



BANCA D'ITALIA  
EUROSISTEMA

## Temi di Discussione

(Working Papers)

Economic insecurity and fertility intentions: the case of Italy

by Francesca Modena, Concetta Rondinelli and Fabio Sabatini

September 2013

Number

931





BANCA D'ITALIA  
EUROSISTEMA

# Temi di discussione

(Working papers)

Economic insecurity and fertility intentions: the case of Italy

by Francesca Modena, Concetta Rondinelli and Fabio Sabatini

Number 931 - September 2013

*The purpose of the Temi di discussione series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.*

*The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.*

*Editorial Board: MASSIMO SBRACIA, STEFANO NERI, LUISA CARPINELLI, EMANUELA CIAPANNA, FRANCESCO D'AMURI, ALESSANDRO NOTARPIETRO, PIETRO RIZZA, CONCETTA RONDINELLI, TIZIANO ROPELE, ANDREA SILVESTRINI, GIORDANO ZEVI.*

*Editorial Assistants: ROBERTO MARANO, NICOLETTA OLIVANTI.*

ISSN 1594-7939 (print)

ISSN 2281-3950 (online)

*Printed by the Printing and Publishing Division of the Bank of Italy*

# ECONOMIC INSECURITY AND FERTILITY INTENTIONS: THE CASE OF ITALY

by Francesca Modena<sup>†</sup>, Concetta Rondinelli<sup>‡</sup> and Fabio Sabatini<sup>\*</sup>

## Abstract

Starting from the assumption that economic insecurity is a key factor behind childbearing decisions, we empirically assess how fertility intentions are affected by job instability, which may severely compromise the employment status of workers, and economic disadvantages in terms of household income and wealth. We show that the instability of women's work status (i.e. the holding of occasional and precarious jobs) significantly postpones maternity decisions for medium/high level income households; the chances of further childbirth are significantly and negatively affected by household income insecurity. Finally, low levels of household wealth influence the decision of having a first child.

**JEL Classification:** C25, J13.

**Keywords:** economic insecurity, income, wealth, fertility, childbearing, employment instability, precarious employment, Italy.

## Contents

1. Introduction.....	5
2. Labour market outcomes and fertility.....	7
3. Job instability and employment insecurity in Italy.....	8
4. Data description.....	11
5. Empirical methodology.....	13
5.1 Probit model.....	13
5.2 Multinomial logit model.....	14
6. Assessing the effect of economic insecurity on fertility intentions.....	15
6.1 The effect of job instability on postponement of maternity.....	18
6.2 Assessing the endogeneity of economic insecurity.....	19
7. Conclusions.....	20
Tables.....	22
Appendix.....	26
References.....	28

---

<sup>†</sup> University of Trento, Department of Economics, via Inama, 5, 38121 Trento Italy;  
[francesca.modena@unitn.it](mailto:francesca.modena@unitn.it).

<sup>‡</sup> Bank of Italy, Economic Outlook and Monetary Policy Department, Rome;  
[concetta.rondinelli@bancaditalia.it](mailto:concetta.rondinelli@bancaditalia.it).

<sup>\*</sup> Sapienza University of Rome; [fabio.sabatini@uniroma1.it](mailto:fabio.sabatini@uniroma1.it). Corresponding author. Postal address: Sapienza University of Rome, Faculty of Economics, via del Castro Laurenziano 9, 00161, Rome, Italy.



## 1. Introduction<sup>1</sup>

There is a broad consensus that the longer a woman delays childbearing, the lower her completed fertility<sup>2</sup> will be (Billari and Kohler, 2002, Bumpass and Mburugu, 1977, Bumpass et al., 1978, Marini and Hodsdon, 1981). This phenomenon, referred to as a postponement effect, has been attributed to the improvement in women's education and employment, to a delay in family formation (D'Addio and Mira D'Ercole, 2005, Kohler et al., 2002) and to a major change in the values shared by younger women with regard to their role within the family and the labour market (McDonald, 2000a, Hakim, 2003, Kertzer et al., 2009).

Some scholars have highlighted the fact that in the 1970s there was a significant and positive correlation between female participation in the labour force and the postponement of childbearing across OECD countries, which in turn led to a fall in fertility rates (Ahn and Mira, 2002, Adsera, 2004), mainly due to the increase in women's education and employment. The recent literature has highlighted the role of "flexible" employment in the postponement of childbearing (McDonald, 2000a, de la Rica and Iza, 2005, Adsera, 2004, Blossfeld et al., 2005, Kreyenfeld, 2005, Kreyenfeld et al., 2012, Hondroyannis, 2010, Barbieri, 2011, Scherer, 2009). Economic uncertainty and insecurity are also identified as key factors behind the fertility delay (Kreyenfeld, 2010), leading to a drop in fertility rates (Kohler et al., 2002). The link between insecurity and fertility may depend on two factors: "the irreversibility associated with the fertility decision, and the option to postpone childbearing decision for a later time. In the presence of irreversibilities, the ability to postpone a decision till the resolution of uncertainty is valuable. It allows the agent to avoid making irreversible expenditure in bad states of the world" (Ranjan, 1999, p.28).

