Different women's employment and fertility behaviours in similar institutional settings: Evidence from Italy and Poland

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Abstract

In this paper we compare Italy and Poland, two countries where the country-specific obstacles to work and family reconciliation are similarly strong, but which differ in terms of the history of women's labour force participation and of household living standards. We adopt a life course perspective, and trace women's employment choices around the first and the second birth. On the one hand, our findings suggest the presence of a strong conflict between women's paid work and childbearing in both countries. On the other, our results show that women's employment clearly inhibits childbearing in Italy, while in Poland women tend to combine the two activities. Overall, we find that countries characterised by similarly strong institutionally or culturally driven tensions between work and family may differ in how women's fertility and employment behaviours are interrelated.

Keywords: work and family reconciliation, fertility, women's employment, Poland, Italy

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INTRODUCTION

Because fertility and employment compete for woman's resources, such as time and energy, they are, at least theoretically, clearly in conflict (Willekens 1991). Nonetheless, women are becoming increasingly reluctant to abandon a professional career for the sake of having a family (e.g. Gutiérrez-Domènech 2004). Instead, they employ deliberate strategies aimed at combining the two spheres of life through the timing of the entry to motherhood, the spacing of children and the sequencing of births and work episodes (Ni Bhrolchain 1986a, 1986b). It has been extensively documented in the demographic literature that working women in Western Europe are more likely to postpone motherhood and avoid further childbearing, and to take longer employment breaks, in countries that lack family policies designed to support the successful reconciliation of motherhood and paid work (Gustafsson and Wetzels, 2001; Rindfuss et al., 2003; Adsera 2004, 2005; Mills et al., 2005; Del Boca and Wetzels 2007; Gutiérrez-Domènech 2004). Recent micro-level research for post-socialist countries has challenged this finding, however, by showing that, in some countries, employed women are no less likely to give birth to a child, even if there are strong institutional barriers to work and family reconciliation (Kreyenfeld 2004; Kantorova 2004; Robert and Bukodi 2005; Matysiak 2009a). These findings call for a deeper investigation of how country-specific factors mediate the interrelationship between childbearing and women's labour supply, and influence the strategies women employ for combining family and paid work over the life course.

Comparing the most similar countries that display some specific and well-recognised differences has been recently recommended by Gerda Neyer and Gunnar Andersson (2008) as a meaningful approach for analysing the influence of country-specific factors on the studied phenomena. In this paper, we follow this approach by comparing Italy and Poland; i.e., a Western and an Eastern European country. On the one hand, these two low-fertility countries have much in common as far as their cultural and institutional frameworks are concerned. They stand out in Europe for their very low level of public support for working parents, rigid working hours, traditional views on gender roles and strong attachments to family and Catholic values (for an overview, see De Rose et al. 2008; Kotowska et al. 2008). On the other hand, however, the labour force participation of women aged 25 to 44 has been much higher in Poland than in Italy. Poland has also longer history of women's economic activity and of greater acceptance of women's participation in income provision (Lück and Hoffäcker 2003). Finally, the economic situation of Polish households is still substantially worse than that of Italian households, as the material aspirations of Poles are less likely to be satisfied than those of Italians.

In this paper, we make use of the existing similarities and differences in the Italian and Polish contexts to investigate how the settings of the two countries affect the interrelationship between fertility and women's employment. We adopt a life course perspective, tracing women's employment choices around the first and the second births. More specifically, we investigate how employment affects the entry to motherhood, analyse women's (re-)entry to employment after the first birth, and study how this transition—or the lack thereof—influences mothers' decisions to have a second child. Looking into specific life course stages that are acknowledged to mark crucial moments in the low fertility contexts (e.g. Livi Bacci, 2001) allows us to gain a deeper insight into the interdependencies between these two life careers, as well as the strategies adopted by women in the two country contexts.

The following sections of the paper provide the theoretical background for our study, present information on the context in which Italian and Polish women make their employment and reproductive choices, and describe the macro-level developments in fertility and women's labour supply in the two countries. We then present the data used, the methodological strategy employed and the results obtained. The paper concludes with a summary and a discussion of our findings.

THEORETICAL BACKGROUND

The micro-economic theory of fertility and women's labour supply, as proposed by Mincer (1963) and Becker (1965), is probably the most common theoretical model used for explaining and understanding women's childbearing and employment choices. This model was traditionally built upon an assumption of a *role specialisation* within a couple, and presupposed that the couple's utility is maximised if a man specialises in income provision and a woman divides her time between home production and market work. As a direct consequence of this assumption, it would appear that women's employment has an ambiguous effect on childbearing, and that parenthood has an ambiguous effect on mothers' employment. On the one hand, it was acknowledged that women's employment brings additional income, and that the income effect that arises facilitates childbearing among working women, and motivates mothers to re-enter employment swiftly after birth. On the other hand, because childbearing and paid work compete for women's time and energy, women's fertility and employment decisions also depend on opportunity costs (the price effect). In general, the demographic and socio-economic literature has identified three broad groups of macro-factors that affect opportunity costs: institutional (e.g. childcare subsidies, taxation policies and other forms of family support), structural (e.g. labour market rigidities or a high degree of uncertainty in the markets), and cultural (e.g. attitudes towards working mothers and perceptions of gender roles) (e.g. Adsera 2004,

Engelhardt et al 2004, Muszyńska 2007, Boeri et al 2005). A general prediction of the micro-economic model of fertility and women's labour supply is thus that working women will tend to postpone motherhood and avoid further childbearing, as well as to take more career breaks, in countries where mothers' employment is less institutionally supported and less socially accepted, and where the labour market institutions have not adjusted to accommodate female labour.

Recently, however, the sex-role specialisation assumption of the micro-economic model has come in for criticism, as women have been increasingly present in the labour market all over Europe, minimising their child-related career interruptions (e.g. Oppenheimer 1977, 1997, Cherlin 2000, Stevenson and Wolfers 2007, Raz-Yurovich 2010, 2011). It has been argued that, in modern societies, the organisation of the household has been changing from role specialisation to *income pooling.* This process is particularly advanced in countries where women are largely accepted as income providers (e.g. in countries with relatively long histories of women's labour force participation), as well as in countries where the material aspirations of the couple cannot be satisfied solely from men's earnings (Cherlin 2000). The validity of these arguments was demonstrated by Macunovich (1996) who, using US times series data, showed that the income effect of women's wages on fertility increases with a decline in the couple's ability to satisfy its material aspirations (e.g. during an economic slowdown). An increase in the income effect of women's employment was predicted even in countries characterised by strong institutional obstacles to work and family reconciliation. For instance, Schultz (1986) or Ermisch (2003) suggested that, if public childcare facilities are lacking, the rising earning power of women will lead couples to purchase childcare in the market. Women may also look to relatives for support in such cases. Overall, the shift toward income pooling implies that women's fertility and employment behaviours might differ even across countries characterised by similarly strong institutionally, structurally or culturally driven tensions between work and family.

The micro-economic approach has been widely tested in empirical research on the interrelationship between women's employment and fertility. The macro-level research conducted for Western Europe has generally acknowledged that women's employment and fertility are higher in countries where the opportunity costs are lower (e.g. Rindfuss et al., 2003; Ahn and Mira 2002; Engelhardt and Prskawetz 2004; Koegel 2004). Individual-level studies for Western Europe also provide findings consistent with this theory. In their meta-analysis summarising micro-level research on the relationship between fertility and women's employment, Matysiak and Vignoli (2008) found the association between the two variables to be most negative in Southern European countries, and to be insignificant in Nordic countries. Nonetheless, a similar finding to that for Nordic countries was also shown for post-socialist

countries, where the collapse of state socialism led to the disappearance of public support for working parents, and to an increase in work-family tensions (Saxonberg and Sirovatka 2006, Glass and Fodor 2007). A possible explanation for this finding is that, consistent with the income pooling hypothesis, women in Eastern Europe might already have been established as income providers as a result of the longer periods of women's integration in the labour market in Eastern than in Western Europe. The latter effect might be additionally reinforced by aspirations to achieve Western living standards. These aspirations may have been increasing along with EU integration, but may have been difficult to satisfy with one salary only.

In this paper, we compare Italy and Poland, two countries where the country-specific obstacles to work and family reconciliation are similarly strong, but which differ in terms of the history of women's labour force participation and of household living standards. With this comparison, we seek to demonstrate that countries characterised by similarly high opportunity costs differ in the way women's employment behaviours are intertwined with childbearing, and that the country-specific conditions for work and family reconciliation are not the only determinant of fertility and employment behaviours women adopt over their life course.

ITALY AND POLAND: CONTEXT REVIEW

Catholicism and strong family ties. The low rates of cohabitation, non-marital childbearing and marital disruption seen in both Italy and Poland set these two countries apart from much of the rest of Europe (Hantrais, 2005). The delayed diffusion of new family behaviours is often linked to the pressure imposed by the Catholic Church, which has an exceptionally strong position in both Italy and Poland (De Rose et al., 2008; Kotowska et al., 2008). According to data from the International Social Survey Programme (2008), over 90 per cent of citizens in both countries were raised in the Catholic religion (compared with an average of 49 per cent in other EU member states). In addition, 87 per cent of Poles and 76 per cent of Italians stated that they believe in God and they always have, compared with less than 60% of respondents in 12 out of 19 EU countries. Only recently have Italy and Poland started to experience a change in union formation and dissolution patterns, which is evident in an increase in marital instability (Vignoli and Ferro, 2008), as well as in cohabitation (Matysiak, 2009[b]) among the younger generations. Still, the majority of births in the two countries take place within marital unions: births outside of marriage barely exceeded 20 per cent in the two countries in 2009.

