

Portuguese Fertility: Southern or Eastern European Behaviour?

Maria Filomena Mendes (mmendes@uevora.pt)

Associate Professor in the Department of Sociology at the University of Évora and
Researcher at CIDEHUS- Centro Interdisciplinar em História, Sociedades e Culturas da
Universidade de Évora

Lídia Patrícia Tomé (tome@demogr.mpg.de)

PhD Student at University of Évora, CIDEHUS (FCT- SFRH/BD/70494/2010) & Guest
Researcher at the Max Planck Institute for Demographic Research.

ABSTRACT

When we establish a comparison between period fertility rates in 2000-2005 and 2006-2010, in the European context, Portugal is the only country presenting a negative evolution of period fertility. Furthermore, Portugal is, in Europe, one of the countries that is still not recovering at the cohort fertility level.

The main objective of this work is to contextualize the Portuguese fertility and to understand if (and why) period fertility behaviour and its context are analogous to the countries of southern or eastern Europe. Additionally, the aim of this study is also to understand if the economic and labour market indicators *reflect in the same direction* for the two European regions in analysis.

Key words: Fertility, East Europe, South Europe, Portugal.

INTRODUCTION

The last decades of family changes in Europe, have been related to decreasing in propensity to marry, marriage and childbearing postponement, and the decision not to have children increased. After World War II, fertility patterns experienced a severe decline, and the cohorts of women born after this period reveal a shift in the age at childbearing to later ages. This situation resulted in the decline of period fertility. Since the early 1970's that postponement of childbearing has become one of the most prominent feature of European fertility rates. The persistent fertility postponement had affected the most usual indicator of period fertility, the total fertility rate (TFR), which has decreased in many countries to rates lower than 1.3 children per woman. Between 1975 and 2001, the decrease in fertility rates was more pronounced in the Southern and Eastern European countries. Curiously, the countries that had the highest fertility rates in 1975 are those with the lowest rates today.

This period fertility decline is invariably associated with the Second Demographic Transition (SDT), widely supported by van de Kaa (2002), who assumes that the principal characteristics of this new demographic moment/dynamic are the rising number of couple in cohabitation, the rising of fertility outside the marriage and a low total fertility rate. The connection of those characteristics with the increasing of life expectancy, results in aging societies where the population replacement level is very low.

In this sense, the concept of SDT emerges along with the development of problems associated with the effect of *tempo* and *quantum*, in particular in the analysis and prediction of period fertility with indicators such as TFR.

The TFR is a hypothetical indicator, interpreted as the average number of children that a woman would have, if the age-specific fertility rates of a given year remained constant over her reproductive life. Although the TFR is not affected by changes in the age structure of the female population, the age specific fertility rates (ASFR) are influenced by distortion in fertility timing – the postponement or advancement of births – and the changes in the fertility schedule. The fact that cohorts – real or synthetic – are subjected to timing distortion is widely recognised among the demographers. Regarding this subject of demographic analysis, Ryder (1964) introduced the idea of *tempo* and *quantum*. Since Ryder in 1964, and until 2013, many were the authors that expressed interest in the questions related to the timing effect in fertility (Bongaarts and Feeney, 1998; Kohler and Philipov, 2001; Zeng and Land, 2002; Rodriguez, 2006; and Goldstein and Cassidy, 2010. Bongaarts and Feeney (1998) are the author's known by the *adjustTFR* formula, an adjustment to TFR, which assumes that fertility is only influenced by age, parity, duration and period but not by the cohort. Underneath these conditions to the authors “*the TFR that would have been observed in a given year had there no change in the timing of births during that year*”.

The use of adjusted measures of TFR was wide used at the period of lowest-low fertility rates. Yet, the era of massive childbearing postponement and the lowest-low fertility rates, which were a concern to all European societies, is at the end (Frejka 2010). After the pronounced decline of fertility (the so called lowest-low fertility) during the 1990s, between 2000 and 2009, 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). However and from the cohort fertility perspective Goldstein *et. al.* (2011) mentioned that within a

group of 34 countries only 5 were still with a decline in fertility rates, from those 5, countries three are from East Europe (Slovakia, Poland and Hungary) one from the South of Europe (Portugal) and the last country is from Asia (Korea).