"Economic insecurity arises from the exposure of individuals, communities and countries to adverse events, and from their inability to cope with and recover from the costly consequences of those events" (UNDESA, 2008). Economic insecurity is based on the anxiety produced by a lack of economic safety, i.e. the inability to obtain protection against potential economic losses (Osberg, 1998), and could potentially affect all citizens (Osberg, 2010); it is one of the dimensions that shape people's well-being and makes it harder for families to invest in education and housing (Stiglitz et al., 2009). Insecurity is shaped by many factors, requiring the use of a variety of approaches to its measurement. Some authors do not distinguish between different types of misfortunes and model

---

<sup>1</sup> We are grateful to an anonymous referee whose comments allowed a substantial improvement of the paper. We also thank Anna D'Addio, Conchita D'Ambrosio and Lars Osberg for valuable comments and suggestions. The paper has benefited from comments by Gabriella Berloffia and participants at the IARIW-OECD Conference on Economic insecurity. All errors are our own. The opinions expressed in this paper are those of the authors and do not necessarily reflect those of the institutions they are affiliated with.

<sup>2</sup>Completed fertility is the average number of children born to a given generation of women throughout their fertile lives.

the individual's feeling of insecurity as a function of current wealth and variations in wealth experienced in the past (Bossert and D'Ambrosio, 2013). The human-rights perspective, by contrast, identifies four key objective economic risks: unemployment, sickness, widowhood and old age (Osberg and Sharpe, 2011, Berloff and Modena, 2011, 2012). Three major sources of risks (income loss, large out-of-pocket medical spending, insufficiency of liquid financial wealth) are identified by the U.S. Economic Security Index (ESI).

More research is necessary to arrive at a better understanding of the relationship between economic insecurity and fertility, with special attention paid to the consequences of job instability on family formation (Barbieri and Scherer, 2009, Vignoli et al., 2012). This study contributes to the literature in three substantive ways. First it assesses the role that economic disadvantages – lack of stable employment and low levels of household income and wealth – may play in couples' fertility intentions in Italy. We argue that disadvantaged couples may postpone or decide not to have a first child due to their anxiety about the future. Second we focus on childbearing *intentions*, instead of accounting solely for actual fertility, to evaluate the determinants of the *decision* to have (more) children. Finally, starting from the assumption that childbearing decisions are in most cases taken by the couple, we analyse the role of a number of socio-economic traits of *both* components of Italian couples, instead of focusing solely on women.

The instability of women's work status, a major cause of economic uncertainty, has been neglected in the literature. Job instability and employment insecurity or, more generally, workers' "precariousness",<sup>3</sup> are commonly considered more an obvious and somewhat desirable side effect of flexibility than a potentially crucial determinant of workers' well-being. This view can hardly be generalized to Italy, where precarious workers are characterized by low incomes, inadequate social protection and discontinuous careers (Barbieri and Scherer, 2005, Sabatini, 2008).

We build the following measures of insecurity: 1) the lack of a high quality job, as indicated by the fact of being precariously employed; 2) a condition of economic disadvantage in terms of a low level of household income and 3) a low level of household wealth. These circumstances may imply insufficient means to deal with potential adverse events, thereby generating feelings of anxiety and economic insecurity in the household.

Based on a pooled cross section of Italian households, sampled between 2002 and 2008 in the Survey on Household Income and Wealth (SHIW), we find that the instability of women's work

---

<sup>3</sup> In its "Classification of Status in Employment", the International Labour Organisation (ILO) defines "precarious" workers as either: (a) workers whose contract of employment leads to the classification of the incumbent as belonging to the groups of "casual workers" ; (b) "short-term workers" or "seasonal workers"; or (c) workers whose contract of employment will allow the employing enterprise or person to terminate the contract at short notice.

status significantly discourages childbearing intentions. Household wealth is found to be significantly and positively correlated with the decision to plan the birth of a first child. The chances of further childbirth intentions are significantly reduced by low levels of household income. We find that having a temporary labour contract matters only for females whose household incomes are medium/high, while it has no effect for low-income couples.

We also test the endogeneity of female labour precariousness and household income insecurity; the results do not support the endogeneity of economic insecurity dimensions.