Additionally, both societies are characterised by strong attachment to the family. According to the European Values Study (1999) over 90 per cent of Italians and Poles consider family to be very important, which places the two countries in the top five out of 32 countries participating

in the survey on this issue. The attachment of Poles and Italians to family values is also reflected in strong intergenerational ties. In both countries, parents support their children after the latter leave the parental home by helping them to establish an independent household and plan a wedding, and later providing care for their children. In turn, they receive financial and emotional support in their old age (Stankuniene and Maslaukaite, 2008; De Rose et al., 2008).

Fertility decline. Despite the strong position of the Catholic Church, the attachment to the family and the prevalence of traditional family forms, Italy and Poland have experienced marked declines in childbearing, and currently belong to the countries with the lowest fertility levels in Europe. In Italy, the process of fertility decline started around a decade earlier, i.e. in the 1970s; while the first signs of a decrease in Poland appeared after the baby boom of the early 1980s, with the rate of decline accelerating after the onset of the economic transformation. As a result, the period total fertility rate (TFR) plummeted to lowest-low levels, reaching its lowest point of 1.18 in Italy in 1995, and of 1.23 in Poland in 2003. Although in the following years the two countries experienced slight improvements in period fertility, the TFR has remained relatively low (1.4 in 2009) in both countries.

This downward trend in childbearing was partly driven by a postponement of first births. In fact, both countries experienced increases in the mean age at the entry to motherhood, although it should be noted that this process was much more pronounced in Italy, which currently belongs to the group of countries with the oldest first-time mothers. Nevertheless, quantum effects also played an important role in the process of fertility decline in Italy and Poland: according to analyses by Sobotka et al. (2005), around 50 per cent of births lost over the period 1978-1996 in Italy and 1990-2002 in Poland had been missing due to quantum effects, after accounting for changes in the generation size of women at childbearing age.

Strong tensions between fertility and paid employment. This rapid change in childbearing behaviours in Italy and Poland is often linked in the literature to the strong tensions between fertility and women's work prevailing in both countries (Kotowska and Sztanderska 2007, Kotowska et al. 2008, Salvini 2004; Vignoli and Salvini, 2008, De Rose et al. 2008). These tensions are pronounced in three dimensions: family policies, labour market structures and social norms.

First, both countries are characterised by a very low supply of public childcare facilities for small children, aged 0-2 (Table 1). In Poland, additionally, the supply of childcare facilities for pre-

schoolers is far from sufficient. Instead, mothers can make use of maternity and parental leave entitlements. These entitlements are offered in both countries to all working mothers, irrespective of their work record, but Poland is much more generous than Italy in terms of leave duration. In Italy, a five-month maternity leave is followed by an optional parental leave of six months, which gives mothers the choice of staying home with the child for up to 11 months without terminating the work contract. In Poland, by contrast, a mother can stay home almost 3.5 years, as she can opt for a three-year parental leave after a 16-week maternity leave[2]. In both countries, the parental leave can be taken by mothers or fathers until the child is eight years old. In the great majority of cases, it is taken by mothers directly after the maternity leave. While the financial compensation during maternity leave is rather high (80 per cent in Italy and 100 per cent in Poland), the parental leave benefits are rather low (see Table 1). In fact, in Poland only mothers who meet certain income criteria are entitled to parental leave benefits. For those mothers who decide to work, family represents an important source of childcare in both countries. The results of the Eurostat survey "Reconciliation between work and family life" suggest that around 40 per cent of working mothers receive help from other family members (Eurostat 2007).

Second, in both countries the labour market structures create certain barriers to women's employment due to rigid working hours, scarcity of part-time jobs and a strong insider-outsider divide. Poland stands out in Europe for having particularly rigid work arrangements. The proportion of women who hold part-time jobs is below 10 per cent in Poland, and working hours are highly inflexible. According to the Eurostat survey, 42 per cent of Polish workers could not vary the start or the end of the working day, while the EU average was 27 per cent (Table 1). In Italy, the situation is better, but the exceptionally high level of women's unemployment relative to that of men points to the presence of strong barriers to women's employment. Large gender gaps in unemployment are typical of Southern European labour markets, which Adserà (2005) explains with a delay in the adjustment of labour market institutions to the pronounced increases in women's labour supply in recent decades.

Finally, in both countries, the gender division of tasks is heavily asymmetric, and the social disapproval of mothers who work when their children are young is widespread (e.g. Mencarini and Tanturri 2006; Muszyńska 2007; Philipov 2008; Lück & Hoffäcker, 2003; see also Table 1). However, unlike in Italy, women in Poland are seen as important income providers, and are expected to re-enter the workplace when their children are older (Treas and Widmer 2000).

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[2] These regulations were in force until the end of 2007. Since the beginning of 2008, some changes have been introduced into the parental leave system. We do not refer to them in this paper since the data we use in our empirical investigation for Poland was collected in 2006.

Table 1 - Contextual indicators, Italy and Poland around 2006

|	ITALY	POLAND	EU
Childcare provision			
children aged 0-2 [a]	7.0%	2.0%	20.4%
children aged 3-6 [a]	93%	60.0%	79.8%
proportion of working mothers with children up to age 14 who receive childcare support from kin [b]	40%	42%	26%
Maternity leave [c]			
Duration	5 months	16 weeks	-
Benefit	80% of monthly earnings	100% monthly earnings	
Parental leave [c]			
Duration	6 months	36 months	-
Benefit	30% of monthly earnings in private sector, and 80-100% in public sector	means-tested, flat rate at the around 15% of the average wage in the national economy	-
Labour market structures			
percentage who are part-time employed (aged 25-49) [d]	27.9	9.3	30.9
percentage who cannot vary start/end of working day for family reasons (aged 25-49) [b]	25%	42%	27%
women's unemployment rate relative to men's (persons aged 25-49) [d]	1.75	1.23	1.29
Social norms			
percentage who disagree with the statement that a working mother can establish just as warm and secure a relationship with her children as a mother who does not work [e]	45.8%	35.9%	24.4%
percentage who agree with the statement that a woman should work full-time a) if children are of preschool age, b) after the children leave home [f]	a) 5% b) 55%	a) 11% b) 80%	a) 9%* b) 73%*

Note: * - The average indicator does not refer to EU countries, but was computed for all countries that participated in ISSP 1994 survey: Australia, Austria, Bulgaria, Canada, Czech Republic, Germany, Great Britain, Hungary, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Northern Ireland, Norway, Poland, Russia, Slovenia, Spain, Sweden and the United States.

Source: a) – Saraceno and Keck (2008), b) – Eurostat Statistics Database (data from the "Reconciliation between work and family life" survey 2005), c) – Moss and Walls (2007) d) – Eurostat Statistics Database (Labor Force Survey data), e) – computation on European Values Study (1999), f) Treas and Widmer on ISSP1994.

Different developments in women's labour supply. Despite the strong tensions between fertility and women's work, Italy and Poland differ substantially in the current level of women's labour force participation (Figure 1). Even larger differences emerge when past developments in women's economic activity are analysed.

Italy has been always described as a country of low economic activity among women. Currently the labour force participation rate of females aged 25-44 stands at 67 per cent, which is around 10 percentage points below the EU average. It is notable, however, that in the early 1970s, the proportion of women in the labour force was half as large, which points to a considerable increase. The economic activity of women in Poland was already high in the 1960s, when over 60 per cent of women aged 25-44 participated in the labour force. By the end of the 1980s, nearly 80 per cent of Polish women were active in the labour market. After the collapse of state socialism, young women did not reduce their economic activity, despite an increase in the tensions between paid work and family. Instead, they proved to be highly motivated to find and keep a job, and to invest in education (Kotowska and Sztanderska 2007, Kotowska et al., 2008). Nonetheless, women's employment levels fell sharply, and did not recover thereafter. Thus, currently, Poland has one of the lowest women's employment rates in Europe, but is still ahead of Italy (68.1 per cent versus 60.9 per cent in 2008).

Figure 1 - Labour force participation and employment rates (LFPR and EMPR) of Italian and Polish women aged 25-44, 1970-2007.
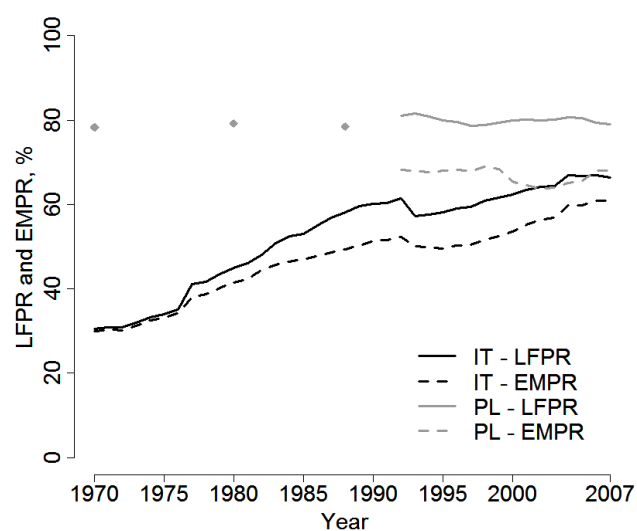
Note: All persons who were economically active before 1989 were employed, hence LFPR equals to EMPR.

