

# Compatibility of children and work preferences: two European cases

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## Abstract

Nowadays female participation in the labor market and motherhood are competing and the conciliation between them can be solved in different ways. In this paper we analyze children and work preferences in two European countries with very different behavior: Italy and France. Italy shares with Spain the lowest fertility level (the TFR is around 1.25) whereas French TFR reaches the highest level (1.89) among the European Community countries. Moreover female employment rate in Italy is about 40% whereas in France reaches 70%.

In these two contexts, using data from the European Community Household Panel, we consider fertility as a function of both household income and female participation in the labor market, taking into account the potential correlation across unobserved heterogeneity in children and work preferences. We even consider the opportunity costs of having children, through a measure of the earning potentials, obtained as predicted wages.

## 1. Introduction

One of the major consequences of transformations brought about by the Second Demographic Transition is the passage from traditional family forms to modern ones. In particular, the ancient division of roles within members of the couple is often replaced by a more or less equal sharing of roles (both members participate to labor market and to housework). In this new context, fertility choices have to be re-discussed, and the factors affecting fertility acquire new meanings. Female wages and salaries, for example, has not a clear impact on fertility outcomes: on one hand an higher income makes easier facing the high costs of caring for children, but on the other hand working women have a reduced time for looking after children. This situation makes fertility and job choices highly competing with each other, and therefore endogenous as suggested also by Hotz et al. (1997): women with a high commitment to children will invest less time in the labor market thus

limiting their earning potential and vice versa. Family policies can mitigate such a “competition” between job and family roles, making conciliation between them easier.

This clearly emerges if we consider two countries which are highly different as far as family policies are concerned: France and Italy. French welfare regime is, in fact, a paragon in Europe for supporting parenthood, strongly encouraging childbearing and ensuring a widespread and accessible childcare service. Italy, instead, offers a very poor support to families’ fertility aspirations and access to the childcare system is quite limited. The result of these different situations is quite evident at the macro level: in France fertility rate reaches the highest levels among European countries and female employment rate is relatively high. Italy, instead, shares with Spain the lowest TFR in Europe (1.3) and female employment rate is rather low.

In this work we want to investigate the determinants of this pattern at the micro level. Fertility is jointly modelled with labor force participation with possibly correlated unobserved heterogeneities. The paper is organized as follows. Next section gives an overview of empirical literature on competition between family and job career. Section 3 compares French and Italian welfare state, with particular attention to family policies. Section 4 describes the European Community Household Panel (ECHP) and the sub-sample used in our analysis, whereas section 5 outlines the statistical model of fertility and labor force participation. In section 6 we discuss empirical results and in section 7 we provide some concluding remarks.

## **2. Fertility and female labor participation**

The relationship between fertility choices and female participation in the labor market is not that clear. In last decades many countries experienced a rapid growth in female employment rates as well as a decrease in fertility rates, but this trend is not uniform in all developed countries. In fact countries with an higher level of female labor participation are the ones which maintain relatively high fertility rates (Ahn and Mira, 1999; Brewster and Rindfuss, 2000; Engelhardt and Prskawetz, 2002).

Possible explanations of the declining of fertility when women participate in the labor market are given by the theory. In last decades deep transformation in the family structure and organization have been produced by a change in value orientations, also holding changes in demographic behaviour. For instance, the emergence of individualisation, post-materialist values, symmetric gender roles and female emancipation (see for example Lesthaeghe and Meekers, 1986) corresponded in economic terms to a shift from the aim of maximising the household utility to maximising individual needs. While in traditional societies individuals had to maximise household utility as a whole and specialisation of task and division of roles (women rearing children and

husband working) was the optimal strategy, in modern societies this does not hold anymore. Individualisation, symmetric gender roles and female emancipation lead to redefine internal roles and to shift from the maximisation of an household utility function to the negotiation between members acting on the base of distinct utility functions (Ott, 1995; Berhman, 1997). In this framework, the bargaining power of each partner becomes crucial: each individual has to try to improve his/her position within the couple depending on his/her alternatives outside the family: who is in the best position outside the family has a better insurance against the split of the couple, and therefore gains more power in the negotiation process.

The consequences of this new perspective on fertility decision and female participation in the labor market are straightforward: on the one hand, for a woman having a job or investing in human capital accumulation becomes crucial for increasing her bargaining power. On the other hand, fertility decision becomes more difficult: since none of the bargainers would agree to an outcome that is lower than his/her payoff, disagreement may result in continuing current situation without any change. For instance, this may be the case in fertility decision. Indeed, while in general having children would increase household utility, as a secondary effect it would decrease the female utility of becoming single again (in case of split the female position would get worse on average), causing a drop in her bargaining power.

In this new context, having a child requires a careful evaluation of individual opportunity and costs, which may be particularly severe for women, since most of them have to leave paid work for some period of time around birth (Brewster and Rindfuss, 2000). The human capital model (Becker, 1993) measured female costs for having children as forgone earnings due to childbirth (for the mothers). Those can be disjointed in *forgone earnings while caring for a child*, since the woman has to spend some time out of the labour market, *forgone returns to work experience*, which corresponds to the fact that while taking care of children the working experience does not improve, and even *forgone earnings due to a de-evaluation of human capital*, because when a mother re-enters in the labour force will receive a lower wage than she received before quitting the job, and moreover often, if interruption occurred, proceeding in the career is harder (Gustaffson, 1999). Regards to foregone earnings, Joshi (2002) found that highly educated women experience the smallest relative loss of earnings at motherhood, probably due to the fact that they had the best chance in choosing a suitable job, allowing its conciliation with fertility and may even afford the costs of unsubsidised private child care service. This is compatible with Brewster and Rindfuss (2000) findings assessing that in most countries women who are highly educated or hold jobs that require long training periods are less likely to leave paid work, and whenever this happens they return more quickly. Nevertheless, their delay in motherhood is very strong.