In fact, over the last decades the East European countries had experienced dramatic changes in the fertility context. Comparatively with Europe, Slovakia, e.g., has in the past experienced high fertility, and most recently low fertility (Potancoková *et. al.* 2008). However, instead of accelerating the ageing process, Slovakia is still one of the youngest populations in Europe. In Hungary, the period total fertility rate dropped to below replacement levels at the end of the 1950s and beginning of the 60s, when most European countries were experiencing “baby booms” (Spéder & Kamarás 2008). Also from the perspective of fertility, Poland had as one of the main distinctive feature of demographic changes in last decades the decline of births. “*Within 15-year period Poland moved from the group of high to the group of lowest-low fertility*” (Kotowska *et. al.* 2008). Like other ex-communist European countries, the change in the political and economic system starting at the 1989-90 had the major role in the basic transformations of fertility pattern changes. *The new society structural conditions, the diffusion of values, and the impact of these values on the new set of circumstances made the emergence of new fertility patterns* (Kotowska *et. al.* 2008).

The non-democratic or dictatorial background is one of the similarities between Portugal and the East European countries although the end of the dictatorial regime in Portugal has occurred 15 years before. Some similarities were also point out in the past by Sobotka (2004), e.g., when the author makes reference to Portugal as being “*the only country of the West Europe where women were having children at a relatively young age*”, and also that “*Portugal is almost equal to East Germany, which had the latest childbearing patterns among the communist countries*”.

Even though that Portugal had some similarities in fertility rates with the countries of Eastern Europe, in the economic context the resemblances are more close to the southern neighbours: Spain and Italy. The income rates per capita in the Southern European countries (Spain, Italy and Portugal) are at the medium level with stable growth, and until 2005 these countries experienced stable and low inflation. Nevertheless, Portugal was until 1999 the only Southern European country with relatively high fertility and considerable lower female unemployment (Kohler et al. 2005).

There are many commonalities between the European countries concerning the fertility patterns. However the chronic and high unemployment is currently a Southern European characteristic. Such high unemployment appears to have discouraged the young adults from entering in the labour market and, as consequence, the family's formation decreased and childbearing was postponed. It is widespread in the literature that countries with lowest-low fertility share institutional settings characterized by positive discrimination relatively to low *quantum* of fertility. Those traditional socioeconomic factors associated to economic recessions usually lead the societies to a postponement of childbearing often compensated during the times of economic prosperity.

The objective of our work is to describe and evaluate the Portuguese fertility patterns in the recent decades (1990-2011) and to understand if period fertility behaviour, and its context, is analogous to the countries of South or East Europe. The aim of this study is also to understand if the economic and labour market indicators *reflect in the same direction* for the two European regions in analysis.

DATA AND METHODS

The lack of data is a significant obstacle for an in-depth comparative analysis. Thus, this paper relies in the period data available from the Human Fertility Database (HFD) and EUROSTAT. To the selected counties (Portugal, Spain, Italy, Poland, Hungary and Slovakia) and for the period between 1990 and 2011, the analysis is organized in two sections. The first section is purely descriptive, were demographic indicators, such as total fertility rate (TFR), mean age at childbearing (MAC), *adjusted TFR*, and proportion of extramarital births are analysed. The second section relies on the descriptive analysis of the evolution of female employment rates, from ages 15-24 to 25-54, together with the Gross Domestic Product (GDP ppp). This analysis is followed by a linear regression analysis combining the period fertility indicators, from the first section, and the economic variables, from the second. The demographic variables, TFR and MAC are the dependent variables in the different models elaborated; and the economic variables the female employment rates from ages 15-24 and 25-54 and the Gross Domestic Product (GDP ppp), are the independent variables.

RESULTS

THE EVOLUTION OF FERTILITY PATTERNS IN SOUTH AND EAST EUROPE

In the domain of demography, although that all Europe has fertility patterns with similar characteristics, the true is that the dichotomy South-North is no longer predominant. The fertility evolution in Europe is in direction of “recovery”, and few are the countries were fertility is sill in profound decline. Portugal is an example of countries were fertility is still in decline, and we can assume that this situation could be result of two

scenarios, (1) exists a time lag between Portugal and the other European countries or (2) the differences between Portugal and the European countries can be simply explained by a distinctive pattern of fertility evolution.

When established a comparison between period fertility rates in 2000-2005 and 2006-2010 (see Table 1), for a selected group of countries with TFR rates below 1.5, Portugal was the only country with a negative evolution of period fertility. In the evolution between 1996-2000 and 2001-2005 is possible to observe that the differences are negatives to seven (Germany, Hungary, Lithuania, Portugal, Poland, Slovakia and Slovenia) of the thirteen countries in analysis. In that period, Spain and Italy, e.g., were showing the signs of recovery with an increase in TFR with and increase of 11 percent and 7 percent, respectively. The progression between 2001-2005 and 2006-2010 was positive to all selected countries with exception of Portugal, presenting a negative growth. Although for countries such as Germany and Hungary the positive evolution was bellow 10 percent, that can be considered still a positive evolution.