Source: Italy 1970-2007 and Poland (1992-2007) - LFS data retrieved from the OECD Employment Database; Poland (1970-1988) - population census data retrieved from the ILO Laborsta

The assumption that employment constitutes an important element of the life course of Polish women is also reflected in opinion surveys. For example, according to data from the European Value Study (1999), work was rated as very important by 75 per cent of Polish women, compared with only 57 per cent of Italian women. Moreover, 59 per cent of the Polish women surveyed agreed with the statement that work should always come first, and over 90 per cent shared the view that work is needed to develop talents. The respective proportions for Italy were just 45 per cent and 70 per cent.

Different economic situation. While Italy and Poland share numerous similarities in the cultural and institutional context of fertility and women's employment, they differ widely in their levels of economic development. Despite a clear and continuous improvement in the economic situation since the early 1990s, Poland's per person gross domestic product (GDP) in PPS is still only 50 per cent of that of Italy. There are also clear cross-country differences in the financial situations of households: the annual total disposable income in PPS of a family with two working spouses (each earning the average national salary) and two children is twice as high in Italy as in Poland (Eurostat Statistics Database 2008). This gap in family incomes likely means that material aspirations of the Poles are unsatisfied to a larger extent than those of Italians. According to European Social Survey (2002) only 9.1 per cent of Poles reported that they live comfortably on their present income, compared with 34.2 per cent of Italians. By contrast, 44.5 per cent of Poles said they find it difficult to live on their current income, compared with just 16.9 per cent of the Italians surveyed.

RESEARCH HYPOTHESES

On the basis of the considerations outlined so far, we expect to find a strong conflict between fertility and women's employment in both Poland and Italy, resulting from the unfavourable institutional and cultural conditions for work and family reconciliation that prevail in both countries. This strong conflict should be reflected in greater postponement of the entry into motherhood among employed women than among those who do not work, long work interruptions after the first birth and a strong negative influence of post-natal employment entry on the transition to a second child.

Nevertheless, we also anticipate finding clear cross-country differences in the fertility and employment trajectories women choose. Consistent with the income-pooling hypothesis, we expect the income effect of women's employment on fertility to be stronger in Poland than in Italy. Therefore, we expect that the negative effects of women's employment on fertility will be

weaker in Poland than in Italy. Accordingly, we also anticipate that Polish mothers will resume paid work more quickly than Italian mothers.

EMPIRICAL STRATEGY

DATA

In our empirical investigation, we employed retrospective data stemming from the Household Multipurpose Survey "Family and Social Subjects" (FSS), and corresponding to the Italian Generations and Gender Survey and the Polish Employment, Family and Education Survey (EFES). The Italian survey was conducted by the Italian National Statistical Office (Istat) in November 2003 on a sample of about 50,000 individuals of all ages nested in24,000 households. The Polish survey was prepared by the Institute of Statistics and Demography of the Warsaw School of Economics and carried out in November and December 2006 on a representative sample of 3,000 women born 1966-1981. These two retrospective surveys are the most comprehensive sources of longitudinal data available for the two countries. While both surveys cover detailed information on women's fertility and employment histories recorded on a monthly basis, they also have several limitations that restrict our analytical options. First, neither of these surveys contains data on income from work. Hence, even though such data would be very useful for investigating the income effect of women's wages on fertility, we need to limit ourselves to investigating the interrelationship between women's employment and childbearing. Second, there are also some differences between the two studies that restrict the possibility of fully exploiting data potentials in a comparative project. In contrast to the Italian survey, the EFES focused on women, and was conducted on selected cohorts only. This prohibits us from carrying out analyses at a couple level, and limits opportunities for studying temporal changes in individual behaviour. Conversely, the FSS, unlike the EFES, does not contain information on unemployment spells and changes in work contracts throughout respondents' employment histories, which forces us to analyse the interrelationship between childbearing and women's employment status in general (employed versus not employed). Finally, unlike the Polish EFES, the Italian FSS does not provide information about whether a woman is on parental leave. More specifically, women taking part in the survey could classify themselves either as employed or as non-employed. Given that mothers in Italy can be out of paid employment no longer than 11 months following birth without risking the loss of their work contract (a five-month maternity leave is followed by an optional parental leave of six months), we lack reliable information on women's employment status within the first year after birth in Italy. We deal with this problem by coding the episode of first year after birth as missing in women's employment histories in both countries.

Given our data limitations, we focused on analysing the interrelationship between women's employment status in general (employed vs. not employed) and fertility. For Poland, we selected the female cohorts born between 1970 and 1981. These women were between the ages of eight and 19 in 1989, which means that they started their reproductive careers largely under the new political and economic conditions. Taking the same cohorts for Italy as for Poland would mean following the Italian women for a period that is three years shorter than the period for Poland. For this reason, for Italy we chose cohorts born in the years 1967-1978. As a result, in both cases the analysed women were aged 25-36 at the time of the interview. Importantly, we did not censor Polish women in 2003. The rationale behind this choice was that, because fertility postponement in Poland started only recently, the years 2004-2006 could provide us with valuable information.

From the original sample, we excluded women with incomplete education, birth or employment histories; as well as women who reported twins at the first birth. Respondents with missing values on other variables (i.e. parents' education) were retained in the sample, and additional modalities "missing" were created for these covariates. As a result, our Italian final sample included 4,238 respondents, and the Polish final sample covered 2,300 respondents.

METHODS

Due to the life course perspective adopted in this study, event history techniques were applied. Above all, we were interested in studying the effect of employment on women's transition to the first birth, and later the effect of women's employment re-entry (or lack thereof) on the transition to the second birth. In order to gain more insight into women's fertility and employment choices at the critical stage when women decide whether or not to have a second child, we also looked at patterns in women's employment re-entry after the first birth.

Effects of women's employment on fertility. Two hazard models for the transition to the first and second birth were specified in the first step in order to study employment effects on fertility. Each woman was followed from the age of 15 until the first conception, and then from the delivery of the first child up to the conception of the second child; cases were eventually censored at the date of the interview. Conception was measured seven months before birth, i.e. at a point at which the great majority of women are aware that they are pregnant, and after which this knowledge may influence their subsequent employment behaviours. The hazard models for the first and second birth were estimated jointly, with a common unobserved

heterogeneity term, which allowed us to account for selection of family-oriented women to the sample used for studying second births. Since we were interested in investigating the effects of employment on birth transitions, employment status was our main explanatory covariate. The literature on interdependencies between fertility and women's employment demonstrated that these two variables are jointly affected by common unobserved person-specific characteristics, such as family or work orientations (Aassve et al. 2006, Matysiak 2009a), leading to a selection bias in the effect of women's employment on fertility in conventional event history applications. This bias might be upwards or downwards. The former is observed in case of a positive selection, i.e. when the unmeasured characteristics affect employment and fertility decisions positively (e.g. for unobserved reasons, a woman decides to start a job and have a child afterwards). Downward bias results from a negative selection, i.e. if employment and fertility are influenced by unobserved factors in opposite directions (e.g. a woman decides to exit employment and to have a child while non-employed for reasons unknown to the researcher). In order to obtain unbiased estimates of employment effects on fertility, in the second step we modelled fertility transitions jointly, with employment transitions allowing for a correlation between the unobserved person-specific unobserved characteristics affecting fertility and employment behaviours (e.g. Lillard 1993). Consequently, we needed to specify a model for employment transitions around the first birth.

Modelling employment transitions around the first birth was complex due to the data limitations we encountered; namely, the lack of information on women's employment status within the first year after the first birth in Italy. Given this limitation, we decided to specify three employment equations, which were modelled jointly with a common unobserved heterogeneity term: (1) a logit model for the probability of being employed at first conception, (2) a logit model for the probability of being employed 12 months after first birth and (3) a hazard model for entry to work with a baseline duration, represented by the time elapsed since the child was one year old until a woman entered work. The first equation (i.e. the logit model for the probability of being employed at conception) was estimated to control for selection of women with a work contract to the sample of women who entered paid work relatively quickly after the first birth (at least in Italy, these were women who had the right to parental leave) and selection of women with no work contract to the sample of women who remained out of work after that time. The second equation (i.e. the logit model for the probability of being employed one year after first birth) was specified in order to account for selection of family-oriented women to the sample of women who were still at home 12 months after birth.