The paper is organized as follows. The association between labour market outcomes and fertility intentions is reviewed in Section 2; Section 3 discusses job instability and employment insecurity in the Italian labour market. Sections 4 and 5 describe our data and methodology. The main results and implications are presented in Section 6. Section 7 concludes.

## **2. Labour market outcomes and fertility**

Early theoretical studies on the determinants of fertility suggested that highly educated (potential) mothers tend to substitute the number of children with “child quality” (Becker and Lewis, 1973).<sup>4</sup> According to this approach, since both “production” and bringing up children are time intensive, an increase in wage rates may induce a negative substitution effect reducing the demand for children (see for instance Mincer, 1963, Becker, 1965, Becker, 1981, Willis, 1973, Hotz et al., 1997). In this framework, higher earnings discourage childbearing by raising the opportunity cost of the time diverted from work to rear children. For men, the income effect tends to dominate since they spend less time on bringing up children, though the magnitude of these effects will vary across countries and birth parity (Willis, 1973, Butz and Ward, 1979). These theoretical predictions found support in early empirical studies claiming that the increasing returns to schooling (especially for women) act as a factor in encouraging women’s education relative to men’s and driving the rise in women’s labour market attachment (Schultz, 2001). The effect of women’s labour market participation on fertility decisions may also depend on the availability of external childcare services (Ermisch, 1989): women with high earnings may have more children, because they are better able to pay these expenses; those with low income are less likely to be able to afford childcare services, but may still have higher fertility due to the lower opportunity cost of childbearing.

---

<sup>4</sup> The concept of “child quality” has been used to synthesize different factors of children’s well-being, such as, for example, the time, effort, and money that parents devote to their care and development, their likelihood of not dropping out of school, and the level of parents’ subjective well-being – which in turn has relevant effects on children’s psychological development. Willis (1973), for example, defines child quality as a function of the resources parents devote to each child.

Over the past two decades, research has shifted towards investigating the timing of births rather than completed fertility (Heckman and Walker, 1990). Empirical studies have shown that higher educated women with better positions in the labour market have births at older ages (Gustafsson and Wetzels, 2000, Prioux, 2004, Amuedo-Dorantes and Kimmel, 2005, Modena and Sabatini, 2012). A mother's age at the birth of the first child can be seen as the result of a trade-off between investment in human capital and career planning, on the one hand, and motherhood on the other (Gustafsson, 2001). The effect of income on the timing and the number of births may follow different paths: Gustafsson (2005) suggests that, for young Swedes any additional year of education affects fertility through a delay in the formation of a stable couple, rather than by delaying parenthood once the couple is formed. Amuedo-Dorantes and Kimmel (2005) argue that college-educated mothers can profit from postponing motherhood because they are in a position to negotiate a family-friendly work environment with flexible work schedules.

In the past two decades, labour market institutions have been revised in some countries to make it easier for women to combine career and family, causing a change in the relationship between labour market outcomes and fertility at the macro level. The correlation between female participation in the labour force and fertility, which has been negative since the 1970s, turned positive at the end of the 1980s across the OECD countries (Ahn and Mira, 2002, Morgan, 2003, Engelhardt and Prskawetz, 2004, Billari and Kohler, 2004). The shift has been explained as resulting from the increasing availability of childcare services and part-time jobs, especially in the Nordic countries (Del Boca and Locatelli, 2006, Del Boca et al., 2007). This evidence is confirmed by recent findings for a panel of Latin American countries (Aguero and Marks, 2008). Northern Italian regions are experiencing the same trend, even if they still lag behind the European average in terms of both childcare availability and female participation (Rondinelli and Zizza, 2011).

In Italy, the probability of a first child has remained almost stable (Dalla Zuanna, 2004), so the emergence of lowest-low fertility is related to a decrease in the progression to the second, third and subsequent children. Nevertheless, the personal ideal family size for around 60% of Italian women aged 20-34 years is two children; while one quarter has a preference for a large family (Goldstein et al., 2003). The mean ideal family size decreased in Italy from 2.11 in 2001 to 1.9 in 2011 for women aged 25-39 (Testa, 2007, Testa, 2012); the difference between ideal and actual family size is larger among men than among women (Testa, 2012).

### **3. Job instability and employment insecurity in Italy**

Job instability does not necessarily imply employment insecurity. The former refers to the probability of breaking the contractual relationship between the worker and the employer while the

latter is related to the possibility of remaining jobless for an extended period (Stiglitz et al., 2009). Similarly, the recent literature differentiates between flexibility – related to the type of contract, either permanent or temporary – and insecurity with respect to employment and income (Origo and Pagani, 2009): flexible employment is not necessarily in conflict with employment security (Madsen, 2004, Wilthagen and Tros, 2004).