According to this idea of evaluation of opportunity costs, several empirical papers find a positive effect on fertility of male incomes and negative effects of female wages (see for example Heckman and Walker, 1990; Devaney, 1983): for this reason female wages are seen to have both an income and substitution effect on fertility, besides male wages only exert an income effect. In details, the *income effect* implies that when income increases, even the demand for goods increases, as well as the demand for children; the *substitution effect* refers more directly to the opportunity costs, predicting that if female wages increase, it is more expensive to rear children (because mothers need to quit job at least for a short time period), thus damping fertility.

In fact, we have to underline that this problem of conciliating childcare and economically productive work (known in the literature as *maternal role incompatibility hypothesis*, Stycos and Weller, 1967), rose with industrialisation. While in developing countries the organisation of both production and childcare, especially the availability of inexpensive and reliable parental surrogates, determined a low level of conflict between working and mothering (Mason and Palan, 1981; Castro Martin, 1985), in developed countries this is no longer true. Labor, in the industrial organisation of production, is organised to favour the interests of employers more than the interests of households; women have to work in factory, office or store where children are not welcome and time schedule is rarely flexible. Since it has become more difficult to have children with one single income (Murphy, 1992, underlines reviewing some recent empirical finding for Sweden, Poland, U.S.S.R.) the incompatibility become a serious problem.

Availability of more flexible time scheduling (as for instance part-time jobs), a functional child care support, and economic support to families who want to have a child, can make this conflict less sharp, increasing compatibility between parental role and working career. Exactly for these reasons, at the macro level the relationship between fertility and female employment rates in developed countries is changing, turning from negative to positive (Ahn and Mira, 1999; Brewster and Rindfuss, 2000; Engelhardt and Prskawetz, 2002): in a high female participation regime, working conditions are more favourable to women, allowing higher chances to conciliate family and job. As a result, nowadays the fertility rate is more likely to be positively associated with the participation rate.

But the presence in the labour market of intensive part-time supply could induces gender segregation due to higher degree of availability of part-time works only in certain occupation and sectors while being rare in others (Ichino, Sanz de Galdeano, 2003) and does not necessarily lead to a widespread conciliation between roles. While for instance in Britain changes toward flexibility occurred in the labour market have actually limited the adaptations British women have needed to make to their long-term fertility aspirations (Joshi, 2002), Retherford et al. (1996) found that in

Japan, despite an intensive part-time supply, women (especially highly educated) anyway prefer to leave the job after having married. In this case, both the unattractive nature and low wages of much part-time jobs, and the fact that tax and benefit system disincentive female full-time participation to the labour market, discourage conciliation between roles, favouring instead the traditional role of women. As a consequence, in Japan many women with higher education do not work at all, devoting instead their full energies to domestic duties. Part-time job is only useful to earn money to pay expenses related to children's education, but cannot be associated to self-fulfilment aspirations.

This set of theories sketched the common factors of changes occurred in fertility rates and in female participation in the labor market. Nowadays, the main problem women have to overcome is conciliation between parenthood and working participation, which may be better solved with specific policies implemented by the welfare state (as, for instance, availability of childcare services, flexible jobs and economic support to families wanting to have children). At the same time, we have shown how it may happen that those policies have unexpected consequences (as in the case of Japan): the impact of ideational change and economic reasoning depends on institutional and other cultural factors, which both contribute to generate diverse social and demographic outcomes (Billari and Wilson, 2001).

As a consequence we generally expect that female labour force participation directly discourages fertility, and vice versa. At the same time, this effect can be mitigate or even reversed in national contexts allowing the simultaneous double presence of the woman in the family and in the labour market. Moreover, we also think that there exists an indirect effect of role incompatibility, acting through individual preferences (which gained a central role with modern changes in value orientation). In a highly incompatible framework, indeed, women have to choose between the two roles, and therefore their preferences toward the family or the working career pushes them in one direction or the other (Hakim, 2000, for instance, recognised the existence of three different categories of women: work-centered, family-centered or adaptive). On the contrary, whenever the two activities are not seen anymore as pure alternatives, personal preferences may play a different role (for instance, it is possible that more dynamic women are more active in both aspects of life).

### **3. Family policies in Italy and France**

Family policies as well as labor market structure are in Italy and France very different. In Italy, the rigidities which are present in the institutional structure do not facilitate the conciliation between motherhood and labor force participation (Del Boca, 1999). On the one hand, part-time employment

is extremely rare, and it is often characterized by low profile engagements: women need therefore to choose between full-time jobs or no job at all, knowing that after quitting the job it is generally difficult to return (Bettio and Villa, 1998). This is an important factor leading to the particularly low employment rates of women (as reported by Eurostat, 2002, at the end of 2000, the employment rate for females is about 40% and 53% for women aged 25-49). On the other hand, the child care system provides poor assistance to working mothers, in terms of number of children which can enjoy of child care services and weekly hours available, only compatible with part-time jobs. In fact, the child care system is highly subsidized but the local availability and the number of supplied daily hours are quite limited in contrast with the need of mothers, especially those in full-time employment (Chiuri, 2000). Del Boca et al. (2004) show that the lack of childcare alternatives is particularly severe for children under 3, being the proportion of those children using formal child care arrangements only 6%.