In order to analyse the effects of employment on fertility transitions, we estimated simultaneously the following five equations:

$$\begin{cases} \ln h^{B1}(t) = y^{B1}(t) + \sum_j a_j^{B1} X_j + \sum_i b_i^{B1} Z_i(t) + \varepsilon & \text{Hazard of first conception} \\[2mm] \ln h^{B2}(t) = y^{B2}(t) + \sum_j a_j^{B2} X_j + \sum_i b_i^{B2} Z_i(t) + \varepsilon & \text{Hazard of second conception} \\[2mm] \ln(\hat{Z}) = a_0 + \sum_j a_j X_j + \eta & \text{Logit for work at conception} \\[2mm] \ln(\hat{V}) = a_0 + \sum_j a_j X_j + \eta & \text{Logit for work 12 months after birth} \\[2mm] \ln h^{EN12+}(t) = y^{EN12+}(t) + \sum_j a_j^{EN12+} X_j + \sum_i b_i^{EN12+} Z_i(t) + \eta & \text{Hazard of employment entry} \end{cases}$$

For simplicity, the subscripts standing for an individual were omitted. The $\ln(h^{B1})$, $\ln(h^{B2})$ and $\ln(h^{EN12+})$ denote natural logarithms of hazards of first birth, second birth and entry to employment starting 12 months after the first delivery, respectively. $\hat{Z}$ represents the odds of working at conception and $\hat{V}$ the odds of entering employment when the child is one year old. In each of the hazard models, $y(t)$ stands for a piecewise linear spline that captures the effect of the baseline duration on analysed intensities; i.e. age of a woman in the model for the transition to the first birth, and age of the first child in the model for the transition to the second child and employment entry[3]. The vector X_j denotes time-constant covariates, and the vector $Z_j(t)$ the time-varying covariates. Finally, ε and η stand for person-specific unobserved heterogeneity terms, which are constant across women's fertility and employment spells, respectively. Consequently, ε captures the unobserved time-invariant propensity of women to have a child, while η accounts for women's unmeasured time-constant determination to participate in paid employment. Both unobserved heterogeneity terms were assumed to follow normal distribution with zero means and standard deviations of σ_ε and σ_η:

$$\begin{pmatrix} \varepsilon \\ \eta \end{pmatrix} \sim N\left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\varepsilon^2 & \rho_{\varepsilon\eta} \\ \rho_{\eta\varepsilon} & \sigma_\eta^2 \end{pmatrix} \right)$$

where $\rho_{\eta\varepsilon} \left(\equiv \rho_{\varepsilon\eta} \right)$ represents the correlation between the unobserved heterogeneity terms. This correlation is significant if the two processes are affected simultaneously by unobserved factors. It is positive in case of a positive selection, and negative otherwise.

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[3] For the specification of these baseline hazard durations we used a piecewise linear spline (also known as a generalised Gompertz formulation), instead of the more common piecewice constant specification. A linear spline is a flexible form of representing the effect of a continuous independent variable. With sufficient bend points, this specification makes it possible to efficiently capture any log-hazard pattern in the data.

Our key explanatory covariate in the fertility models is woman's employment status, introduced as a time-varying covariate. In the model for the transition to first child, this variable is grouped into four categories: "in education", "has not worked yet, but out of education", "employed" and "does not work but has some work experience". This specification allows us to separate women who are still in school from those who have already graduated and face the decision of whether or not to enter the labour market. It also separates women who ever worked from those who never worked. In the model for the transition to the second child, the employment status variable has the following categories: "entered no work after first birth" (including women on parental leave in Poland), "entered work after first birth, but currently in non-employment", and "entered work after first birth and currently in employment". Again, we separated non-employed women who had not entered employment after delivery from those who had taken a paid job, but either lost it after some time or decided to give it up.

Additionally, all models control for the respondent's and the parents' education, as well as for calendar time. Respondent's education is a time-varying covariate. Women who had finished their education were classified into three groups: low, medium and high. The first category comprises women who completed only compulsory education (eight years in both countries), as well as those who continued with basic vocational education, lasting three years in Italy and two years in Poland. The medium educated are those who completed at least four years of education at the upper-secondary level, as well as those who undertook post-secondary but non-tertiary education. Women who received a bachelor's or a master's degree were classified as highly educated. Parent's education were dichotomised between "low" and "medium-high". Finally, the logit models predicting the probability of being employed at conception and one year after birth, as well as the hazard model for employment entry, account for work experience gathered before the first conception, as well as the number of non-employment spells experienced until that moment.

Entry to employment after first birth. In order to investigate the patterns of women's employment entry after first birth, we compared Kaplan-Maier survival curves for the two countries. Normally, in such a situation it would make the most sense to observe a woman since her first birth. This approach was not appropriate in our case, however, as we lacked reliable information on women's employment status within the year after birth in Italy. Hence, we could not know the date when Italian mothers finished parental leave and re-entered paid work. For this reason, we decided to observe each woman starting with the first birthday of the first child. Women were followed until the date of employment (re-)entry, with censoring at the second

conception or the time of the interview, whichever came first. The resulting Kaplan-Meier estimates of survival curves were adjusted on the basis of the proportions of women at work one year after the first birth.

EMPIRICAL RESULTS

In this section, we present our empirical findings. We start our discussion from a descriptive overview of the transitions to the first and second child in both countries, using Kaplan-Maier survival curves. We then present our estimates of employment effects on the transition to first birth. Subsequently, we present descriptive information on the patterns of women's entry to employment after the first delivery, and turn our attention to its impact on second birth risks. Each time we discuss the estimates of employment effects on fertility, we refer first to the descriptive findings that come from the simple intensity models for first and second births (modelled separately from employment transitions). These simple hazard models for first and second births provide information about fertility differentials with respect to women's employment status. Only then do we move on to interpreting the employment parameters from the joint models, i.e. net of selection effects. The full model results are reported in the appendix.

Progression to the first and second births: the timing of the events

Our data confirm the assumption that the entry to motherhood occurs later in Italy than in Poland (Figure 2a). While the median age at first birth is 24 for the analysed cohorts of Polish women, it is slightly over 30 for Italian women. Although Italian women postpone the transition to the first child to a much larger extent than Polish women, the intensity of progressing to the second child is similar in the two countries (Figure 2b). Around 20 per cent of mothers conceive their second child within the first two years after the first birth, and half within the first four years. One in three women still has only one child seven years after her first delivery.

Figure 2a-b - Transition to first (a) and second birth (b) in Italy and Poland.

<div align="center">

(a)   **(b)**

</div>
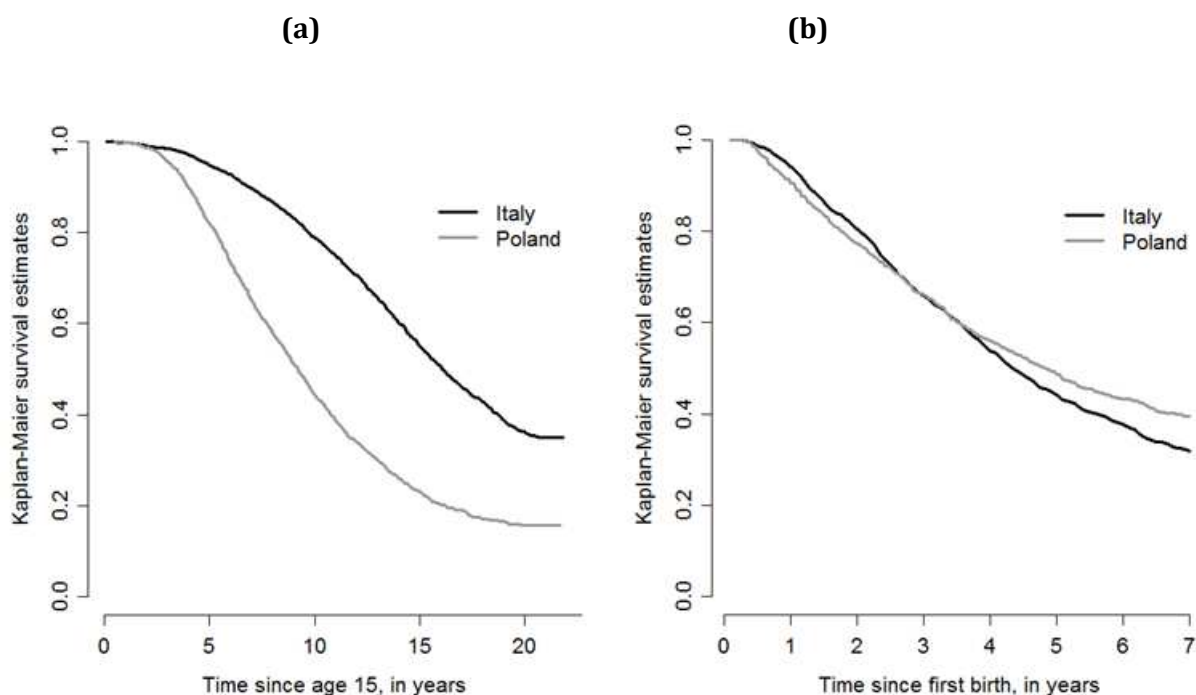
Source: own elaboration on FSS (2003) and EFES (2006).

Impact of employment on the first birth

We first present findings from the simple single process hazard model for the transition to the first birth (Table 2, column (2)) and then present the results of the joint model, which yields the effects of employment on the entry to motherhood after accounting for selection effects (Table 2, column (3)).

Our outcomes point to clear differences in the employment and motherhood choices of Italian and Polish women. In the former country, employed women were found to be far less likely to conceive a first child than women who had never worked or women who had worked in the past, but who had since exited the labour market. For Poland, we found no relationship between women's employment and the transition to a first birth. Specifically, Polish women who had a job were shown to be as likely to enter motherhood as those out of paid work.

The correlation between the unobserved heterogeneity terms in fertility and employment equations was positive. This suggests that unobserved time-invariant factors influence childbearing and employment entry in the same direction. After we controlled for the time-invariant unobservables, the estimated coefficients of the effect of employment on first birth became lower. Consequently, the negative effect of employment on the first birth risk in Italy

became slightly stronger. The effect in Poland remained insignificant. Overall, our findings suggest that employment clearly discourages motherhood in Italy, but has no effect on first births in Poland.

