 children per women, however the Portuguese trends were still far from the surrounding countries, which at that time had already values of TFR below 1.3.

However, even that recent evidences show that the era of lowest-low fertility is ending or already finished for many European countries, Portugal is showing a fertility decline and following the same trends of decline were seen in the South of Europe in the end of the 90s. Some authors designated these periods of low fertility as the period of "lowest-low fertility" (Kohler et al. 2001). The low fertility is "characterized by a rapid shift to delay childbearing, a low probability of progression after the first child and a falling behind in cohort fertility at relatively late ages, particularly in Southern Europe" (Kohler et al. 2006). Portugal is now (2011) at this stage of fertility evolution, with a distinct postponement of fertility and low progression after the first child.

If in one hand the TFR has declined, on the other hand, the mean age at childbearing (MAC) has increased (Figure 1, panel 2). The evolution of MAC is similar for all the Southern European countries. The decline of mean age at childbearing is common in all the countries until middle 80's beginning of the 90's. For the Portuguese case, the end of the dictatorial regime and the rapid increase of young population returned from the ex-colonies in Africa can explain the strong decline of MAC, as well as the expectative for a better life.

Figure 1: TFR and MAC for South European Countries between 1960 and 2011

Panel 1: Total Fertility Rate
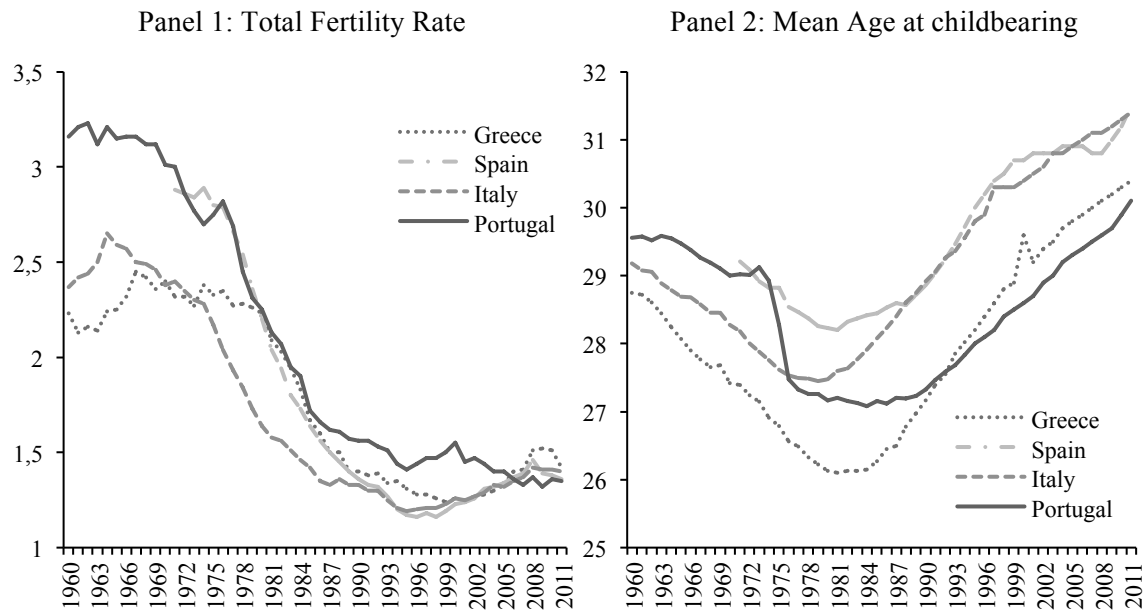
Panel 2: Mean Age at childbearing

When the mean age at childbearing and the mean age at first child are graphically represented (Figure 2) it is possible to observe the differences between 1950 and 2011. In 1955 the difference between the two age indicators was around 5 years, while in 2011 the differences were less than 2 years. Such differences at the mean ages at births represented different female behaviours. At the beginning of the period the number of births was higher and that had increased the MAC, however at the end of the period (2011) those values are the result of an intensive postponement of fertility and especially the postponement of the first birth and a consequent decline in the number of births.