Table 1: Evolution of TFR between 1996-2000, 2001-2005 and 2006-2010 for selected countries with TFR rates bellow 1.5

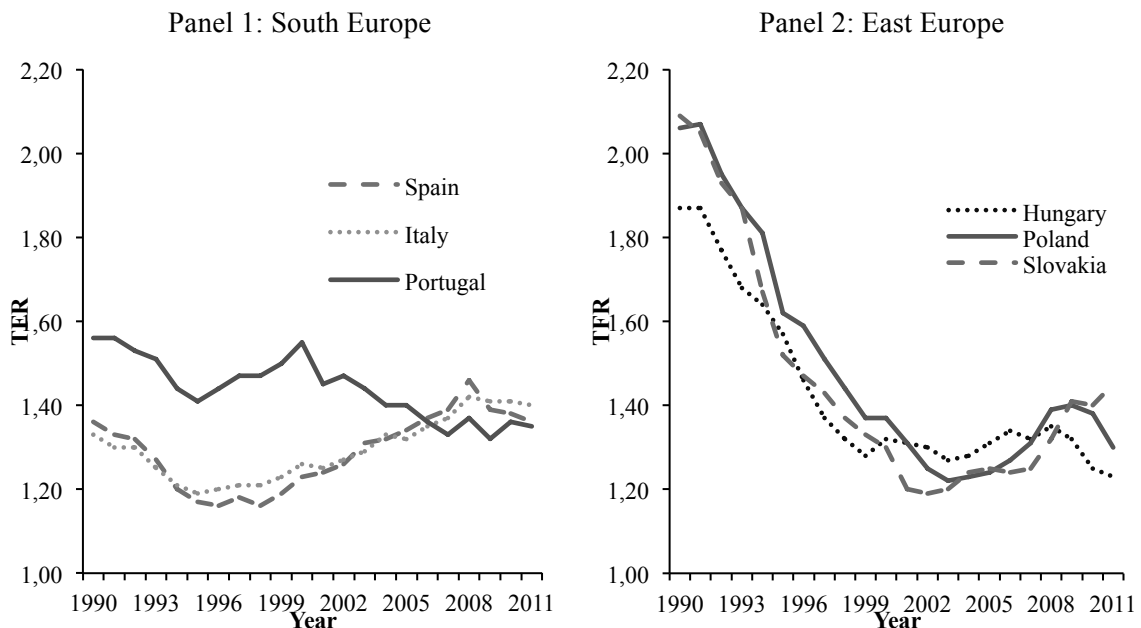
	1996-2000	2001-2005	2006-2010	Dif %	Dif %
	(a)	(b)	(c)	(b)-(a)	(c)-(b)
Bulgaria	1.22	1.25	1.46	3	20.76
Cz.Republic	1.16	1.20	1.45	4	24.90
Estonia	1.34	1.41	1.62	7	20.75
Germany	1.36	1.35	1.37	-1	1.97
Greece	1.26	1.29	1.46	2	17.00
Hungary	1.35	1.29	1.31	-6	2.18
Italy	1.22	1.29	1.39	7	9.55
Lithuania	1.46	1.27	1.42	-19	15.24
Portugal	1.47	1.43	1.35	-4	-8.32
Poland	1.45	1.25	1.35	-20	10.00
Slovakia	1.39	1.21	1.32	-17	10.89
Slovenia	1.25	1.23	1.46	-2	23.89
Spain	1.18	1.30	1.41	11	10.80

Source: Own elaboration; Eurostat

We know already that Portugal was, from a group of thirteen countries the only case of negative evolution of fertility between 1996 and 2010. However, the fertility patterns around Europe have been strongly characterized by the number of births in decline and by the increase in the average age of fertility. The moment when the countries registered the last TFR value which allowed the population replacement (the moment when TFR registered for the last time values of 2.1 or higher) happened at different times. In Southern Europe, that occurred between 1975 and 1982 (Italy in 1975, Spain in 1980, Greece in 1981 and Portugal 1982). Not so later, Poland and Slovakia achieve those same rates in the end of the 1980s beginning of 1990s. However in Hungary, e.g., the decline to below replacement levels occurred even before Second World War and is still in progress.

When observed the evolution of TFR in the southern and eastern European countries it is possible to identify immediately the major differences between the two regions (see Figure 1: Total fertility rate for South and East European Countries between 1990 and 2011). In 1990, the Southern Europe's TFR (Figure 1, panel 1) was already with values below 1.6, while the rates of Eastern Europe (Figure 1, panel 2) were higher than 2.0 children (with exception of Hungary). Between 1990 and 2008 fertility in east Europe followed the European tendency of decline and recuperation from the late 90s. However and like the Portuguese case, after 2008 the east countries saw the receding of fertility recovery. Spain and Italy had low TFRs increasing after the year 2000. Between 1997 and 2006, Portugal had the highest values (1.5) within all the countries, and in the early 2000s, was already the country with the highest values of TFR.