Table 2. **Impact of employment status on the transition to the first birth**

Employment status	Single process model	Joint model
(1)	(2)	(3)
ITALY		
in school	0.27***	0.29***
has not worked yet	1.00	1.00
does not work but has some work experience	1.05	1.08
in employment	0.69***	0.62***
POLAND		
in school	0.68***	0.69**
has not worked yet	1.00	1.00
does not work but has some work experience	1.10	1.11
in employment	1.06	1.02

Note: Results are controlled for woman's age, educational level, calendar period and woman's social background (parents' educational level).

Source: own elaboration on FSS (2003) and EFES (2006).

Timing of employment (re-)entry after first birth

In this sub-section, we describe the timing of employment (re-)entry after the first birth through Kaplan-Meier survival curve estimates. These curves were corrected by the proportions of women at work one year after the first birth. Although, unlike in Poland, employment strongly discourages the transition to motherhood in Italy, Italian mothers resume employment after their first birth more quickly than Polish women (Figure 3). Half of Italian mothers, but only one-third of Polish mothers, were working one year after the birth. This difference in entry rates can

be due to differences in parental leave regulations. In fact, it turns out that the intensity of employment entry in Poland starts to exceed that of Italy after the child reaches 3.5 years of age, which is precisely the time when the parental leave expires.

Figure 3 - **Proportion of women not in employment 12 months after the first birth, Kaplan-Meier survival curve estimates.**
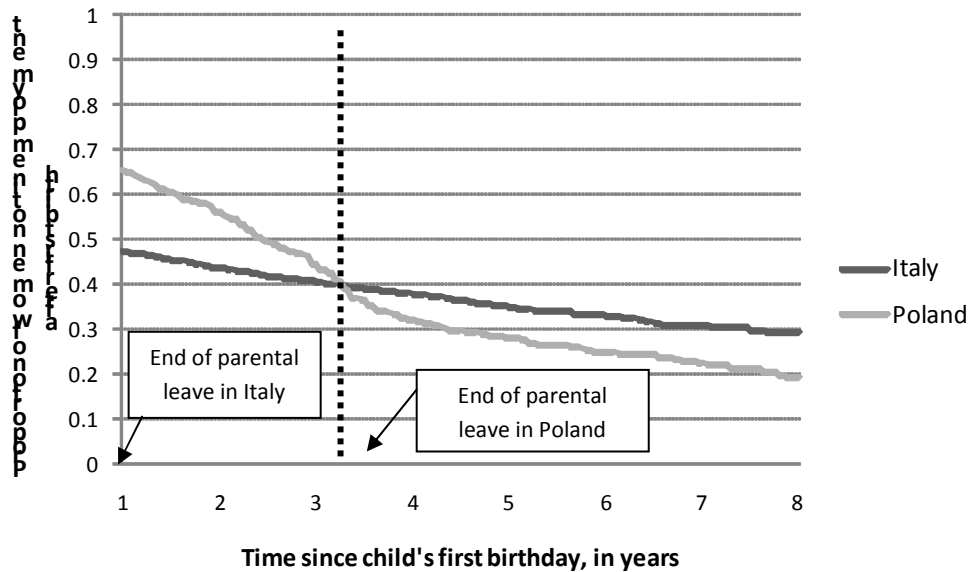
Source: own elaboration on FSS (2003) and EFES (2006).

It turns out, however, that the intensity of employment entry in Italy strongly depends on whether a woman was employed for at least some period of time before the first conception (Figure 4). Almost 90 per cent of the Italian women who had some work experience (who made up 58 per cent of our sample) entered employment one year after giving birth. By contrast, of those women who had never worked before they conceived, no more than 10 per cent were employed one year after the first birth, and only 20 per cent were in a job three years later. These findings indicate there is a strong polarisation in the behavioural patterns of Italian women. A similar pattern in employment entry after the first birth in Italy has also been identified in previous research (see e.g. Saurel-Cubizolles et al. 1999; Gutiérrez-Domènech 2004), conducted for the older cohorts. This degree of strong polarisation was not observed in Poland, although women with some work experience (who constituted almost 70 per cent of all the Polish women in our sample) were found to be more likely to enter paid work after childbirth than those who had never worked.

Figure 4 - Proportion of women not in employment 12 months after first birth, by women's work experience before the first birth. Kaplan-Meier survival curve estimates.
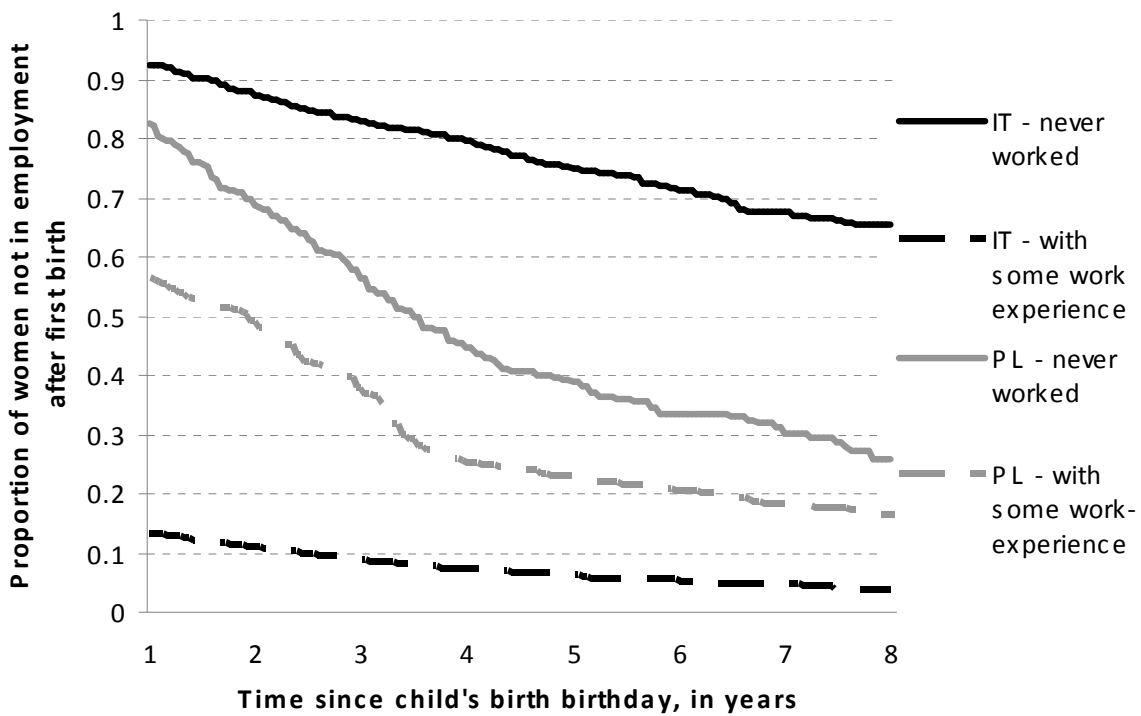
Source: own elaboration on FSS (2003) and EFES (2006).

Impact of employment entry on second birth

In the last step, we investigated how employment transitions after the first birth influence the progression to the second child; i.e. the crucial progression in low fertility settings. Again, we first discuss the estimates from a simple single process hazard model for the transition to the second child (Table 3, column (2)), and then present the estimates from the joint model, which accounts for selection effects (Table 3, column (3)).

Our findings illustrate clear cross-country differences. In Italy, employment after the first birth clearly hindered the transition to the second child. Women who entered work after the first birth and remained employed were 19 per cent less likely to conceive a second child. The direct effect—i.e. after controlling for selection—was even stronger (35 per cent). By contrast, those women who took up a job but left it after some time for unknown reasons were as likely to have conceived a second child as women who had not entered employment following the first birth.

In Poland, the picture is more complex. The simple model, without accounting for selection effects, suggests that women who entered employment were as likely to have a second child as

women who had not done so. However, after we controlled for selection, it turned out that employment after the first birth reduced the second birth risk by 21 per cent relative to mothers who did not take a job. Although negative, this effect is still weaker than in Italy. Furthermore, women who entered employment after they gave birth to the first child, but left the workforce for unknown reasons, were even less likely to conceive a second child than those who worked. Our results for Poland suggest thus that, while employment entry after the first birth conflicts with further childbearing, the loss of a job (that can be involuntary) creates particularly unfavourable conditions for enlarging the family size.

Table 3 - Impact of employment status on the transition to the second birth

Employment status	Single process model	Joint model
(1)	(2)	(3)
ITALY		
did not enter work after first birth	1	1
entered work and is currently working	0.81***	0.65***
entered work but is not currently working	1.19	1.04
POLAND		
did not enter work after first birth	1	1
entered work and is currently working	1.03	0.79**
entered work but is not currently working	0.77	0.58**

Note: results are controlled for age of the first child, woman's age at first birth, woman's educational level, calendar period and woman's social background (parents' education).

Source: own elaboration on FSS (2003) and EFES (2006).