In countries, where appropriate labour market institutions are in place, workers are more likely to have continuous employment opportunities when labour markets are booming and unemployment is very low. At such times temporary workers may feel “employment secure” even if they have little security in any given job (since replacement jobs are relatively easy to find). A recent strand of the literature has investigated the trade-off between flexibility and security at the micro level. For example, Origo and Pagani (2009) point out that temporary workers do not necessarily feel insecure if they perceive that the risk of unemployment is low, and if, in the event of unemployment, they can count on generous unemployment benefits and are likely to find a new job rapidly. However, in times of crisis, when unemployment is high, generous labour market policies cannot compensate for the lack of a secure job in workers’ feelings about their insecurity. Drawing on data from the 2008/09 wave of the European Social Survey in 22 countries, Chung and van Oorschot (2011) show that, although some institutional variables such as labour market policies do seem to explain workers’ employment insecurity to some extent, when other context variables are taken into account, they lose their significance. “It is rather the economic and labour market situations of the country that explain why an individual feels insecure” (2011, p. 297).

In countries characterized by tight employment protection legislation for permanent workers, flexibilization “at the margin” and dual labour markets, flexible and atypical contracts generally entail insecurity. This is the case of Mediterranean countries, where job insecurity in many cases leads to employment insecurity irrespective of the business cycle and unemployment levels. In Italy, the 1990s labour market reforms introduced flexibility only for marginal groups of workers, increasing the dualism between younger and older labour market entry cohorts. While the insiders are largely unaffected by labour market adjustments, young people are more likely to be employed with new forms of flexible and atypical contracts.<sup>5</sup> In 2011 only 3 new contracts out of 10 were permanent (33.6% in 2010) (Bank of Italy, 2012); the proportion of employees on temporary contacts was 50% among those aged 15-24 years (46.7% in 2010), and 12.7% among those aged 25-49 (12% in 2010) (Eurostat, Labour Force Survey data).

---

<sup>5</sup>Contracts used for so called *parasubordinati* and *interinali* workers. Most *parasubordinati* workers are similar to fixed-term employees except that they are paid less and receive lower social security contributions, and do not benefit from employment protection legislation (Brandolini et al., 2007). *Interinali* are individuals who work through a temporary employment agency.

Atypical contracts are characterized by low income levels, limited social protection and discontinuous careers (Cipollone, 2001, Barbieri, 2011). Precarious workers are not supported by the social protection system, because of the lack of wage subsidies for the low-paid and very limited (or nonexistent) unemployment benefits (Brandolini et al., 2007, Bettio and Villa, 1998). This situation increases the probability of being poor for households with members employed in unstable jobs: in 2006 the incidence of poverty for households with only atypical workers was about 47% (Bank of Italy, 2009).<sup>6</sup>

Temporary contracts may represent entrapment in instability and social exclusion. Owing to a lack of training and greater flexibility (in terms of both time and mobility), workers may find it very difficult to upgrade their skills and develop new contacts (Guadalupe, 2003, Routledge and von Amsberg, 2003, Menendez et al., 2007, Kim et al., 2008, Amuedo-Dorantes and Serrano-Padial, 2010). Moreover, there may be a stigma attaching to precarious or second rate jobs: “not having been selected for the primary labour market is interpreted as a negative signal by potential future employers” (Barbieri and Scherer, 2009, p. 678). After a certain period of instability, individuals in precarious jobs face the risk of definitive exclusion from “standard” employment (Booth et al., 2002, Dolado et al., 2002, D’Addio and Rosholm, 2005). Young people and women are more exposed to this risk (Brandolini et al., 2007, Barbieri and Scherer, 2005). Furthermore, better educated workers and those with higher occupational qualifications are less likely to be trapped in the secondary, sub-protected labour market (Barbieri, 2009). This scenario is further exacerbated by Italy’s recession, with the total unemployment rate at 11.7% in January 2013 (2.1 percentage points higher than in January 2012) and the youth (15-24) unemployment rate at 38.7% (6.4 percentage points higher than a year earlier; Istat, 2013).