Figure 1: Total fertility rate for South and East European Countries between 1990 and 2011

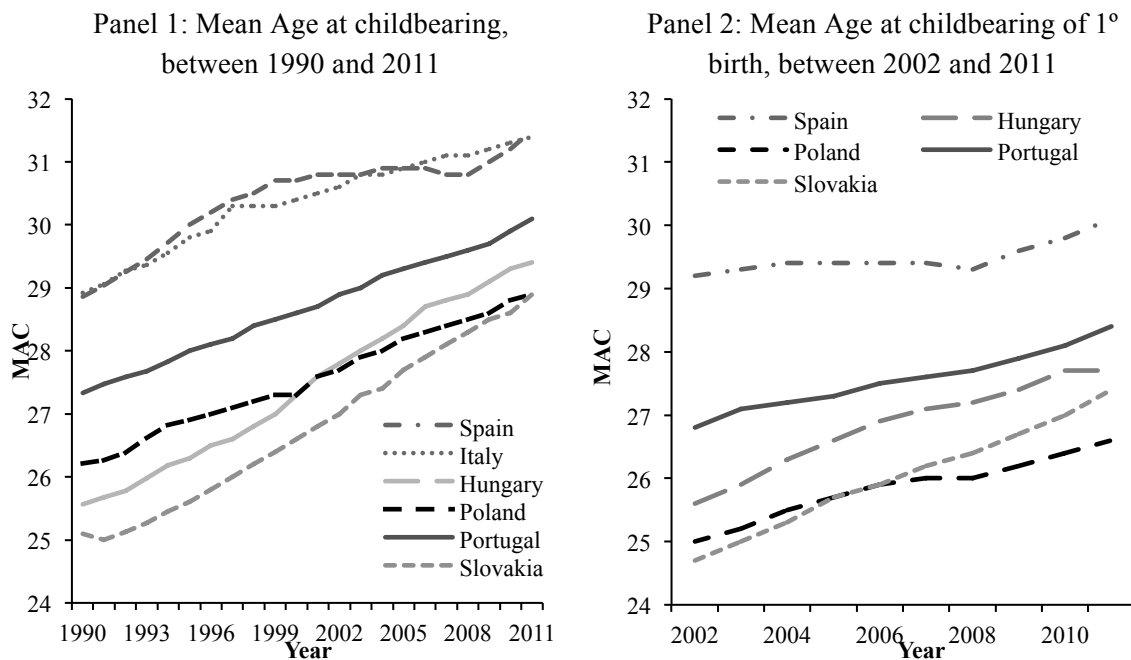


Source: Own elaboration; Eurostat

In the same way that TFR and MAC, fertility decline and postponement evolved *hand in glove*. Since the early 1970s that postponement of childbearing has become one of the most prominent features of European fertility rates. The evolution of the mean age at birth (Figure 2, Panel 1) in Southern and Eastern Europe follows once more the European tendency of increase. Even though that the increasing trend of MAC within the countries in analysis, Hungary, Poland and Slovakia had lower values than the Southern European countries. Between 1990 and 2011, the difference between the country with the lowest MAC (Slovakia) and the country with the highest MAC (Spain) was on average 3.6 years. Slovakia increased in 4 years the mean age at childbearing between 1990 and 2011, while Spain increased only 2.5 years. Portugal is the country between the highest values from the mothers in South and the lower values from Eastern mothers, with MAC of 27.5 year in 1990 to 30 in 2011.

Nonetheless, when the focus of analysis is on the mean age of first birth, between 2002 and 2011 (Figure 2, Panel 2), it is possible to identify that Spain was the country with less differences between mean age at childbearing and mean age at first birth, in average the difference between the two ages is 1.5 years. While Poland is the country with the highest difference in between the two ages, on average that difference is 2.5 years. Once more Portugal is in transition between the East and South European evolution.

Figure 2: Mean age at childbearing for South and East European Countries between 1990 and 2011



Source: Own elaboration; Eurostat

The evolution of TFR and MAC for the countries in analysis shows a consistent homogeneity within the two regions. Spain and Italy are the countries with more consistence in the patterns and evolution, which dilutes when the analysis is focus on Eastern countries. The fertility decline is present in all the countries and the decline is in progress, however signs of *tenuous* recovery can be observed.