CONCLUDING DISCUSSION

Women's fertility and employment choices have been widely studied in demographic, economic and sociological literature. In general, empirical studies for developed countries suggest that the two careers are in conflict, but that this conflict is weaker when there is institutional support for

employed parents, when the labour market is adjusted to accommodate female labour and when the social acceptance of working mothers is high. These findings are consistent with the micro-economic theory of fertility and women's labour supply that presupposes a role specialisation within a couple, and consequently predicts that women's fertility and employment choices depend largely on opportunity costs. Recent micro-level research on post-socialist countries have challenged this view, however, by showing that working women in this part of Europe are not at all less likely to enter motherhood than those who do not have a job, even if the country context is not supportive of work and family reconciliation. This may suggest that conditions for work and family reconciliation are not the only country-specific factor affecting women's fertility and employment decisions; and that, in countries with longer histories of women's labour force participation, where women are accepted as important income providers, women's employment may be an important facilitator of family formation.

In this paper, we compared Italy and Poland, two countries where the country-specific obstacles to work and family reconciliation are similarly strong, but which differ in terms of the history of women's labour force participation and household living standards. Our findings point to the existence of a strong conflict between women's paid work and childbearing in both countries. Nevertheless, they also provide evidence for clear cross-country differences in the fertility and employment choices of women, and in how these choices are intertwined.

In line with our expectations, the negative effect of women's employment on fertility was found to be particularly strong in Italy. Employed women in this country are very likely to postpone the entry to motherhood, and are highly unlikely to give birth to a second child. Instead, they swiftly return to employment after the first birth; this pattern of rapid employment re-entry in Italy was unanticipated. It is likely driven by the rather modest parental leave provisions (at least in terms of parental leave duration). An interesting finding of our study is that the life course trajectory described above was taken by around one-half of the Italian women born 1967-1978, and that the choice to take this trajectory seems to have been determined to a large extent by whether or not a woman decided to pursue a career after she graduated. The remaining women, who did not enter employment after completing education, followed a completely different life path: i.e. they tended to progress to having a first child more quickly than those who worked, they seldom took a job after giving birth and they had the highest intensity of progressing to a second child. A polarisation in women's fertility and employment behaviours is hence a clear feature of the Italian setting.

In Poland, where the institutional, structural and cultural setting seems to be at least as unfavourable to work and family reconciliation as in Italy and childcare provision is even much

worse, women's employment did not seem to constitute such a strong barrier to fertility. More specifically, women's paid work was not found to affect the entry to motherhood. The effect of women's entry to employment after the first birth on the intensity of the second birth was already negative, although its magnitude was weaker than in Italy. Moreover, in Poland, a job loss after re-entry was shown to have led to delays in the second birth, which contrasts with the finding for Italy. An unexpected result was that Polish women stay home longer than Italian women after the first birth, very likely because of a longer parental leave entitlement. The majority return to paid employment, however. Unlike in Italy, no polarisation pattern in fertility and employment behaviours was observed.

Overall, our findings showed that women's employment clearly conflicts with childbearing in Italy, while in Poland women tend to combine the two activities, despite the difficulties they face. Hence, our research points to the importance of other country-specific factors for fertility and employment decisions, apart from conditions for work and family reconciliation, such as economic incentives or culturally rooted behavioural patterns. It is possible that the longer history of women's labour force participation in Poland has led to a greater acceptance of women as economic providers than in Italy. The economic contributions of women might have turned out to have been important for family formation in the period of economic restructuring and adoption of the capitalist system. This explanation for the differences in women's fertility and employment behaviours in the two countries, which is consistent with the income-pooling hypothesis, requires further testing, however. Additional research using longitudinal data on fertility and couples' earnings is thus needed to investigate the income effect of women's wages on fertility in the two countries.

Finally, our study's findings appear to support the argument developed by Neyer and Andersson (2008) that comparing similar societies which display key similarities, as well as defined differences, represents a useful tool for understanding how the country-specific contexts affect individual behaviours, and for observing regularities in the association between the state and the life course strategies. We suggest that life course pathways of work-family balance should therefore be contextualised in space and time. By contrast, disregarding the peculiarities of each national institutional and cultural setting may provide biased inputs in developing and testing causal links between work and family life.

ACKNOWLEDGEMENTS:

REFERENCES

Adsera, Alicia. 2004. Changing fertility rates in developed countries. The impact of labor market institutions, *Journal of Population Economics* 17 (1):17-43.

Adsera, Alicia. 2005. Vanishing children: From high unemployment to low fertility in developed countries, *American Economic Review* 95 (2):189-193.

Aassve, Arnstein, Simon Burgess, Carol Propper, and Matt Dickson. 2006. Employment, family union and childbearing decisions in Great Britain, *Journal of the Royal Statistical Society* 169(4): 781-804.

Ahn, Namkee and Pedro Mira. 2002. A note on the changing relationship between fertility and female employment rates in developed countries, *Journal of Population Economics* 15(4): 667-682.

Becker, Gary S. 1965. A theory of the allocation of time, *Economic Journal* 75(299): 493–517.

Boeri, T., Daniela Del Boca, and Christopher Pissarides (Eds.). 2005. *Women at work: An economic perspective.* Oxford: Oxford University Press.

Cherlin, Andrew J. 2000. Toward a new home Socioeconomics of union formation, in: L. J. Waite, C. Bachrach, M. Hindin, E. Thomson, and A. Thornton (eds.), *The ties that bind – Perspectives on marriage and cohabitation*. Hawthorne, NY: Aldine De Gruyter, pp. 126-144.

Del Boca, Daniela and Cecile Wetzels. 2007. *Social Policies, Labour Markets and Motherhood: A Comparative Analysis of European Countries*. Cambridge: Cambridge University Press

De Rose, Alessandra, Filomena Racioppi, and Anna Laura Zanatta. 2008. Italy: Delayed adaptation of social institutions to changes in family behaviour, *Demographic Research, Special Collection* 7: 665-704.

Engelhardt, Henriette, Tomas Kögel, and Alexia Prskawetz. 2004. Fertility and women's employment reconsidered: A macro-level time-series analysis for developed countries, 1960-2000, *Population Studies* 58(1):109-120.

Ermisch, John F. 2003. *An economic analysis of the family.* Princeton and Oxford: Princeton University Press.

Eurostat. 2007. Reconciliation between work and family life. Final report to the 2005 LFS ad hoc module. Eurostat Methodologies and Working Papers, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-011/EN/KS-RA-07-011-EN.PDF

Eurostat statistics database, Labour Force Survey Data. Accessed January 2008. Available from: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.

Glass, Christy and Eva Fodor. 2007. From Public to Private Maternalism? Gender and Welfare in Poland and Hungary after 1989, *Social Politics: International Studies in Gender, State & Society* 14 (3):323-350.

Gustafsson, Siv Sofia and Cecile M.M.P. Wetzels. 2000. Optimal age for first birth: Germany, Great Britain, the Netherlands and Sweden, in S. S. Gustafsson and D. E. Meulders (eds.), *Gender and 26 the labour market. Econometric evidence on obstacles in achieving gender equality*. London: MacMillan Press Ltd., pp. 188-209.

Gutiérrez-Domènech, Maria. 2004. Employment after motherhood: a European comparison, *Labour Economics* 12: 99-123.

Hantrais, Linda. 2005. Living as a family in Europe, in L. Hantrais, D. Philipov, and F. C. Billari (eds.), *Policy Implications of Changing Family Formation*. Strasburg: Council of Europe Publishing, pp 117–181.

ILO. 2008. International Labour Office, LABORSTA Database. Accessed January 2008. Available from: http://laborsta.ilo.org/.

Kantorová, Vladimira. 2004. *Family life transitions of young women in a changing society: first union formation and birth of first child in the Czech Republic, 1970-1997*. PhD Doctoral Dissertation, Charles University.

Kotowska, Irena E., Janina Jóźwiak, Anna Matysiak, and Anna Baranowska. 2008. Poland: Fertility decline - a response to profound societal change and transformations in the labour market?, *Demographic Research* 19: 795–854.

Kotowska, Irena E. and Urszula Sztanderska. 2007. Zmiany demograficzne a zmiany na rynku pracy w Polsce [Population changes and labour market developments in Poland], in Irena E. Kotowska, Urszula Sztanderska, and Irena Wóycicka (eds.), *Aktywność zawodowa i edukacyjna a obowiązki rodzinne w Polsce w świetle badań empirycznych* [Economic and Educational Activity versus Family Obligations in Poland]. Warsaw: Scholar Publishing, pp. 13–46.

Kögel, Tomas. 2004. Did the association between fertility and female employment within OECD countries really change its sign?, *Journal of Population Economics* 17(1): 45-65.

Kreyenfeld, Michaela. 2004. Fertility decisions in the FRG and GDR: an analysis with data from the German Fertility and Family Survey, *Demographic Research* 3: 275–318.

Lillard, Lee A. 1993, Simultaneous equations for hazards: marriage duration and fertility timing, *Journal of Econometrics*, 56(1-2): 189–217.

Livi Bacci, Massimo. 2001. Too few children and too much family, *Daedalus* 130(3): 139–156.

Lück, Detley and Dirk Hofäcker. 2003. Rejection and acceptance of the male breadwinner model: which preferences do women have under which circumstances? Globalife Working Paper No 60, University of Bamberg, Germany.

Macunovich, Diane J. 1996. Relative income and price of time: Exploring their effects on U.S. fertility and female labour force participation, *Population and Development Review* 22: 223–257.

Matysiak, Anna. 2009a. Employment first, then childbearing: Women's strategy in post-socialist Poland, *Population Studies* 63(3): 253-276

Matysiak, Anna. 2009b. Is Poland really 'immune' to the spread of cohabitation?, *Demographic Research* 21: 215-234

Matysiak, Anna and Daniele Vignoli. 2008. Fertility and women's employment: a meta-analysis, *European Journal of Population* 24(4): 363–384.