In France, conversely, the welfare system is well-known for giving great economic support for large families and to allow the double presence of women in both family and labour market (in 2000, female employment rate is 70% for women aged 25-49). Firstly, French mothers receive an important support from the childcare system and many households can use different forms of childcare services (Guillot, 2002). Those offer a wide variety of care arrangement: nursery schools are open for 35 hours a week, free of charge, except for the lunches and care out of school hours. The result is that, by the age of two, 36% children attend nursery schools and the figure is nearly 99% for children aged three to six (Letabelier, 2003). Secondly, a complex system of family benefits, which can be in cash or in kind are offered by the welfare state. Family allowances are paid to families with at least two children, up to the age of 16, there are also housing allowances, and childcare allowances (Letabelier, 2003). The latter are addressed only to families where both parents (or the lone parent) are economically active, to cover costs of childcare at home. Non-working mothers receive also support from the welfare state which allocates relevant benefits for families with two children or more where the mother is not working or working only part-time (Afsa, 1998). Finally, part-time job is widespread and about 30% of working women are employed part-time (Eurostat 2002; Bourreau-Dubois, 2001).

Differences between the two countries become clear looking at Table 1, where household income has been broken down by source and number of present children: in France large families receive an higher economical support from the welfare state with respect to Italy. For instance, the 21% of households income of families with three or more children comes from “family related allowances” while the same figure for Italy is 1%. Also housing allowances have more weight in French households budgets.

**Table 1 Household income shares by source and number of present children, Italy and France, 1994. Source: ECHP, own elaborations.**

		FRANCE					
Children	Income from work	Private transfer	Unemployment benefits	Family related allowances	Housing allowances	Old age benefits	Other income sources
0	79,9	3,7	3,2	2,7	3,3	4,3	6,6
1	84,6	1,7	3,8	3,4	3,1	1,8	5,4
2	85,9	1,1	2,7	7,3	2,5	0,8	3,7
3+	64,8	1,1	2,7	21,2	6,0	1,1	3,9
TOT	80,2	2,2	3,1	6,7	3,5	2,4	5,2
		ITALY					
Children	Income from work	Private transfer	Unemployment benefits	Family related allowances	Housing allowances	Old age benefits	Other income sources
0	76,5	1,4	1,6	0,5	0	14,1	2,6
1	88,4	2,2	1,3	0,8	0,1	3,9	1,7
2	88	2,0	1,6	0,9	0,1	3,7	2,2
3+	85,6	1,4	2,3	1,2	0,2	5,1	2
TOT	82,5	1,7	1,6	0,7	0,1	8,7	2,3

At the macro level, those institutional dissimilarities correspond to high differences as far as the fertility behavior is concerned. Italy shares with Spain the lowest fertility level (the TFR is around 1.25 in 2000, see Eurostat, 2002), becoming the paradigm of lowest-low fertility countries (Kohler et al. 2001) whereas French TFR reaches the highest level (1.89) among the European Community countries (see Figure 1). Moreover, Italian fertility is mostly marital whereas in France the proportion of out-of-wedlock childbirths reached the value of 40% (Eurostat, 2002).

The general impression is that in France conciliation between roles is far easier than in Italy, but at the same time specific policies may allow women with many children to leave the labor market, supported by welfare benefits. Letabelier, 2003, reported that special allowances to big families made the activity rate of mothers with two children fall. In Italy, instead, working women have to cope with a lack of childcare service and part-time opportunities whereas not working women receive a poor economic support from the welfare state.

According to the theories of paragraph 2 and to the empirical evidence we have just outlined we can draw three major hypotheses concerning the link between female choices in fertility and job position in the two countries:

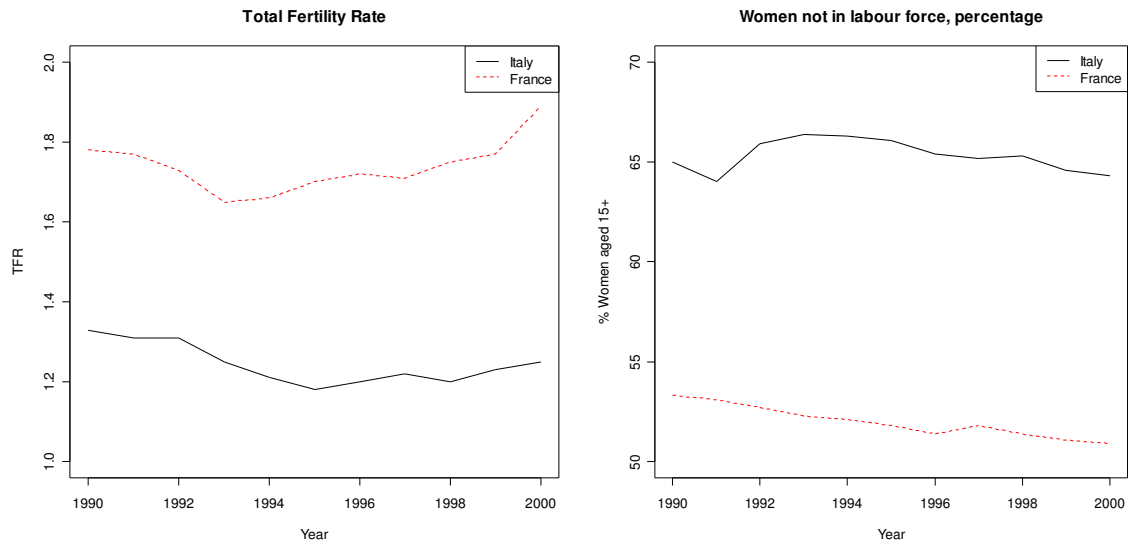
*1. On the impact of labour participation on fertility*