Figure 2: The evolution of Mean Age at childbearing (MAC and MAC 1º birth) for Portugal between 1950 and 2011
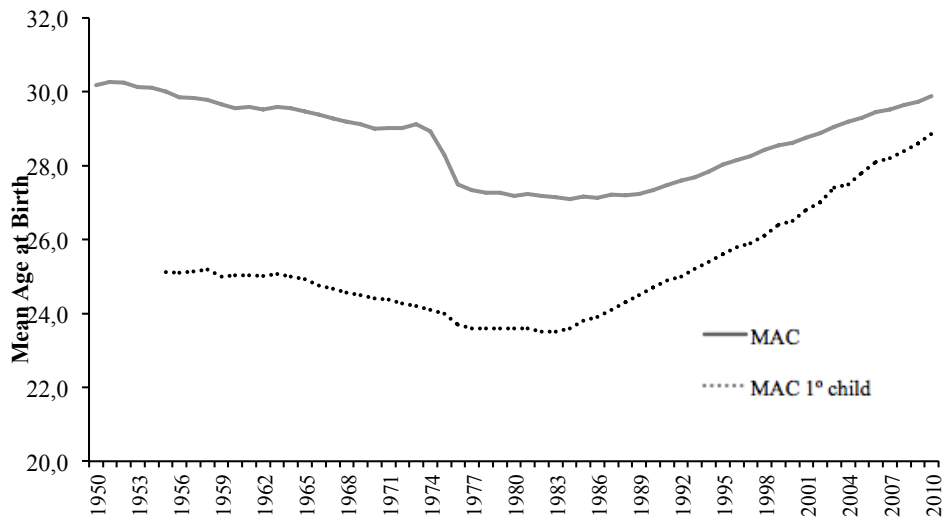
From the four Southern European countries, Portugal was in 2011 the one with lowest fertility rates (1.35) and proportional low mean age at childbearing (30.1). Although that Portugal had, since 2007, the lowest values for the TFR, it is possible to observe in 2011 an approximation between all the countries. However, such resemblance results from the generalized decline of fertility in that year and not from a recovery of fertility rates in Portugal. These period fertility trends in Portugal are consequence of the decision of having small families with only one child; the systematic and continuous postponement of fertility; and the small interval between births.

THE FERTILITY COHORT FRAMEWORK IN PORTUGAL

The previous analysis of fertility evolution allowed us to focus on the questions related to the decline and postponement of period fertility. However, the changes in period fertility translate into shifts in the age patterns of fertility among birth cohorts of women.

In Figure 3 it is possible to observe that the cohort fertility patterns are similar to the ones in the period: a decline of fertility (measured with the CCF40 - completed cohort fertility at age 40) with the increase of mean age at birth (measured with the CMAB40 - completed mean age at birth aged 40). On average, women from 1969's cohort let in the population less than one child than women from the cohort of 1944. While the fertility decline was continuous, the CMAB40 was characterized by two different periods, the first one with a decline occurred between the cohorts of 1944 and 1957, the second after the 1957 cohort and until the last cohort in analysis (1969).