Italy is also an interesting case from a gender perspective: “flexible type” reforms have exacerbated the labour market gender inequality. The occupational gender gap, although diminishing, is still relatively wide: in 2011, the female employment rate was 46.5%, compared with 67.5% for men. The percentage of temporary employees aged 15-24 was 53.2% (47.6%) for women (men), and 14.5% (11.3%) for those aged 25-49 (Eurostat, Labour Force Survey data). Women are more likely to be trapped in job precariousness, and they are exposed to the risk of unemployment in the event of childbearing. In 2012 almost one working mother out of four no longer had a job two years after childbirth (22.7%; 18.4% in 2005; Istat, 2012, Bratti et al., 2005). Among those who had stopped working, nearly half declared that they had lost their jobs: in particular, 23.8% of the labour-market exits were due to dismissal and 19.6% to job loss (expiry of

---

<sup>6</sup>Amuedo-Dorantes and Serrano-Padial (2010) find a similar result for Spain and suggest that fixed-term contracts are linked to a greater poverty exposure among women and older men relative to open-ended contracts.

temporary contracts, closure of the firm, etc.; Istat, 2012). In Italy, the institutional support for working women is modest, especially for temporary employees: childcare welfare systems and parental benefits are designed to meet the needs of permanent workers, leaving women with precarious positions unprotected in the event of childbirth (Ferrera and Gualmini, 2004, Ferrera, 2005, Vignoli et al., 2012). Therefore, the risk associated with “flexible” employment is not equally distributed between men and women, nor between women with different labour contracts.

We argue that, in Italy, job instability is likely to lead to employment instability and may thus generate feelings of anxiety and economic insecurity in workers. Furthermore, in general, job instability should not be considered the result of a spontaneous choice – due for example to workers’ high risk propensity or to a preference for frequent job changes. Precarious employment is such an unfavourable condition that very few women would deliberately choose it. It seems much more reasonable to consider precariousness as a situation of disadvantage to which workers have to adapt only if there are no alternatives.

To summarize, the type of contract may have an effect on fertility intentions *per se*, since temporary contracts are associated in Italy with low job quality, low income levels and limited protection for pregnancies. Given the stigma attaching to low prestige jobs, and the risk of a deterioration of workers’ human and relational capital, precariousness may entail high levels of employment and income insecurity, which may have further negative implications for childbearing.

#### **4. Data description**

To analyse the effect of economic insecurity on family decisions, we used the Survey on Household Income and Wealth (SHIW) conducted every two years by the Bank of Italy - waves 2002-2008. The sample includes about 8,000 households per year, and is representative of the entire Italian population (Bank of Italy, 2010). Couples in which the woman was under 46 years of age were asked if they were planning to have (more) children in the future. In the 2002 survey the possible answers were “yes”, “no”, “don’t know”. In the subsequent waves the set of possible answers was extended to include: “yes”, “not now”, “we will think about it later”, “no we do not want any more children”, “we are happy with the number of children that we have”, and “no, but we would have liked to have (more) children”. In 2008 a further choice was added: “No, I do not want children”.<sup>7</sup>

Couples were selected as our unit of analysis. The sample consisted of 5,063 couples.<sup>8</sup> Our decision to focus on couples is related to the fact that, in most cases, childbearing is conceived in

---

<sup>7</sup> In 2002 the question on childbearing intentions was put to all women under 50 years of age. In 2008 the question was put to all women aged 18 to 45, instead of to couples.

<sup>8</sup> There were 581 couples in 2008, 1,696 in 2006, 1,742 in 2004 and 1,044 in 2002.

the context of a steady relationship. In Italy, single women and men desiring children are likely to encounter severe difficulties in fulfilling their aspiration for parenthood and in some cases are even thwarted by law. Our dependent variable is the intention to have (more) children: 17% of couples reported that they wanted to have children, with a higher percentage in the North than in the rest of the country. The proportion increased with female education and was larger for childless women; the percentage of couples planning to have (more) children was lower for women aged 39 or more (see Table A1). A large proportion of older women answered “No, we don’t want any (more) children”, while about 15% chose the response “No, but we would have liked to have (more) children” (Table A2). This suggests that fertility intentions are likely to have already been achieved for older women, and we therefore considered only couples in which the female was 38 years old or younger. This narrowed the sample to 2,551 couples.

In 2004 and 2008, all the women who reported that they would have liked to have (more) children answered a question about the reasons for not having (further) children. In 2008 the possible answers included: insufficient income, incompatibility with work, an unsuitable home, lack of regular help from relatives, no nursery schools nearby or schools that were too expensive, the need to care for other relatives, the absence of a partner to have children with, a lack of agreement with the partner about the number of children, and biological/physiological reasons. Biological factors and insufficient income were the most common reasons in 2008 (about 44% and 41%, respectively); in 2004 insufficient income was cited by 50% of couples; incompatibility with work was given as a reason hampering the possibility of (additional) children by about 38% of couples in 2008 and by 30% in 2004.