We expect in Italy working women have a lower propensity of having an additional child than non working women. On the contrary, in France, due to the high level of support given by the welfare state, we expect this effect is weakened or even reversed.

*2. On the impact of having children on female participation*

Having had a child is expected to bring stronger consequences on female participation in Italy than in France.

**Figure 1 TFR and percentage of women not in the labour force in France and Italy. Source: Eurostat, 2002**



### 3. On female preferences for children and labour participation

Concerning unobserved components, we expect a negative correlation in Italy (since the society is still very traditional, and we expect unobserved represent individual propensity to work and to family life) and a positive correlation in France (where heterogeneity may be viewed as a proxy of the dynamism of the women in respect to every life domain).

## 4. The data

The data we use come from the European Community Household Panel (ECHP), a longitudinal survey designed and coordinated by the Statistical Office of the European Community (EUROSTAT). This panel survey started in 1994 collecting yearly information for many European countries. Up to now we dispose of the first seven waves (from 1994 to 2000) of ECHP. A great advantage of ECHP is the scope for comparability among the participating countries. Besides, it provides up to date information on income, employment status, housing situation, education, health status, and personal satisfaction. One of its pitfall, instead, is the lack of retrospective information.

Using those data we focus our attention on married or cohabiting women who already had the first child. We exclude from our investigation the birth of first child since it is generally acknowledged that the process leading to the first child widely differs than higher order childbirths. Moreover, we emphasize the main difference between French and Italian fertility, *i.e.* the proportion of women having at least two children is much higher in France with respect to Italy. As in Italy fertility is almost exclusively marital and in France out-of-wedlock childbirths are instead much



more frequent, we consider only married women in Italy and married or cohabiting women in France. We restrict our attention to women aged 16 to 45.

**Table 2 Description of sample**

	France		Italy	
	<i>1994</i>	<i>2000</i>	<i>1994</i>	<i>2000</i>
Number of women	1731	1350	1997	1700
Mean age	34.91	36.05	35.73	36.43
% Married	86.1	81.6	100	100
% with exactly 1 child	28.3	30.0	34.7	39.7
% with exactly 2 children	44.4	44.4	48.5	46.3
% with 3 or more children	27.2	25.6	16.8	14.1
% working 15 hours per week or more	60.0	63.3	45.6	46.6
% economically inactive	36.6	29.8	40.0	41.9
Working hours per week	35.7	34.5	34.9	34.3
Mean salary of workers (monthly, equalised in terms of purchasing power)	978	1079	824	785
Mean household income (equivalent, equalized in terms of purchasing power)	13096	13330	9206	9491
% Graduated or equivalent	22.47	31.75	7.26	10.35
Number of childbirths (1994-2000)	959		1056	

Table 2 shows the main characteristics of our sub-sample. The differences between the two countries are consistent with our expectations: although Italian sample is older, the percentage of women with 3 or more children is half with respect to France. On the other hand, participation to labor force is higher in France, and French working women have in average higher salaries than Italians. Besides, the percentage of graduated women is considerably lower in Italy, where about 1 out of 10 has a degree. Finally, the number of childbirths occurred in the considered time span (1994-2000) is higher for Italy, but this is due to an higher sample size.

## 5. Statistical modelling

As previously stated, fertility and employment status are possibly endogenous variables: the decision on having or not a child and to quit or not the labor market are taken, reasonably, simultaneously. For that reason we try to model simultaneously fertility and labor force; we consider fertility as a function of both household income and female working participation, and we suppose the existence of some unobserved characteristic which influence both fertility choices and

the presence of the woman in the labor market. Moreover, we even consider the opportunity costs of having children, through a measure of the earning potentials, obtained as predicted wages.

### 5.1 An estimation of potential earning

A measure of the cost-opportunity of having another child can be, with some approximation, estimate by the loss in income that a woman would have when leaves her work. For working woman this is simply her hourly income whereas for non-working women it is not defined. A possible estimate of the earning potential of a woman is a so-called predicted wage. Following the approach by Mincer (1974), we estimate the predicted wage as an exogenous measure of women earning capacity. We use a standard two step procedure (Heckman, 1979) to control for self-selection into the labor force. Individuals are defined as participating in the labor force if they report the usual hours worked in a week to be positive. The first step consist of a probit model of participation, from which the inverse Mills Ratio (IMR) is computed. This is then included as a covariate in the second step, which is an Ordinary Least Squares (OLS) estimator of the log wage, to adjust for selectivity of non-workers.