Figure 3: Completed Cohort Fertility at age 40 and Completed Mean Age at Birth aged 40, between 1944 and 1969, for Portugal in 2009
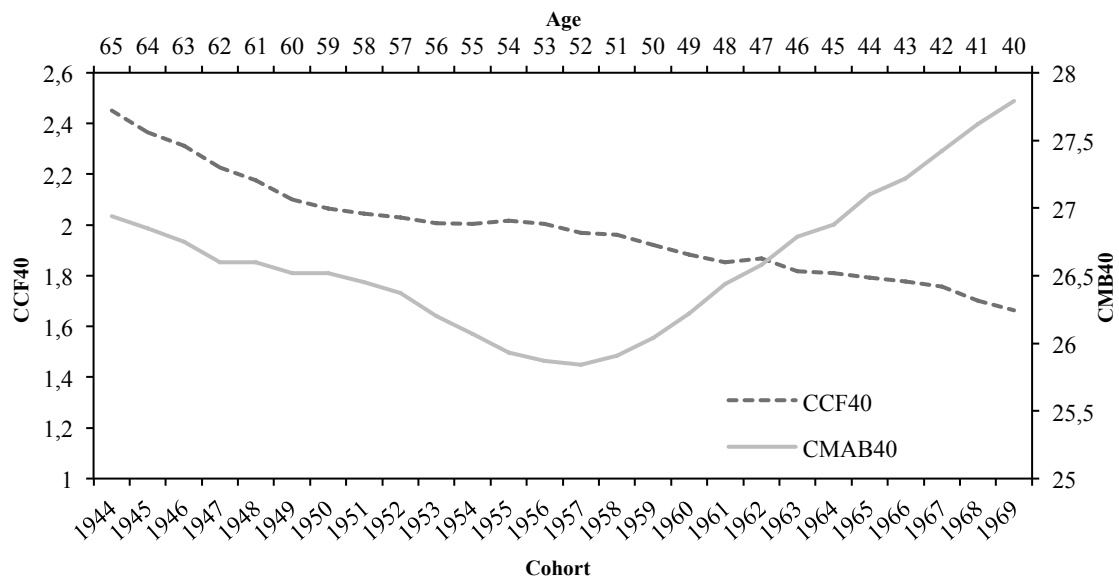
To better understand the evolution of cohort fertility in Portugal is important to analyse the age specific fertility rates between 1944 and 1990, giving special attention to the 1950, 1955, 1960, 1965 and 1970's cohorts (Figure 4). The evolution of CASFR (Figure 4, panel 1) allow us to observe that from the birth cohort 1950 to 1955, the fertility rates have moved to younger ages. After that change, cohort fertility showed

decreasing patterns, maintaining however, the young patterns observed in the 1960's

births cohort. The decline in the CASFR continues in the following cohorts, 1965 and

1970, with shrinkage and shifting of the patterns to latter ages. Similar patterns have

the CASFR for the first birth (Figure 4, panel 2). It is possible to observe an

extraordinary difference between cohort 1950 and the followings, with higher values

in the cohort 1955. Once more, after that cohort is possible to notice a decline of

fertility rates and a shift to later ages. The decline and the postponement of fertility are

also in progress on the cohort perspective.

Figure 4: Cohort age specific fertility rates (CASFR), for Portugal, between 1944 and
1990

Panel 1: CASFR   Panel 2: CASFR for 1° birth
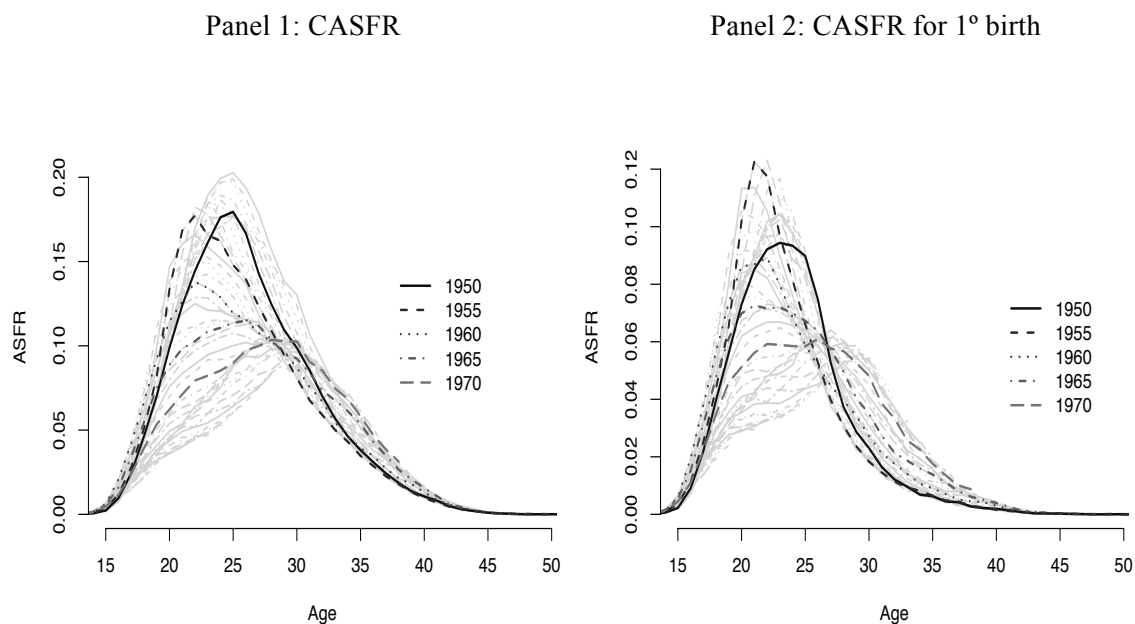
Source: Own elaboration; HFD