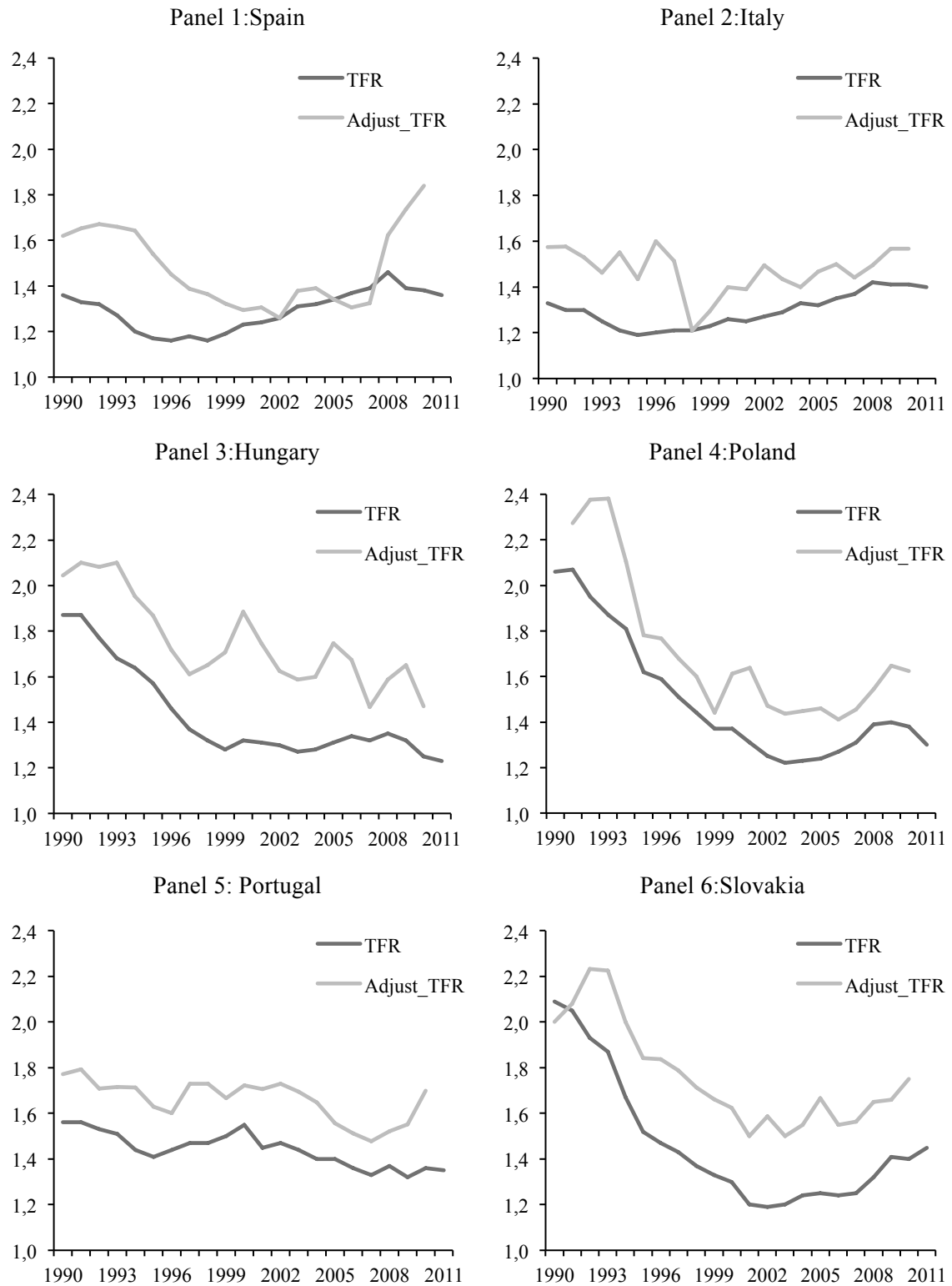
If the TFR and the MAC progressed *hand in glove*, is important to observe how TFR would progressed without the increase (or decrease) of MAC. For that, we used the *adjusted TFR*. Figure 3 summarizes the evolution of TFR and *adjusted TFR* to the different countries, between 1990 and 2011. For all the countries in analysis is possible to observe a common tendency with the *adjusted TFR* higher than the original TFR.

Spain and Italy (Figure 3, panel 1 and 2), are the countries with fewer differences between the two indicators. Spain presented, although, a moment between 2005 e 2008 were the values for the *adjusted TFR* were lower than the original. For Italy the values were always higher for the *adjusted TFR*, with the exception for the year of 1992 when the values were the exact same one (1.2). The differences between the TFR and the *adjusted TFR* were superior in Hungary and Slovakia (Figure 3, panel 3 and 6). For both countries the differences between the two indicators are on average of 0.3, and particularly for Slovakia the two indicators follow the same trend. Poland and Portugal (Figure 3, panel 4 and 5) had, such as the other countries, positive differences between the two indicators, and the growth is even visible for the *adjusted TFR* in the last years.