**Table 3 Results of probit equation on participation to labor force.**

Probit of Working/not working	France		Italy	
	Coefficients	Observed p-values	Coefficients	Observed p-values
Age	0,046	0,000	0,030	0,000
Age squared	-0,003	0,000	-0,003	0,000
Medium education	0,364	0,000	0,374	0,000
High Education	0,494	0,000	0,785	0,000
Partner income	-0.002	0,000	-0.016	0,000
Bad Health	-0,447	0,000	-0,309	0,000
Regional Unemp. Rate	-0,025	0,000	-0,025	0,000
Foreign	-0,102	0,002	-0,081	0,071
Household size	-0,207	0,000	-0,060	0,000
Centre (Italy- ref: North)			-0,233	0,000
South (Italy- ref: North)			-0,233	0,000
Paris (France- ref: out of Paris)	0,071	0,001		
Intercept	0,913	0,000	0,711	0,000

Table 3 shows results for the participation equation. As expected, the probability to participate to the labor market increases with age at a declining rate. Moreover, higher educated women are more likely to participate with labor force whereas women reporting a bad health

condition have a lower propensity to work. Partners' income discourage women from working, especially in Italy and women living in large families are less prone to participate to labor force, as well as foreigners. Finally, the effect of geographical residence is differently defined in the two countries: in Italy, as we can expect participation rate is lower in center and southern regions whereas in France, the participation is lower out of Paris.

The results for the earning equation, shown in table 4, are within the range reported in the literature and results are consistent with our expectation: older women have higher salaries and higher educated women have better earnings. Having attended a vocational course has a negligible effect in France and a positive significant effect in Italy. Partner income has a positive effect on female wages (this is an effect of mate selection: women with an high human capital are more likely to match with a partner with high human capital). Women from large families receive lower wages, also meaning that females with children earn less. Wages increase with time since first work but at a declining rate. Regional unemployment rate has a significant negative effect for France and non-significant for Italy. Finally, in Italy women from southern and central regions earn less with respect to northern Italy, while in France wages in Paris are slightly higher.

**Table 4 Ordinary Least Square of log wages.**

OLS of log wage	France		Italy	
	Coefficients	Observed p-values	Coefficients	Observed p-values
Inv. Mill's Ratio	-0,041	0,171	-0,018	0,604
Age	0,022	0,000	0,012	0,000
Medium education	0,085	0,000	0,247	0,000
High Education	0,437	0,000	0,502	0,000
Vocational course	0,016	0,254	0,102	0,000
Partner income	0,001	0,000	0,003	0,000
Household size	-0,031	0,000	-0,014	0,006
Years from first work	0,019	0,000	0,027	0,000
Years from first work (squared)	-0,001	0,000	-0,001	0,000
Satisfaction on Financial situation	0,131	0,000	0,144	0,000
Satisfaction on Leisure time	0,046	0,000	0,053	0,000
Regional Unemp. rate	-0,014	0,000	0,002	0,421
Foreign	-0,028	0,143	-0,063	0,069
Centre (Italy- ref: North)			-0,112	0,000
South (Italy- ref: North)			-0,145	0,004
Paris (France- ref: out of Paris)	0,025	0,040		
Intercept	1,687	0,000	1,107	0,000

## 5.2 The model

The econometric specification is therefore a simultaneous equation model (Lillard, 1993) where childbearing is simultaneously modeled with labor force participation decision. Childbirths are repeatable events, but each birth occurs within a complex decision-making strategy. The decision-making model used here hypothesizes that women act rationally to realize a plan of desired family size (Becker, 1981). Since different strategies can be compatible with the same number of children, women can choose to act in different ways (Yamaguchi and Ferguson, 1995; Rosina, 2001). Therefore, when describing fertility, information concerning the past needs to be considered in order to predict future behavior.

Concerning fertility process, the basic event of interest is a conception (of order 2 or higher) between time  $t$  and  $t+1$ , and therefore we model the probability of having an additional conception as follows:

$$P(Y_{it+1} = 1 | X) = \Lambda(\beta_1 X_{1it} + \beta_2 Z_{it} + \beta_3 X_{2it}) + \varepsilon_{it+1},$$

while concerning women participation in the labour market, we model the probability of being working at time  $t+1$ :

$$P(Z_{it+1} = 1 | W) = \Lambda(\beta_1 W_{it} + \beta_2 Y_{it} + \beta_3 X_{2it}) + \zeta_{it+1}.$$

It is important to underline that, as shown in Table 5, in each equation there are some predictors specific of the process under study ( $X_{1it}$  for fertility process and  $W_{it}$ ), some predictors common to both equations ( $X_{2it}$ ) and finally some predictors which refer to the other process causing endogeneity (in *Italic* in the table): in fertility equation indeed we control for the working position of the women at time  $t$ , while in the female participation equation we consider both current parity and time to last birth.

One of the variables included in both equations is the logarithm of the predicted wages, representing in the fertility equation the costs opportunity of having children (*i.e.* the higher the predicted wages, the higher the costs the woman has to pay for childbirth), and in the labor participation equation the opportunity costs of working (*i.e.* the higher the predicted wages, the better chances women have in the labor market).