In sum, the decline and postponement of fertility are common characteristics between

period and cohort patterns in Portugal. In fact, the changes in period fertility translated

into shifts at the age patterns of fertility among birth cohort of women.

TRANSITION TO MOTHERHOOD AND EDUCATION INFLUENCE

The previous section allowed us to understand the evolution of period and cohort fertility patterns in Portugal. Now, our intent is to address our analysis to the transition patterns to motherhood in Portugal. For that purpose we will use the IPUMS database, reconstructing women birth cohorts with the same age in 1991 and 2001.

When comparing transitions to motherhood between different cohorts, we should remember that the social and economic transformations were different for each cohort. Such transformations gave an impulse to the changes in reproductive behaviour that had different impact on women at different stages in their reproductive life course.

Figure 5 displays the probabilities (survival curves) for the transition to motherhood for two groups of cohorts, 1950-1955 (women between 36-41 in 1991) and 1960-1965 (women between 36-41 in 2001). For the cohorts 1950-1955 (Figure 5, panel 1) we observe a decrease in the median age at first child (i.e., the age at which 50 percent of the respondents become mothers). For the cohorts 1960-1965 (Figure 5, panel 2) the exact opposite situation is observed, with the increase of the mean age. Between cohorts born in 1950-1955, the decline was from 27 (1950 cohort) to 24 (1955 cohort) years, while for the cohorts 1960-1965 the increase in the median age was smaller, from 25 in 1960 cohort to 26 years in 1965 cohort.

Figure 5: Transition to motherhood for women between age 36-41 in 1991 (1950 cohort) and 2001 (1960 cohort)

Panel 1: Women between age 36-41 in 1991

Panel 2: Women between age 36-41 in 2001
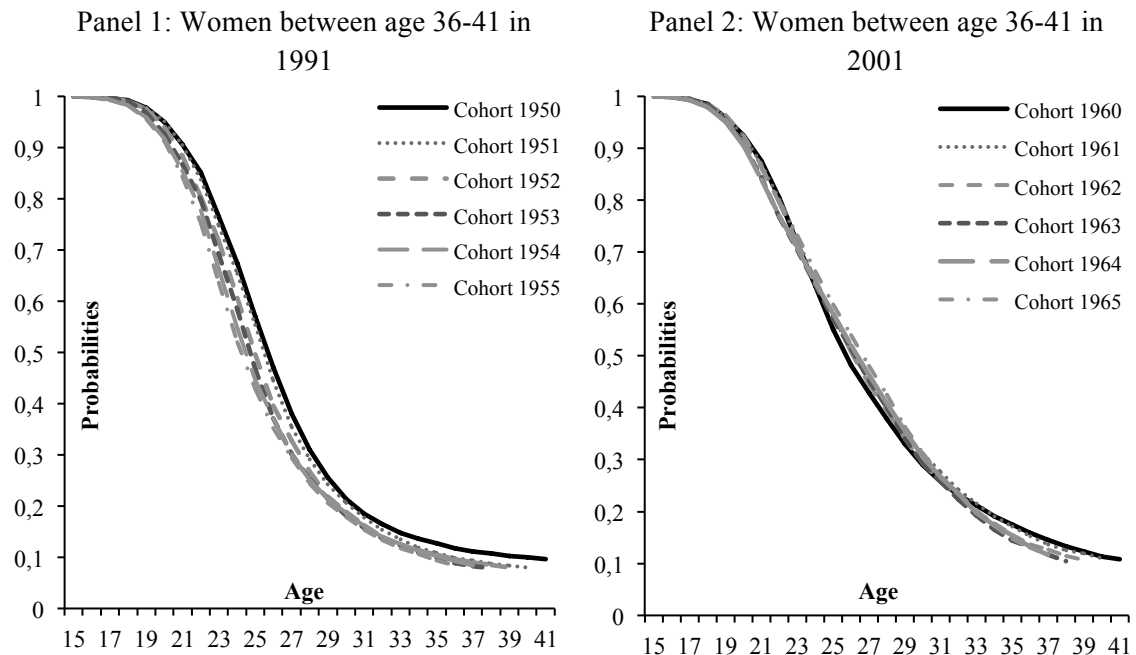
Source: Own elaboration; IPUMS