Since we focused on couples’ intentions, preferences about the number of children may have differed within the household. About 1% of the sampled couples cited the lack of agreement with the partner as a reason for not having (further) children. Additionally, the ideal family size in the sample was larger than the actual one, in line with the 2011 Eurobarometer Survey on Fertility and Social Climate (Testa, 2012).

The main explanatory variable was the indicator of job insecurity for women, as defined by the type of contract: a dummy for precarious employment, i.e. for employees with a fixed-term contract and for “atypical” workers (atypical workers include casual, short-term, seasonal workers, or workers whose contract of employment allows the employer to terminate the contract at short notice). In our sample, about 7% of women aged 38 or less had fixed-term or atypical contracts (Table A3), with a remarkable increase over time: from 5% in 2002 to 11% in 2008. The share of

precarious workers was higher among school teachers (all schools) and blue-collar workers (or similar): 35% and 19%, respectively, were employed with temporary contracts.

To grasp the main determinants of female job precariousness better, we ran a multinomial logit for the occupational status of women controlling for a set of individual, family and regional characteristics (Table 1). The dependent variable had five categories: “secure employed” (employees with open ended contracts), unemployed, “insecure employed” (employees with a fixed-term contract or atypical workers), self-employed, inactive. Having an upper secondary school diploma or a university degree in medicine, engineering and economics decreased the probability of holding an insecure job position. Women living in regions with a high rate of precariousness were more likely to be temporary workers. Having left education in the first half of the 1980s, or after 1995 increased the probability of being insecure.<sup>9</sup> This result can be interpreted as a consequence of the labour market reforms carried out in the past two decades (see Berloffia and Villa, 2010 and Berton et al., 2009 for a comprehensive review of recent Italian labour market reforms).

We also attempted to analyse the effects of economic insecurity associated with low levels of household income and wealth, which may imply insufficient means to deal with potential adverse events.<sup>10</sup> In our view, it seems reasonable to assume that insecurity is inversely related to current household economic conditions. We constructed the index of wealth (income) insecurity taking into account the percentile of the weighted distribution in which the household falls. The index was constructed as the complement of this percentile.<sup>11</sup>

## **5. Empirical methodology**

### **5.1. Probit model**

We used the pooled cross section of the SHIW waves 2002-2008 to analyse the effect of economic insecurity on fertility intentions. First, we modelled childbearing decisions as a binary choice.<sup>12</sup> The

---

<sup>9</sup> Education cohorts, i.e. the year in which individuals finished their educational career, allowed us to compare individuals at similar stages of the “labour-market cycle” Given the reforms of the Italian labour market, labour market institutions and employment conditions vary significantly depending on the year in which individuals entered the labour market (Berloffia et al., 2011).

<sup>10</sup> Bossert and D’Ambrosio (2013) model economic insecurity as a function of the current wealth level and its variations experienced in the past. The wealthier an individual is, the bigger the buffer stock he can rely on in case of an adverse future event. Past gains and losses determine the confidence an individual has today on his ability to overcome a loss in the future.

<sup>11</sup> Household income and wealth are divided by the OECD modified equivalence scale (which assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child) (Boeri and Brandolini, 2005).

<sup>12</sup> The strategy of modelling childbearing intentions as a binary choice has the advantage of allowing us to use the whole pooled cross-section, including all of the four available waves of the Survey on Household Income and Wealth.

dependent variable  $y$  indicated whether the couple was planning to have (more) children in the future. The decision can be derived from an underlying latent variable model:

$$y^* = X\beta + e, \quad y = 1[y^* > 0] \quad (1)$$

where  $X$  is the set of independent variables aimed at explaining fertility choices, and  $y$  is the latent variable for fertility intentions. The error term is assumed to be drawn from a standard normal distribution:

$$prob(y = 1 | X) = F(X\beta) \quad (2)$$

where  $F(\cdot)$  is the cumulative density function for a normal distribution with zero mean and unitary variance. Estimates from model (2) are not biased under the hypothesis of exogeneity of explanatory variables. We address this issue in Section 6.2.

The main independent variables were the measures of job insecurity and household economic conditions, which have been discussed in the previous Section. We controlled for women's age, the level of male and female education, the geographical area of residence, marital status, and the number of children in the family. The variables used and the main descriptive statistics are reported in Table A3. The average number of children is approximately one. Men and women in the sample were on average aged 37 and 33, respectively. Some 50% (43%) of males (females) reported low education (no formal education or primary school), 40% (44%) had completed high school, and 10% (12%) had a degree or more. A large majority of men (71%) had stable jobs (open-ended contracts), while this proportion was much lower for women (40%). A large number of women (39%) were out of the labour force (mainly housewives), with a sharp North-South divide: 24% in the North and 61% in the South and Islands. The percentage of precarious workers (employees with fixed-term contracts or atypical workers) was 6% for males and 7% for females; 6% of sampled women were unemployed, and the proportion was three times higher in the South than in the North.