**Table 5 List of variables included in the two equations<sup>1</sup>.**

	<b>Fertility</b>	<b>Labor participation</b>
Current age of the woman	X	X
<i>Number of children</i>	X	X
Being married	X (for France only)	X (for France only)
Presence of other people in the household	X	X
Presence of people looking after children	X	X
Age of the partner	X (for France only)	
<i>Length of current birth interval (i.e. age of the youngest child, in months)</i>	X	X
Length of interval between previous births	X (for Italy only)	
Dwelling own by the household	X	
Noise from neighbours	X (for Italy only)	
<i>Predicted wages</i>	X	X
<i>Being working</i>	X	
Having worked previously		X
Partner income	X	X
<i>Benefits</i>	X	X
Receiving sickness benefits		X (for France only)
Regional unemployment rate		X
Having attended vocational course	X	X
Bad health	X	X
Being a foreigner	X	X
Geographical area	X	X
Personal satisfaction	X	X

Another source of endogeneity comes from the specification of the error terms, consisting in a transitory part and an individual specific time invariant component (*i.e.*  $\varepsilon_{it} = u_i + \tau_{it}$  and  $\zeta_{it} = v_i + \xi_{it}$ ), where we allow correlation across unobserved individual specific components to differ from 0 (*i.e.*, it may happen  $\text{cov}(u_i, v_i) \neq 0$ ).

The significance and the magnitude of the heterogeneity inform us on the unobserved preferences underlying the two processes. A negative correlation would confirm the existence of the traditional contraposition between family oriented and career oriented women (Hakim, 2000). We expect this negative correlation in Italy, since the incompatibility of maternal and job roles is very

<sup>1</sup> Notice that some variables have been considered in only one of the two context. Availability of the data and different meaning the covariates assume, forced us specifying the equations in a different way. As an example, we included the length of the interval between previous births, defining it, for women with only one child, as the interval between marriage and first birth. Since for France we consider also cohabiting women and there is no date referring to the start of such cohabitation, this information is not available.

strong, and therefore women need to choose between parenthood and work. On the contrary, a positive correlation would represent a new preference model, where more dynamic women are opposed to less dynamic women, dynamism affecting each dimension of life. Whenever incompatibility is not very strong (as for instance in France) the choice of having a child does not compromise female participation in the labor market, and therefore it may happen that the ability of the individual of reaching his/her goals becomes of major importance, as a sort of individualistic ability in succeeding in each life dimension.

We also expect a positive impact of receiving social benefits on the probability of childbearing, controlling for participation to labor market. This effect is likely to appear in France but not in Italy as the social benefits provided by the welfare state seem too poor for having any impact.

## **6. Results**

The results of the models are reported in tables 6-9. Firstly, we consider the results arising modelling separately fertility and labor force participation, then we comment the simultaneous models. For the separate models we briefly present the effect of the explicative variables. For those variables, indeed, the coefficient estimates generally confirm our expectations.

For instance, for fertility models, age has a negative effect on fertility with an increasing rate (reflecting a decreasing fecundability, in line with findings of McDonald et al., 2003). Likewise, the age of the partner is negatively associated to fertility. Moreover, the time interval since last birth and the length of the interval between last two births have a negative impact on the probability to have a new conception (the longer the interval, the lower the probability of conceiving), and moreover the higher the number of children already had, the lower the probability of progressing to a higher parity. All those elements underline the importance of including birth history information for understanding future fertility choices (Yamaguchi and Ferguson, 1995). Another information sheds some additional light on fertility decision: surprisingly, in both Italy and France the fact the children are looked after on a regular basis by someone discourages fertility. Probably this does not reflect the effect of availability of childcare, but the incapacity of the family in directly looking after the children. Concerning the existence of geographical differentials, in Italy women from the South have a higher propensity to have children. Finally, both in France and in Italy foreigner women show higher fertility rates.

Even the results of participation equation are in line with literature: age has a positive effect but at a declining rate. In Italy, moreover, the partner's income has a negative effect on

participation, while in France this variable is not significant. The potential earnings, instead, have a significant positive effect on participation in both countries. Moreover, having attained a vocational course has a positive effect while regional unemployment rate and bad health status both have a negative impact on participation to the labour force. Interesting is notice that if there is an unpaid person looking after children, females are more likely to work (confirming previous interpretation of the real meaning of this variable), and in Italy women living in large families have a higher participation rate. Turning to the perception of personal wellbeing, satisfaction with main activity and with financial situation are positively associated with participation rate, whereas satisfaction with leisure time is negatively associated.

We can now turn to the main interest of this paper, *i.e.* the reciprocal impact of fertility choices on labour participation and vice versa, discussing in detail the results concerning our hypotheses.

### *1. On the impact of labour participation on fertility*

Conversely to expectations, the effect of the working status is not significant for Italian women, while in France the impact of female participation on fertility depends on the number of children already had. Working mothers with just one child show a higher transition rate than non working women. Then, the higher the number of children already had, the worst the position of a working mother compared to a non-working mother.

The model confirms also our expectation that receiving benefits has a positive impact on fertility in France, whereas no effect has been found for Italy (again surprisingly, even household income has no impact on Italian fertility choices).

### *2. On the impact of having children on female participation*

As expected, the number of children has a negative impact on female participation in the labour market. We hypothesised a stronger effect in Italy than in France, but this is not confirmed by the model, probably because the main difference between Italy and France concerning female participation does not directly depend on the number of children, but on the general level of female participation.