Within a period of 10 cohorts, the changes in the transition to motherhood are consistent with the ones observed previously in Figure 4. The decrease of age at birth in the 1950's cohorts followed by a progressive postponement of fertility was observed. Nevertheless, either period or cohort fertility rates suffer the influence from different factors, such as education.

Education is one of the reasons strongly associated to the decline of period fertility. The educational context is also expected to have a deep impact on the cohort fertility patterns though. In the two samples used for our analysis (3001 and 3415 women aged 41 in 1991 and 2001), it's possible to observe the importance of education evolution in Portugal (Table 1).

In the cohort born in 1950, the predominance was for women with less than primary school (unschooled), representing 70 percent of the sample, while in the cohort born in 1960, that values decreased to 43 percent. At the same time, the proportion of women

with primary level, increased from 13 to 32 percent, while the differences at the upper secondary level are not so significant (3 percent). For women with the university level of education, between the cohorts of 1950 and 1960 the growth was from 6 to 12 percent.

Table 1: Sample size of women exposed to the transition to motherhood by cohort and educational level

	1950 Cohort		1960 Cohort	
	N	%	N	%
Less than primary	2105	70	1463	43
Primary	394	13	1081	32
Upper Secondary	329	11	468	14
University Completed	173	6	403	12
Total	**3001**	**100**	**3415**	**100**

Source: Own elaboration; IPUMS 1991 & 2001

When we observe the mean age at first birth by educational level (Table 2), it is possible to identify particular differences. From the mothers with 41 years in 1991 (1950 cohort) to the mothers with 41 years in 2001 (1960 cohort) we can identify a postponement of fertility in all educational levels. Only mothers with less than primary education preserve the same age for both cohorts. Mothers with completed university levels had a difference of 3 years while the upper secondary and the primary had differences of 2 years between 1950 and 1060 cohort.

Table 2: Mean age at first birth by educational level, for women aged 41 in 1991 (1950 cohort) and 2001 (1960 cohort)