Mencarini, Letizia and Maria Letizia Tanturri. 2006. High Fertility or Childlessness: Micro-Level Determinants of Reproductive Behaviour in Europe, *Population* 4: 389-416.

Mills, Melinda., Hans-Peter Blossfeld, and Erik Klizing. 2005. Becaming an aduld in uncertain times: a 14-country comparison of the losers of globalization, in H-P Blossfeld., M. Mills, and K. Kurz (eds.), *Globalization, Uncertainty and Youth in Society*, London and New York: Routledge, pp 423-441.

Mincer, Jacob. 1963. Market prices, opportunity costs and income effects, in C. F. Christ (ed.) *Measurement in Economics: Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld*, Stanford: Stanford University Press.

Moss, Peter and Karin Walls. 2007. International Review of Leave Policies and Related Research 2007, Employment Relations Research Series 80.

Muszyńska, Magdalena. 2007. *Structural and Cultural Determinants of Fertility in Europe*. Warsaw: Warsaw School of Economics Publishing.

Neyer, Gerda and Gunnar Andersson. 2008. Consequences of Family Policies on Childbearing Behavior: Effects or Artifacts?, *Population and Development Review* 34(4): 699–724.

Ni Bhrolchain, Maire. 1986a. Women's paid work and the timing of births. Longitudinal evidence, *European Journal of Population/Revue européenne de Démographie* 2: 43-70.

Ni Bhrolchain, Maire. 1986b. The interpretation and role of work-associated accelerated childbearing in post-war Britain. *European Journal of Population/Revue européenne de Démographie* 2: 135-154.

OECD 2008. OECD Database on Labour Force Statistics. Accessed January 2008. Available from: http://www.oecd.org/.

Oppenheimer, Valerie Kincade. 1977. The sociology of women's economic role in the family, *American Sociological Review* 42: 387-406.

Oppenheimer, Valerie Kincade. 1997. Women's employment and the gain to marriage: The specialization and trading model, *Annual Review of Sociology* 23: 431-453.

Philipov, Dimiter. 2008. Family-related Gender Attitudes, in: C. Höhn, D. Avramov, and I. E. Kotowska (eds.), *People, Population Change and Policies: Lessons from the Population Policy Acceptance Study*, Vol. 1. European Studies of Population, Springer pp. 153-174.

Raz-Yurovich, Liat. 2010. Men's and women's economic activity and first marriage: Jews in Israel, 1987-1995, *Demographic Research* 22 (29):933-964.

Raz-Yurovich, Liat. 2011. Economic Determinants of Divorce among Dual-Earner Couples: Jews in Israel, Max Planck Institute for Demographic Research Working Paper 18.

Rindfuss, Ronald R., Karen Benjamin Guzzo, and S. Philip Morgan. 2003. The Changing Institutional Context of Low Fertility, *Population Research and Policy Review* 22: 411-438.

Róbert, Péter and Erzsébet Bukodi E. 2005.The effects of the globalization process on the transition to adulthood in Hungary, in Blossfeld, Hans P., Erik Klijzing, Melinda Mills, and Karin Kurz (eds.), *Globalization, Uncertainty and Youth in Society*. London and New York: Routledge, pp. 176–214.

Salvini, Silvana. 2004. Low Italian fertility: the Bonaccia of Antilles?, *Genus* LX (1): 19-38.

Saurel-Cubizolles, Marie-Josèphe, Patrizia Romito, Vicenta Escribà–Aguir, Nathalie Lelong, Rosa Mas Pons, and Pierre–Yves Ancel. 1999. Returning to work after childbirth in France, Italy, and Spain, *European Sociological Review* 15: 179-194.

Saraceno, Chiara and Wolfgang Keck. 2008. The institutional framework of intergenerational family obligations in Europe: A conceptual and methodological overview. Multilinks Research Report.

Saxonberg, Steven and Tomáš Sirovatka. 2006. Failing family policy in post-communist Central Europe. *Journal of Comparative Policy Analysis: Research and Practice* 8(2): 185-202.

Schultz, T. Paul. 1986. The Value and Allocation of Time in High-Income Countries: Implications for Fertility, *Population and Development Review* 12: 87-108, Supplement: Below-Replacement Fertility in Industrial Societies: Causes, Consequences, Policies.

Sobotka, Tomas, Lutz, Wolfgang, and Philipov, Dimiter 2005. Missing Births: Decomposing the Declining Number of Births in Europe into Tempo, Quantum, and Age Structure Effects, Vienna: Vienna Institute of Demography.

Stankunienie, Vlada and Ausra Mauslauskaite. 2008. Family transformations in the post-communist countries: attitudes toward changes, in Charlotte Höhn, Dragana Avramov and Irena.E.Kotowska (eds.), *People, Population Change and Policies: Lessons from the Population Policy Acceptance Study*. The Hague: Springer, pp. 127–157.

Stevenson, Betsey and Justin Wolfers. 2007. Marriage and Divorce: Changes and their driving forces, *Journal of Economic Perspectives* 21(2): 27-52.

Treas, Judith. and Eric D. Widmer. 2000. Married women's employment over the life course: attitudes in cross-national perspective, *Social Forces* 78: 1409-1436.

Vignoli, Daniele and Irene Ferro. 2009. Rising marital disruption in Italy and its correlates, *Demographic Research* 20: 11-36.

Vignoli, Daniele and Silvana Salvini. 2008. Couples' Career, Self-Selection, and Fertility in Italy. Proceedings of the XLIV Scientific Meeting of the Italian Statistical Society, University of Calabria, June 25-27 2008.

Willekens, Frans J. 1991. Interdependence of parallel careers, in Jacques J. Siegers, Jenny de Jong-Gierveld, and Evert van Imhoff (eds.), *Female Labour Market Behaviour and Fertility. A Rational-Choice Approach*. Berlin: Springer-Verlag.

APPENDIX

Full model results

	ITALY				POLAND			
	Single process model		Multiprocess model		Single process model		Multiprocess model	
Transition to first conception	**Coeff. (St. Er.)**	**Sig.**	**Coeff. (St. Er.)**	**Sig.**	**Coeff. (St. Er.)**	**Sig.**	**Coeff. (St. Er.)**	**Sig.**
Age (spline), ref=15								
Constant	-6.7907	***	-7.6509	***	-5.5458	***	-5.9774	***
	(0.3636)		(0.4698)		(0.2350)		(0.3184)	
15-20	0.4010	***	0.4306	***	0.4587	***	0.4880	***
	(0.0525)		(0.0553)		(0.0421)		(0.0461)	
20-24	0.1814	***	0.2240	***	0.1213	***	0.1796	***
	(0.0330)		(0.0377)		(0.0293)		(0.0396)	
24-28	0.1578	***	0.1974	***	0.0219		0.0759	*
	(0.0283)		(0.0324)		(0.0371)		(0.0447)	
28-32	0.0256		0.0707	*	-0.0417		-0.0011	
	(0.0325)		(0.0364)		(0.0642)		(0.0679)	
32-37	-0.1560	**	-0.1301	*	-0.3754	*	-0.3581	*
	(0.0697)		(0.0725)		(0.2119)		(0.2136)	
Calendar time (spline), ref=2003								
Spline	-0.0437	***	-0.0541	***	-0.0364	***	-0.0442	***
	(0.0080)		(0.0100)		(0.0076)		(0.0093)	
Educational attainment (splines)								
Tertiary								
Exiting education (shift)	-1.1099	***	-1.0962	***	0.1438		0.1139	
	(0.3925)		(0.4055)		(0.1746)		(0.1789)	
0-4 years (slope)	0.4388	***	0.4509	***	0.1420	**	0.1496	**
	(0.0981)		(0.1004)		(0.0650)		(0.0672)	

4+ years (slope)	0.0875	*	0.1374	**	0.0045		0.0208	
	(0.0491)		(0.0556)		(0.0883)		(0.0926)	
Secondary								
Exiting education (shift)	-0.5351		-0.3899		0.8395	***	0.8757	***
	(0.3335)		(0.3504)		(0.1371)		(0.1419)	
0-4 years (slope)	0.2716	***	0.2635	***	-0.0642		-0.0456	
	(0.0672)		(0.0684)		(0.0417)		(0.0438)	
4+ years (slope)	0.0527	**	0.0921	***	-0.0284		-0.0219	
	(0.0213)		(0.0264)		(0.0376)		(0.0407)	
Primary								
Exiting education (shift)	0.5607		0.7732	*	1.2090	***	1.1911	***
	(0.4452)		(0.4680)		(0.1907)		(0.1971)	
0 - 2 years (slope)	0.3882	**	0.3608	*	-0.0321		0.0550	
	(0.1926)		(0.1950)		(0.0937)		(0.0999)	
2+ years (slope)	-0.0293	*	0.0109		-0.1075	***	-0.0979	***
	(0.0168)		(0.0217)		(0.0225)		(0.0248)	
Employment status (ref=has never worked)								
in school	-1.3229	***	-1.2455	***	-0.3914	***	-0.3646	**
	(0.2740)		(0.2905)		(0.1356)		(0.1417)	
does not work but has some work-experience	0.0525		0.0774		0.0908		0.1052	
	(0.0722)		(0.0888)		(0.0926)		(0.1048)	
In employment	-0.3650	***	-0.4839	***	0.0568		0.0178	
	(0.0526)		(0.0675)		(0.0636)		(0.0706)	
Father's education (ref=medium-high)								
Low	0.1829	**	0.1994	*	0.1912	**	0.2175	**
	(0.0921)		(0.1148)		(0.0753)		(0.0895)	
Mother's education (ref=medium-high)								
Low	0.0299		0.0708		0.1317	*	0.1869	**
	(0.1003)		(0.1247)		(0.0717)		(0.0878)	