For the period in analysis it was possible to observe that the *adjusted TFR* had values above 1.5 children per women, for Hungary, Portugal and Slovakia while for Spain and Italy the values were for the major part of the period lower than 1.5. Poland had the highest values at the beginning of the period, declining however, to values lower than 1.5 in some of the years and presented in the TFR signs of recovery in the latter years.

In the last years of analysis it is possible to observe for Spain, Portugal and Slovakia a growth in the *adjusted TFR*, not so perceptible for Italy, Hungary and Poland. Nevertheless to all the selected countries fertility would be higher if the postponement was not so pronounced.

Figure 3: TFR and Adjusted TFR, for South and East European Countries between 1990 and 2011



Source: Own elaboration; Eurostat

With the increasing births outside the marriage is important to study such behaviour in the countries of our analysis. When observed the proportion of births outside marriage for the countries in analysis (Table 2) it is possible to identify similarities in the patterns, and the countries can be split into three sets of two countries each. Italy and Poland are the countries where the number of births outside marriage was lower, between 1990 and 2011 that the proportion growth 17 and 15 percent respectively. The second set of countries combines Spain and Slovakia with values below 10 percent in the beginning of the period and with values between 30 and 40 percent. The last set of countries represents the countries with the highest values. Portugal and Hungary had already in 1990 a proportion of extramarital births higher than 10 percent, and at the end of the period in 2011 the values were around 43 percent.

Table 2: Proportion of live births outside marriage for selected countries between 1990 and 2011

	Spain	Italy	Portugal	Hungary	Poland	Slovakia
1990	9,6	6,5	14,7	13,1	6,2	7,6
1991	10,0	6,7	15,6	14,2	6,6	9,0
1992	10,5	6,7	16,1	15,6	7,2	9,8
1993	10,8	7,4	16,9	17,6	8,2	10,6
1994	10,8	7,8	17,8	19,4	9,0	11,7
1995	11,1	8,1	18,6	20,7	9,5	12,6
1996	11,7	8,3	18,6	22,6	10,2	14,0
1997	13,1	7,0	19,5	25,0	11,0	15,1
1998	14,5	8,7	20,1	26,6	11,6	15,3
1999	16,3	9,2	20,8	28,0	11,7	16,9
2000	17,7	9,7	22,2	29,0	12,1	18,3
2001	19,7	9,9	23,8	30,3	13,1	19,8
2002	21,7	10,9	25,5	31,4	14,4	21,6
2003	23,4	13,0	26,9	32,3	15,8	23,3
2004	25,1	-	29,1	34,0	17,1	24,8
2005	26,5	15,2	30,7	35,0	18,5	26,0
2006	28,4	16,2	31,6	35,6	18,9	27,5
2007	30,2	17,7	33,6	37,5	19,5	28,8
2008	33,2	18,9	36,2	39,5	19,9	30,1
2009	34,5	19,8	38,1	40,8	20,2	31,6
2010	35,5	21,5	41,3	40,8	20,6	33,0
2011	37,4	23,4	42,8	42,3	21,2	34,0