	1950 Cohort	1960 Cohort
Less than primary	25	25
Primary	26	28
Upper Secondary	26	28
University Completed	27	30

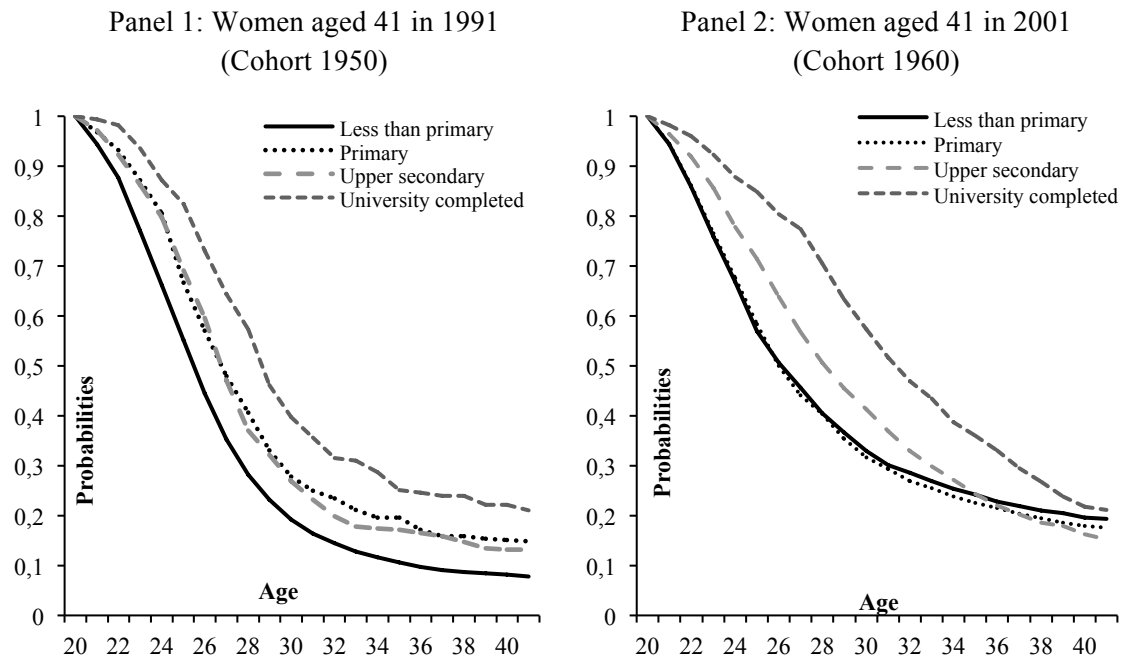**Source:** Own elaboration; IPUMS 1991 & 2001

With the increase in the mean age at birth by educational level, is important to observe the impact of such behaviour in the transition to motherhood. In Figure 6 (panel 1 and 2) we have the probabilities (or survival curves) for the transition to motherhood by final educational level for the birth cohorts of 1950 and 1960. The median ages by education level, as observed previously, increased between the two cohorts in analysis and within the educational levels.

The evolution of transition to motherhood presented similar behaviours between the different levels of education. Between the two cohorts is also possible to observe that with 25 percent of probabilities of having a child, is the University level the one with higher ages. While at age 35, 25 percent of women from birth cohort 1950 were still childless, for birth cohort 1960 the same situation occurred at age 38.

Regarding the women with less than primary educational level in the birth cohort of 1950, 25 percent at age 29 are still childless (Figure 6 panel 1). For the birth cohort 1960 (Figure 6 panel 2), 25 percent of women with less than primary educational level are aged 34 though.

Between the women with primary level of education and upper secondary, the differences are tenuous. For birth the cohort of 1950 the difference is equal to 1 year between the two levels of education when regarding the 25 percent of childless women. For the birth cohort of 1960, the differences are around 3.5 years

Figure 6: Transition to motherhood by educational level for women aged 41 in 1991 (1950 cohort) and 2001 (1960 cohort)

Panel 1: Women aged 41 in 1991
(Cohort 1950)

Panel 2: Women aged 41 in 2001
(Cohort 1960)

Source: Own elaboration; IPUMS

CONCLUSIONS

The descriptive and comparative analysis conduced in this paper reveals, between period and cohort fertility in Portugal, that it was possible to identify a continuous decline of fertility and as well a postponement. From a period fertility rate of 3.2 in 1960, Portugal declines the rates to 1.3, in 2011. At the same time, mean age at birth was increasing after a period of decline, between 1960 and 1975. At the end of the period in analysis, the mean age at birth and the mean age at first birth are becoming closer and closer. On the cohort perspective was possible to observe the decline of fertility rates from 2.4 in the cohort 1944 to 1.5 in the cohort 1969. As in the period fertility, a decline on mean age at birth was observed, followed by an increase after the cohort of 1957.

From the reconstructed information cohorts, and between the cohorts of 1950 and 1960, it was possible to identify differences in the fertility patterns. The cohort of 1950 was a cohort of extremely young mothers and unschooled (70 percent). At the same time that in the cohort of 1960 it was already possible to observe an increase in the mean age at childbearing, in what concerns educational level that situation could also be observed.

Further research is needed and important factors, such as the marital status, should be included in the reconstructed cohorts. Also the transitions to the second child should be taken in consideration, specifically in a country such as Portugal were TFR is 1.3. Furthermore the release of data with regard to 2011 Census is crucial to observe the differences between the periods in the previous analysis and to evaluate the most recent fertility trends.