Also the effect of the age of the youngest child varies across countries: French women are more likely to participate to the labour force if the time span since last birth is high, whereas no effect is found for Italian mothers.

Finally, even the role of family benefits plays opposite effect in the two countries: having social support has a positive impact for Italy and negative for France. Again, Italian mothers seem to choose to participate to the labour market when the economic situation is critical (support from the welfare state is only given in extremely rare cases).

### *3. On female preferences for children and labour participation*

When we turn to simultaneous models results do not change dramatically as far as it concerns the significance and magnitude of the parameters, apart few exceptions. Moreover, there is significant additional information concerning the correlation between heterogeneities.

In France, for instance, the parameter associated to welfare benefits is not significant anymore in the fertility equation, as well as the simple condition of participating to the labour market (however, the interaction with the number of children is still significant). In other words, the positive effect of receiving benefits is absorbed by the negative effect of working, which have a particular strong impact for women with more than one child. Probably, due to the particular system of family benefits, which addressed special support to couples where one parent quit his/her job for rearing children.

Moreover, the unobserved heterogeneity components are positively correlated, confirming the existence of a new preference model, where more dynamic women are opposed to less dynamic women, dynamism affecting each dimension of life. In this context, indeed, the choice of having a child does not compromise female participation in the labor market, and therefore the ability of the individual of reaching his/her goals becomes of major importance.

In Italy, instead, we find a negative correlation between unobserved preferences for fertility and job career, whereas the working status has now a positive impact on fertility. The sign of the correlation across unobservables does not surprise: given the incompatibility between the two careers, women have to choose one of the two roles, and their preferences strongly impact on the outcomes in the two life domain. Instead, more surprising is the positive role of female participation in the labour market on fertility. The reason, however, can easily be understood thinking that we are dealing with Italian mothers, and that probably if they are still working at the time of the interview, they succeeded in solving incompatibility between the two careers. In other words, whenever conciliation is possible, having a job seems to help fertility decision.



**Table 5 Results from fertility and labour force participation equations (separate estimates), Italy**

	Fertility equation		Participation equation	
	Coefficient	p-value	Coefficient	p-value
Age	-0,116	0,000	0,084	0,000
Age (squared)	-0,010	0,000	-0,004	0,000
N° children	-0,696	0,000	-0,400	0,000
Others	-0,104	0,548	0,320	0,023
Prespan	-0,009	0,000		
Span	-0,005	0,000	-0,001	0,107
Pr. Wages	0,011	0,682	0,148	0,000
Working	0,293	0,322		
Working*N° ch.	-0,184	0,381		
Benefits	-0,057	0,200	0,049	0,012
Partner income	0,008	0,148	-0,026	0,000
Other looking after children	-0,318	0,080	1,258	0,000
Foreign	0,423	0,031	-0,251	0,280
Unemployment rate			-0,030	0,012
Bad health	0,125	0,698	-0,427	0,014
Vocational course			2,187	0,000
Sat. Main activity	0,006	0,954	0,978	0,000
Satisfaction with leisure time	0,035	0,717	0,978	0,000
Satisfaction with financial situation			0,486	0,000
Central regions	-0,116	0,391	-0,215	0,078
Southern regions	0,218	0,055	-0,423	0,134
Noise from neighbours	0,098	0,323		
Household owner of dwelling	0,078	0,412		
Worked previously			-0,419	0,000
Constant	2,398	0,000	-1,592	0,000
$\rho$ (rho)	0	(fixed)		

**Table 6 Results from fertility and labour force participation equations (separate estimates), France**

	Fertility equation		Participation equation	
	Coefficient	p-value	Coefficient	p-value
Age	-0,131	0,000	0,056	0,000
Age (squared)	-0,012	0,000	-0,006	0,000
N° children	-0,559	0,000	-0,415	0,000
Married	0,124	0,249	-0,027	0,779
Others	0,644	0,119	0,157	0,551
Age of partner	-0,025	0,041		
Span	-0,005	0,000	0,003	0,004
Pr. Wages	0,006	0,762	0,150	0,000
Working	0,675	0,003		
Working*N° ch.	-0,390	0,007		
Benefits	0,027	0,061	-0,096	0,000
Partner income	0,004	0,163	-0,006	0,015
Others looking after children	-0,399	0,007	0,787	0,000
Foreign	0,480	0,002	-0,109	0,468
Unemployment rate			-0,055	0,000
Bad health	-0,162	0,618	-0,896	0,000
Vocational course			0,630	0,000
Satisfaction main activity			0,551	0,000
Satisfaction with leisure time	0,112	0,240	-0,708	0,000
Satisfaction with financial situation	-0,098	0,314	0,388	0,000
Paris	-0,115	0,300	0,087	0,379
Household owner of dwelling	-0,285	0,004		
Receiving sickness ben.			-0,308	0,048
Constant	3,695	0,000	-0,060	0,859
$\rho$ (rho)	0	(fixed)		