Transition to second conception	Coeff. (St. Er.)	Sig.	Coeff. (St. Er.)	Sig.	Coeff. (St. Er.)	Sig.	Coeff. (St. Er.)	Sig.
Time elapsed since first birth (spline), ref=0								
Constant	-4.7381	***	-5.6374	***	-3.7922	***	-4.1211	***
	(0.3256)		(0.4025)		(0.2413)		(0.2775)	
0-1	2.8498	***	3.0966	***	1.7160	***	1.9031	***
	(0.3103)		(0.3243)		(0.2317)		(0.2391)	
1-3	0.1634	***	0.3206	***	-0.0026		0.1167	*
	(0.0590)		(0.0678)		(0.0623)		(0.0701)	
3+	-0.0455		0.0755		-0.0919	**	-0.0217	
	(0.0407)		(0.0482)		(0.0448)		(0.0499)	
Calendar time (spline), ref=2003								
Spline	-0.0178		-0.0243		-0.0523	***	-0.0608	***
	(0.0123)		(0.0153)		(0.0110)		(0.0129)	
Age at previous birth (ref=20-22)								
15-20	0.0848		-0.3337		0.1580		-0.2105	
	(0.1317)		(0.2216)		(0.1188)		(0.2207)	
20-26	-0.0199		-0.2714	*	0.2075	**	-0.0061	
	(0.0979)		(0.1461)		(0.0960)		(0.1396)	
26-30	0.0417		0.3415	**	-0.1143		0.1007	
	(0.0943)		(0.1413)		(0.1425)		(0.1735)	
30+	-0.1946		0.4448	*	-0.7314	*	-0.2879	
	(0.1490)		(0.2436)		(0.4185)		(0.4605)	
Educational attainment (ref=primary)								
Tertiary	0.4476	***	0.0479		-0.3554	**	-0.5680	***
	(0.1691)		(0.2491)		(0.1532)		(0.1953)	
Secondary	0.1260		-0.1211		-0.2044	**	-0.3023	***
	(0.0781)		(0.1262)		(0.0839)		(0.1083)	
Still in education	-0.3302		-0.8088	**	-0.7104	***	-0.8736	***

	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Coeff.	Sig.
	(0.2518)		(0.3404)		(0.1775)	(0.2004)	
Employment status (ref=did not enter work after first birth)							
Entered work and is currently working	-0.2116	***	-0.4234	***	0.0267	-0.2361	**
	(0.0730)		(0.1040)		(0.0816)	(0.1137)	
Entered work but is not currently working	0.1706		0.0431		-0.2573	-0.5356	**
	(0.2499)		(0.2860)		(0.2010)	(0.2267)	
Father's education (ref=medium-high)							
Low	0.1672		0.3070	*	0.1090	0.1587	
	(0.1459)		(0.1841)		(0.1120)	(0.1278)	
Mother's education (ref=medium-high)							
Low	-0.2113		(0.4264)		0.1650	0.2298	*
	(0.1586)		-0.3482	*	(0.1052)	(0.1231)	

Work at conception	Coeff. (St. Er.)	Sig.		Coeff. (St. Er.)	Sig.
Constant	-4.2242	***		-1.1866	***
	(0.5722)			(0.2735)	
Calendar time (ref=1998-2003)					
<1994	0.1085			-0.1135	
	(0.3154)			(0.1999)	
1994-1998	-0.0670			-0.0015	
	(0.2957)			(0.1826)	
2003-2006	-			-0.3345	
				(0.2409)	
Educational attainment (ref=primary)					
Tertiary	2.8500	***		1.9130	***
	(0.5624)			(0.3301)	
Secondary	0.8523	***		0.5837	***

	Coeff. (St. Er.)	Sig.	Coeff. (St. Er.)	Sig.
	(0.2832)		(0.1845)	
Still in education	2.8699	***	-0.1429	
	(0.4961)		(0.2177)	
Cumulated work experience (ref=never worked)				
(0-2] years	5.6653	***	2.7876	***
	(0.4927)		(0.2348)	
(2-4] years	7.0077	***	3.3648	***
	(0.5341)		(0.2517)	
(4-6] years	8.3514	***	3.6572	***
	(0.6520)		(0.3255)	
(6-8] years	8.1907	***	4.8998	***
	(0.6492)		(0.6485)	
>8 years	9.2172	***	4.1959	***
	(0.6754)		(0.5539)	
Father's education (ref=medium-high)				
Low	0.9818	**	0.1188	
	(0.4676)		(0.2110)	
Mother's education (ref=medium-high)				
Low	-1.6434	***	-0.4630	**
	(0.5303)		(0.2024)	

Work one year after first birth	Coeff. (St. Er.)	Sig.	Coeff. (St. Er.)	Sig.
Constant	-3.9999	***	-2.5302	***
	(0.5695)		(0.2823)	
Calendar time (ref=1998-2003)				
<1994	-0.5741		-0.1977	
	(0.3704)		(0.2324)	
1994-1998	-0.3874		0.1369	
	(0.3008)		(0.1740)	

2003-2006	-		-0.3608	**
			(0.1828)	
Educational attainment (ref=primary)				
Tertiary	2.5005	***	2.0703	***
	(0.6139)		(0.2676)	
Secondary	0.5231	*	0.4324	***
	(0.2859)		(0.1643)	
Still in education	1.4656	*	0.0077	
	(0.8435)		(0.2905)	
Cumulated work experience at first conception (ref=never worked)				
(0-2] years	5.6166	***	1.2406	***
	(0.4791)		(0.1944)	
(2-4] years	7.1000	***	1.8027	***
	(0.5234)		(0.2043)	
(4-6] years	8.0344	***	2.0201	***
	(0.5841)		(0.2432)	
(6-8] years	8.8217	***	2.4425	***
	(0.6786)		(0.3364)	
>8 years	8.4491	***	2.7607	***
	(0.5878)		(0.3735)	
Number of non-emplyment spell at first conception (ref=1)				
0	1.5389	**	0.3273	*
	(0.6841)		(0.1777)	
≥ 2	-3.2137	***	-1.2960	***
	(0.3362)		(0.1991)	
Father's education (ref=medium-high)				
Low	0.2702		0.4505	**

	(0.5229)			(0.1998)	
Mother's education (ref=medium-high)					
Low	-0.4527			-0.4426	
	(0.5860)			(0.9549)	

Employment entry after first child birthday	**Coeff. (St. Er.)**	**Sig.**		**Coeff. (St. Er.)**	**Sig.**
Age of the first child (spline), ref=0					
Constant	-4.2310	***		-2.9366	***
	(0.6068)			(0.3113)	
0-1	0.7061	*		0.7560	***
	(0.3796)			(0.2557)	
1-3	0.1211			0.5926	***
	(0.3103)			(0.1839)	
3+	-0.0068			-0.0622	
	(0.1175)			(0.0700)	
Calendar time (spline, ref=2003)					
<1994	0.0584			0.2128	
	(0.1394)			(0.2152)	
1994-1998	0.0444			0.0129	
	(0.1016)			(0.0711)	
1998-2003	0.0368			-0.0427	
	(0.0687)			(0.0432)	
2003-2006	-			-0.0621	
				(0.0665)	
Educational attainment (ref=primary)					
Tertiary	3.6385	***		1.5454	***
	(0.5675)			(0.2374)	
Secondary	1.1600	***		0.4624	***

	(0.2784)		(0.1500)	
Still in education	-0.4043		-0.3979	
	(0.9189)		(0.2767)	
Cumulated work experience at first conception (ref=never worked)				
(0-2] years	2.8796	***	0.1387	
	(0.6256)		(0.1736)	
(2-4] years	3.4713	***	0.4837	***
	(0.7250)		(0.1860)	
(4-6] years	3.9310	***	0.6107	**
	(0.8127)		(0.2383)	
(6-8] years	5.1896	***	0.5200	
	(0.9009)		(0.3787)	
>8 years	5.1588	***	0.2198	
	(0.8123)		(0.4935)	
Number of non-employment spell at first conception (ref=1)				
0	1.4787	**	0.2559	
	(0.5996)		(0.1634)	
≥ 2	-0.3856		-0.2034	
	(0.5026)		(0.1686)	
Father's education (ref=medium-high)				
Low	0.3566		0.0093	
	(0.4728)		(0.1758)	
Mother's education (ref=medium-high)				
Low	-0.8236		-0.2096	
	(0.5264)		(0.1704)	
Standard deviations of unobserved heterogeneity terms				

Fertility	0.9605	***		0.6423	***
	(0.1433)			(0.1553)	
Employment	1.7876	***		0.8401	***
	(0.2093)			(0.1209)	
Correlation between unobserved heterogeneity terms					
Fertility-Employment	0.2610	**		0.5928	***
	(0.1101)			(0.1978)	

Fertility	0.9605	***		0.6423	***