Source: Own elaboration; Eurostat

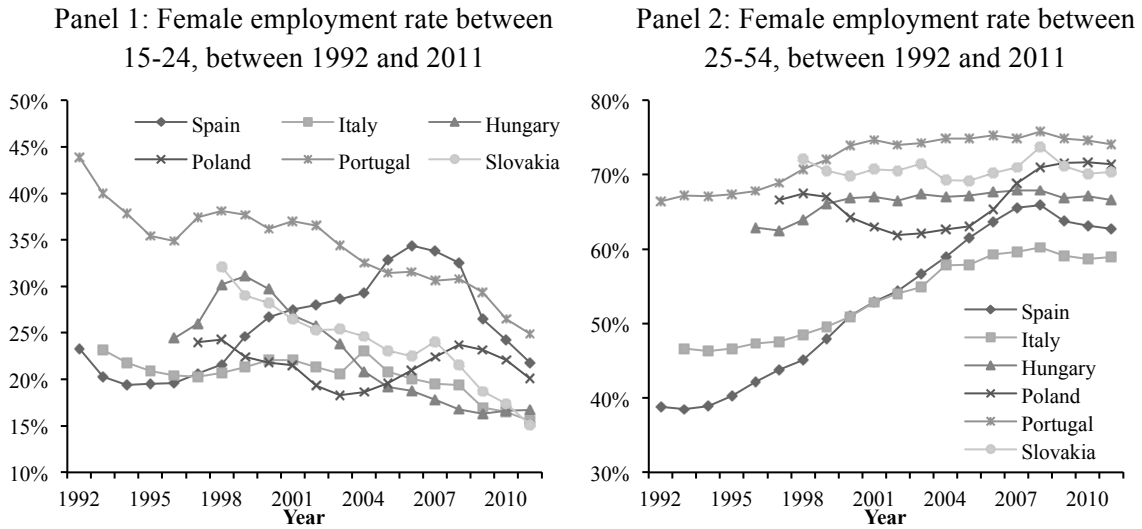
THE EMPLOYMENT AND ECONOMIC UNCERTAIN: THE IMPACT IN SOUTH AND EAST EUROPE

“During the 1990’s, economic uncertain evolved as an increasingly prominent factor in explanations of declining fertility and postponed family formation across Europe, particularly when explaining developments observed in Southern and post-socialist Central and Eastern Europe” (Kreyenfeld et al. 2012). The economic recession in 2008 renewed the interest in the impact of employment and economy volatility across all Europe. In the south Europe the main characteristic is the chronic and high unemployment. Such high unemployment appears to have discouraged the young adults from entering in the labour market and as consequence the formation of the families decreased and the childbearing postponed (Kohler et al. 2005).

The trend of increase of school attendance and the number of women at the university diminished the importance of an analysis of employment rates for young ages, however is still important to see the differences between the different groups at the labour market. The evolution of female employment rates should be analysed for two different age groups. However, the age group between 15-24 (Figure 4, panel 1) represents the smallest group in the labour market is possible to identify a decline in all the countries in analysis. Only Spain had, between 1992 and 2011, a significant period of value increases from of 20% in 1997 to 34% in 2008. The high values were registered to Portugal, with an average employment rate of 34% in the period in analysis. For the female employment rate to ages 25-54 (Figure 4, panel 2) is possible to identify the high values for Portugal, in contrast with Spain and Italy. Since 1922 Portugal is the country with highest values, on average the female rate is around 72% while for Spain and Italy the values are 53% and 54% respectively. Is possible to observe that Poland, Hungary

and Slovakia had values of female employment rate between 65% and 72% and are placed between Portugal and the other Southern countries.

Figure 4: Evolution of female employment rate between age 15-24 and 25-54 to selected Countries between 1992 and 2011



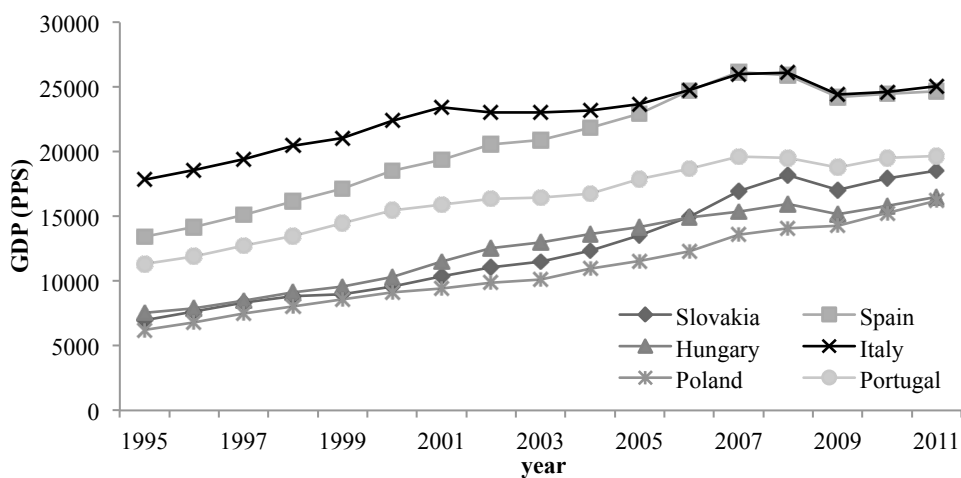
Source: Own elaboration; Eurostat

Although that the labour market participation had revealed a significant proximity between Portugal and the Eastern Countries in analysis, family formation is not only conditioned by the employment rate. The country's stable economic situation is also important and the standard of living is one of the options to observe the consistence of such stable situation.

Often, the standard of living is measured with the use of GDP (Gross Domestic Product). The evolution of that economic indicator is represented in Figure 5 for all the countries in analysis between 1992 and 2011. The common characteristic is the growth pattern, Spain and Italy are still the countries with the highest values followed by Portugal. In the beginning of the period in analysis, the values of Portuguese GDP were close to the Spanish, however at the end of the period, in 2011 the values represent the

economic decline of the country and the pattern is more closely to the east European. Furthermore the behaviour observed for the GDP is similar to the one observed previously to in evolution of MAC, with Portugal in between the countries from the Southern and the Eastern Europe. In the case of GDP is Poland the country with the lowest values.