## 5.2. Multinomial logit model

In order to gain a better understanding of the effect of job insecurity on fertility intentions, we also ran a multinomial logit drawing on the 2004, 2006 and 2008 surveys (Section 6.1).<sup>13</sup> This reduced the sample to 2,085 couples, but allowed us to differentiate between different types of responses.

---

<sup>13</sup>As previously noted, in 2002 the possible answers were yes, no, don't know.

Let  $y$  denote a random variable taking on the values  $\{0,1,\dots,J\}$  for  $J$  a positive integer, and let  $X$  denote a set of conditioning variables. We were interested in response probabilities  $prob(y = j | X)$ ,  $j = 0,1,\dots,J$ , which must sum to unity. The multinomial logit model has response probabilities

$$\begin{aligned} prob(y = j | X) &= \exp(X \beta_j) / \left[ 1 + \sum_{h=1}^J \exp(X \beta_h) \right], \quad j = 1,\dots,J \\ prob(y = 0 | X) &= 1 / \left[ 1 + \sum_{h=1}^J \exp(X \beta_h) \right]. \end{aligned} \tag{3}$$

In our data, the dependent variable  $y$  is the question about fertility intentions, which can have different outcomes ( $J$  is the total number of multiple answers). The conditioning variables  $X$  are those used in the probit model and listed in Section 5.1.

As a final robustness check we also allowed our model to include an endogeneity test (see Section 6.2).

## 6. Assessing the effect of economic insecurity on fertility intentions

The effect of job insecurity (associated with the type of contract, whether permanent or temporary) on childbearing intentions is presented in Table 2 (column 1). We also report the effects of economic insecurity related to household income and wealth (columns 2 and 3, respectively), and consider the three dimensions all together in column 4.

As far as job insecurity is concerned, precariously employed women, i.e. women holding a fixed-term or an atypical contract, have a significantly lower probability of intending to have (more) children (Table 2, column 1) compared with permanently employed ones. Precariousness reduces the estimated propensity to have children by about 15 (10) percentage points for women without (with) children (the difference between these two groups is not statistically significant), from 25%. This result can be explained as a combination of the anxiety about not being able to afford the expenses related to childbearing and women's fear of losing their jobs, which would cause a further worsening in the family's financial conditions. It is worth noting that, due to Italian legislation, temporary female workers with atypical contracts rarely enjoy any form of sick leave or parental benefits. Moreover, the job displacement caused by pregnancy may destroy all the worker's specific human capital, thereby worsening the future employability of women (Del Bono et al., 2012). Bratti et al. (2005) show that in Italy about one out of four mothers who are employed during pregnancy leave the labour market after childbirth: the probability of returning to work is higher for those working in the public sector – where open-ended employment contracts are more frequent – and for

those living in a context with a more generous childcare system.<sup>14</sup> The prospect of losing one's job implies that income may fall to a level that is difficult to live on – a prospect that can be expected to discourage motherhood and may explain a decision to postpone childbearing.

The effect of being unemployed is similar to that of job precariousness (the coefficients and marginal effects are not statistically different). Being inactive, i.e. out of the labour force, and self-employed do not affect the probability of planning a pregnancy.

As for the role of wealth, our results show that the higher the index of wealth insecurity, the lower the fertility intentions (column 2, Table 2): a 1 point-increase in the index lowers planned fertility by 18 percentage points for mothers and by 21 percentage points for childless women (from 25%). This result suggests that household wealth supports childbearing intentions.

As expected, low levels of household income also negatively affect the intention to have (more) children for both mothers and non-mothers (column 3, Table 2). Our data suggest that household income insecurity is strongly (and positively) dependent mainly on men's earnings. This result may be consistent with the claims of the literature analysing the effect of wages on childbearing decisions, finding a positive effect of income on men and a negative effect on females (Willis, 1973, Butz and Ward, 1979). In Italy, the main contribution to household income is still generally made by men, while women are primarily responsible for non-market services for children and older individuals. In other words, the so-called "male-breadwinner/female care-giver family model" seems to be still prevalent in Italy (Karamessini, 2008). According to the *Time Use Survey* carried out by the Italian National Institute of Statistics (Istat, 2010), on average, women devoted about 19.9% of their time to domestic work in 2009, as against 20.52% in 2002 and 24.30% in 1989. Considering both paid and unpaid work, Italian women work on average 75 minutes per day more than men (Burda et al., 2007). The time devoted to domestic activity is higher than the European average, however.