**Table 7 Results from fertility and labour force participation equations (simultaneous estimates), Italy**

	Fertility equation		Participation equation	
	Coefficient	p-value	Coefficient	p-value
Age	-0,053	0,000	0,050	0,000
Age (squared)	-0,003	0,000	-0,002	0,000
N° children	-0,225	0,006	-0,238	0,000
Others	-0,036	0,662	0,184	0,026
Prespan	-0,004	0,000		
Span	-0,003	0,000	-0,001	0,118
Pr. Wages	-0,001	0,966	0,082	0,000
Working	0,537	0,015		
Working*N° ch.	-0,118	0,211		
Benefits	-0,028	0,142	0,029	0,007
Partner income	0,004	0,108	-0,015	0,000
Other looking after children	-0,242	0,011	0,754	0,000
Foreign	0,218	0,022	-0,149	0,274
Unemployment rate			-0,018	0,010
Bad health	0,091	0,530	-0,253	0,013
Vocational course			1,254	0,000
Satisfaction main activity	-0,072	0,263	0,589	0,000
Satisfaction with leisure time	0,087	0,086	-0,456	0,000
Satisfaction with financial situation			0,288	0,000
Central regions	-0,001	0,982	-0,130	0,075
Southern regions	0,185	0,002	-0,251	0,136
Noise from neighbours	0,054	0,260		
Household owner of dwelling	0,029	0,523		
Worked previously			-0,247	0,000
Constant	0,485	0,025	-0,941	0,000
$\rho$ (rho)	-0,212	0,050		

**Table 8 Results from fertility and labour force participation equations (simultaneous estimates), France**

	Fertility equation		Participation equation	
	Coefficient	p-value	Coefficient	p-value
Birth				
Age	-0,049	0,000	0,034	0,000
Age (squared)	-0,005	0,000	-0,004	0,000
N° children	-0,293	0,000	-0,261	0,000
Married	0,044	0,419	-0,008	0,893
Others	0,380	0,066	0,084	0,590
Age of partner	-0,012	0,034		
Span	-0,003	0,000	0,002	0,004
Pr. Wages	0,018	0,194	0,089	0,000
Working	-0,243	0,448		
Working*N° ch.	-0,170	0,010		
Benefits	0,000	0,994	-0,052	0,000
Partner income	0,001	0,491	-0,003	0,008
Others looking after children	-0,124	0,141	0,468	0,000
Foreign	0,223	0,004	-0,066	0,458
Unemployment rate			-0,034	0,000
Bad health	-0,174	0,271	-0,535	0,000
Vocational course			0,364	0,000
Satisfaction main activity			0,332	0,000
Satisfaction with leisure time	-0,008	0,895	-0,427	0,000
Satisfaction with financial situation	-0,001	0,982	0,239	0,000
Paris	-0,057	0,293	0,059	0,320
Household owner of dwelling	-0,145	0,002		
Receiving sickness ben.			-0,195	0,035
Constant	1,576	0,000	-0,041	0,841
$\rho$ (rho)	0,343	0,060		

## 7. Conclusions

Empirical results partially confirm our expectancies and, to our view, identify some effect of family policies in France. The most relevant result is the double impact of benefits on French women's decision on fertility and work: this seems to be the effect of APE which was enhanced in 1994 (exactly at the beginning of our ECHP survey). The effect is indirectly positive on fertility since it passes through the abandon of the labour market by women with at least two children. Therefore there is an indirect effect on gender equity: APE is addressed only to couples where one parent quits his/her job for rearing children and, provided that mothers will quit more than fathers, the final result is a fall of activity rate of mothers, as also noted by Letabelier (2003). Thus our analysis suggests that APE has a double effect on fertility (positive) and gender equity (negative).

Italian situation is even more complicated: activity rate of women is rather low but this is not associated to a high fertility simply because fertility levels of not working women is not higher with respect to working women. The lack of adequate childcare services puts many time constraints to working women whereas the poor economic support from the welfare state makes one-income families (i.e. where women do not work) budget constrained. As highlighted by our analysis, time constraints are likely to be most important.

As a result, the working status has a positive effect where unobserved heterogeneities are negatively correlated (in Italy) and a negative effect where unobservables are positively correlated (in France). Those findings directly derive from the degree of incompatibility between mothering and working career in the two countries. In Italy indeed incompatibility is rather high, and therefore the negative correlation highlights that women can be career oriented versus family oriented. At the same time, the relatively few working mothers (which correspond to a selected group, who succeeded in solving their incompatibility issue) are more advantaged in their fertility decision than non working mothers.

In France, on the contrary, careers are not strongly competing with each other. In this case is the individual ability in reaching personal goals that makes the difference (and therefore, the correlation across unobservables becomes positive). The direct negative impact of being working is instead an effect of a particular policy, which address special support to couples where one parent quit his/her job for rearing children.

On the light of this study we suggest some policies implications. First of all, a “family-friendly” approach, like the French one, considerably reduces the level of incompatibility between fertile and job career and gives the opportunity to active women to exploit their desired level of fertility. As shown by Del Boca (1999), the provision of childcare services play an important role on this issue. Secondly, we saw that in such a context job and fertility preferences are positively associated, thus policies aiming at increasing female activity rate can indirectly raise fertility level, provided that working women are not time constrained. On the other hand, providing benefits to non-working mothers can have a perverted effect raising both fertility and female inactivity rate. Such a measure is therefore not advisable for Italy where female activity rate is already low. Summing up, we suggest that raising compatibility between fertility and female labour force participation seems to be even a cultural issue and not merely an economic one. Provision of benefits for families surely can help them to exploit their desired fertility but making women feel more comfortable in conciliating work and family roles can be much more effective, both on fertility and gender equity.

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