REFERENCES

Almeida, A.N. De, **André**, I.M. & **Lalanda**, P., (2002), Novos padrões e outros cenários para a fecundidade em Portugal. Análise Social, XXXVII, pp.371–409.

Almeida, A.N. De & **Vieira**, M.M., (2012), From University to Diversity: The Making of Portuguese Higher Education. In G. Neave & A. Amaral, eds. Higher Education in Portugal 1974–2009: A Nation, a Generation. Dordrecht: Springer Netherlands. Available at:

Amaral, L., (2003), How a Country Catches-Up: Economic Growth in Portugal in the Postwar Period (1950-1973).

Bettio, F. & Villa, P., (1998), A Mediterranean perspective on the breakdown of the relationship between participation and fertility. Cambridge Journal of Economics, (October 1993), pp.137–171.

Caldwell, J., (1980), Mass education as a determinant of the timing of fertility decline. Population and development review, 6(2), pp.225–255.

Cunha, V., (2004). A fecundidade das famílias portuguesas. In Famílias no Portugal Contemporâneo. pp. 1–73.

Esping-Andersen, G.,(1999), Social foundations of postindustrial economies. Oxford: Oxford University Press.

Frejka,T., (2010). Cohort overlays of evolving childbearing patterns: How postponement and recuperation are reflected in period fertility trends., in MPIDR Working paper 2010-026.

Goldstein, J. R., **Sobotka** T., **Jasilioniene** A.(2009). The end of lowest-low fertility?", in Population and Development Review 35(4): 663-700.

Kohler, H., **Billari** F., **Ortega** J. (2005), Low and Lowest-Low Fertility in Europe: Causes, Implications and Policy options, in F. R. Harris (Ed.), The Baby Bust: Who will do the Work? Who Will Pay the Taxes? Lanham, MD: Rowman & Littlefield Publishers, 48-109.

Kohler, H.P. & **Ortega**, J.A., (2002). Tempo-Adjusted Period Parity Progression Measures, Fertility Postponement and Completed Cohort Fertility. Demographic Research, 6, pp.91–144.

Lee, R., **Mason**, A., (2010). Fertility, Human capital, and economic growth over the demographic transition, in European Journal of population, 26.

Mendes, M. & Rego, C., (2006). Baixa fecundidade nos países do Sul da Europa: a importância das desigualdades na educação e na participação no mercado de trabalho, ao nível regional.

Neave, G. & **Amaral**, A., (2012), Introduction. On Exceptionalism: The Nation, a Generation and Higher Education, Portugal 1974–2009. In G. Neave & A. Amaral, eds. Higher Education in Portugal 1974-2009. Dordrecht: Springer Netherlands, pp. 1–46.

Oliveira, I.T. De, (2009), Fertility Differentials and Educational Attainment in Portugal: A Non-Linear Relationship. Canadian Studies in Population, 36(3-4), pp.347–362.

Pereira, Á.S. & **Lains**, P., (2012), From an Agrarian Society to a Knowledge Economy? The Rising Importance of Education to the Portuguese Economy, 1950–2009. In G. Neave & A. Amaral, eds. Higher Education in Portugal 1974–2009: A Nation, a Generation

Potancoková, M., **Vano**, B., **Pilinska** V., **Jurcová**,D. (2008), Slovakia : Fertility between tradition and modernity, in Demographic Research, 19: 973-1018.

Rydell, I., (2002), Demographic patterns from the 1960s in France, Italy, Spain and Portugal, at seminar of Institute for Futures Studies.

Sobotka T., (2004), Is lowest-low fertility in Europe explained by the postponement of childbearing?, in Population and Development Review, 30: 195-220.

Tavora, I., (2012), The southern European social model: familialism and the high rates of female employment in Portugal. Journal of European Social Policy, 22(1), pp.63–76

Tesching, K., (2012), Education and fertility: dynamic interrelations between women's educational level, educational field and fertility in Sweden. Stockholm: Stockholm University (Stockholm University Demographic Unit).