Figure 5: Evolution of Gross Domestic Product to selected Countries between 1992 and 2011



Source: Own elaboration; Eurostat

Assuming the relation between fertility trends and the economic stability, that relation will be analysed with the use of linear regression. To each country we present a summary for the final models were TFR (Table 3) and MAC (Table 4) are the dependent variables. The final model with TFR as dependent variable, reveals that only for Spain the employment rate had a significant impact, a negative impact to the employment rate at younger ages (15-24) and a positive impact to the older females at the employment market. Also the variable year had a negative impact for the TFR in the Spanish context. To the other countries, only one of the independent variable had a significant impact in the TFR evolution. For Portugal and Poland, the employment rate between ages 15-24 had a strong positive impact, while for Italy only the variable year

had impact in the TFR. For Hungary the final model had the employment rate between ages 25-54 as the only significant variable and with a negative impact to fertility rates, although the relation between employment rates and TFR is measured as a medium relationship with a R^2 of 0.37. Finally, for Slovakia any significant model was established.

Table 3: Linear Regression final model with TFR as dependent variable

	Spain	Portugal	Italy	Poland	Hungary	Slovakia
Year	-0,0219*	-	0,0164***	-	-	-
Employment rate between age 15 and 24	-0,0115**	0,0181***	-	0,0366***	-	-
Employment rate between age 25 and 54	0,0279***	-	-	-	-0,0180***	-
GDP (ppt)	-	-	-	-	-	-
R²	0.9898	0.8815	0.9781	0.9606	0.3658	-

Note: 0 '***' 0,001 '**' 0,01 '*' 0,05 ' , ' 0,1 ' ' 1

In table 4, the final model with MAC as dependent variable is presented. With this dependent variable, Slovakia and Hungary are the countries with the most complete model. In Slovakia, the postponement of fertility had a negative impact from the employment rate between ages 15-24 and a very small positive influence from the GDP evolution, while that, for Hungary the impact of variables year and GDP are positive. For all other countries, the variable year is the only with significance on the postponement evolution of fertility.

Table 4: Linear Regression final model with MAC as dependent variable

	Spain	Portugal	Italy	Poland	Hungary	Slovakia ¹
Year	0,0600***	0,1242***	0,0897***	0,1321***	0,1427***	-
Employment rate between age 15 and 24	-	-	-	-	-	-0,0652***
Employment rate between age 25 and 54	-	-	-	-	-	-
GDP (ppt)	-	-	-	-	0,0001***	0,0002***
R²	0,7995	0,9983	0,9818	0,9952	0,9993	0,992

Note: 0 '***' 0,001 '**' 0,01 '*' 0,05 ' , ' 0,1 ' ' 1

The impact of employment and economic stability is not a simple and direct relation for the countries in analysis with the fertility postponement and decline. The regression models are not homogeneous between the countries or regions.

CONCLUSIONS

The comparative analysis conducted in this paper reveals that Portugal is still in a fertility transition moment, between the rate levels from the Southern and Eastern countries. In the period under review, and between 1997 and 2008, Portugal was the country with the highest fertility rates with 1.5 children per women on average. At the same time, mean age at childbearing increased in all the countries, for the Eastern countries in analysis, lower values were presented when compared with the Southern context. And when analysed the mean age at first birth, the pattern was the same with proximity of Portugal to East. Also a constant proximity between the two mean ages is noticed. Even when the *adjusted TFR* is compared with the TFR, no significant differences were found between the different countries. Nevertheless, if the postponement decreases, that will allow all the countries to have high fertility rates.

The social and economic changes in European societies had change fertility and family patterns. The response to the new dynamics had significant impact at the reproductive level with later childbearing and family formation, fertility decline and changes at childbearing time. In our analysis at the same time that we observed fertility postponement and decline, the proportion of live births outside marriage has increased. Portugal and Hungary represent the countries with the highest values, and for both cases the proportion was nearly 43%.

Besides the social influence, if we assume, e.g., that employment stability is a prerequisite for family formation, Portugal should be, in the group of countries in analysis, the one with higher values of fertility, mainly if we have in mind the high fertility employment rates. However, the decision of family formation and dimension is a *dependent decision* not only of employment stability but also from economic positive growth. The economic uncertainty has different impact and implication for all the countries and even within each country. Although in our analysis was possible to identify, from the descriptive analysis more specifically, the high female participation in the labour market, specially for Portugal, the true is that the regression models were not statically significant. By not statically significant we mean, that even with high and significant R^2 in the final models presented the number of significant variables that is not expressive of behaviours of fertility decline or postponement.

The transitional patterns are the constant characteristic for Portugal. Being still, the country that is leading in the female employment rates and yet is not the country with the highest mean age at birth, and fertility rates are not increasing. Yet, further research is necessary to better understand the evolution of Portuguese fertility and the implications from the economical recession and the tremendous evolution of female education after the 80s.

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