To check which of the three dimensions plays a major role in fertility decisions, in column 4 of Table 2 we report the results of a model which takes account of our measures of job uncertainty and household income and wealth insecurity. When these variables are included in a single regression, some differences between childless women and mothers emerge. First, the negative role of women's job instability is confirmed for women without children, but not for mothers. Second, wealth insecurity affects childbearing decisions solely for women with no children, lowering the likelihood of planning a first child by 19 percentage points. In other words, the more a childless

---

<sup>14</sup> There are marked differences in public welfare systems across Italian regions. See for example Ferrera (2005), Calamai (2009), Masseria and Giannoni (2010), Fiorillo and Sabatini (2011).

woman suffers from wealth insecurity, the higher the likelihood of postponing or even deciding not to have a first child. This result confirms the importance of the buffering effect of real and financial wealth. Third the income effect acts only for mothers, reducing childbearing intentions by about 19 percentage points.

Household wealth can be considered a cumulative variable resulting from real and financial savings decisions that a family has planned over the life cycle, so that a low level of wealth makes the major change entailed by the transition to a first child less likely. On the other hand, household income can reflect temporary shocks that impact on the transition to higher birth order, but do not necessarily affect the decision to become a mother for the first time.

In all the specifications employed in Table 2, women with no children are more willing to plan a child. Consistently with the findings of Dalla Zuanna (2004), our results show that Italy's lowest-low fertility levels may be attributed to a low progression to subsequent children rather than a decision to have the first one. As expected, marital status is positively related to childbearing, as the majority of Italian couples conceive a baby only after marriage. Couples in which the man has a bachelor's degree (and above) are more likely to want (more) children. In addition to the better economic conditions probably related to higher levels of education, this finding may be due to the division of domestic labour, which is likely to be more equal in couples where men are better educated. The share of domestic work performed by formally employed women is a critical part of current cross-national explanations for low fertility (Miller et al., 2004).

As regards male occupational status, couples in which the man is unemployed show a lower probability of planning to have a child than those where men are employed with open-ended contracts. Fertility intentions are significantly and positively correlated with men being self-employed. Male job instability appears not to affect the intention to have children. This finding may be viewed as a result of the institutional features of the Italian labour market and of the low levels of gender equality in the family. Precarious men are probably aware that childbearing will not change their career prospects: for example, unlike their partners, they will not face any change in the risk of being laid off or not having their contracts renewed; nor will they have to fear the extra burden connected with childcare and domestic work, which will be borne mostly by women (possibly with the support of the extended family).

## 6.1. The effect of job instability on postponement of maternity

As described in Section 4, the 2004, 2006 and 2008 surveys allowed multiple answers to the question about fertility intentions: “yes”, “not now, we’ll think about it later”, “no, we do not want any (more) children”, and “no, but we would have liked to have (more) children”.<sup>15</sup> In the previous analysis we grouped all “no” answers in one category (and estimated a probit model). We now use a multinomial logit model to look at the effects of job insecurity, and income and wealth uncertainty on different responses, since they have different meanings: while “not now” implies a postponement of maternity, the other two negative answers represent a definitive choice and reflect previously formed preferences/choices.

Given the low number of couples answering “No, but we would have liked to have (more) children”, we grouped this answer with “No, we do not want any (more) children”. Results are reported in Table 3. The base category is “yes, we are planning to have children”.

As expected, female occupational status leads to a postponement of maternity intentions but has no effect on other negative choices. In particular, having a temporary labour contract increases the probability of delaying childbearing plans by 16 percentage points (from 34%),<sup>16</sup> and the effect is similar for unemployed women. Being a housewife increases the likelihood of a postponement by about 10 percentage points. Couples in which the male is unemployed are more likely to answer “not now”, but less likely to choose “no, we do not want children” or “no, but we would have liked to”. Wealth insecurity affects the postponement of attempting to have a first child (by 32 percentage points), and increases the probability of not having other children (by 23 percentage points from 38%). Childless women with high income insecurity are more likely to decide not to have a first child, but less likely to postpone the decision to have one. The decision not to attempt to have additional children (either now, or in the future) is significantly and positively influenced by household income insecurity.

We tested whether the effect of job precariousness varies across households according to the level of economic insecurity. Table 4 reports the results for the interaction between female job instability and income insecurity: having a temporary labour contract matters only for females whose household incomes are medium/high, while it has no effect for low-income couples. In particular, it increases the probability of delaying childbearing by about 20 percentage points (from 34%) for households with low/medium levels of economic insecurity.

---

<sup>15</sup>The response “No, we do not want children” in 2008 was recoded as “No, we do not want any (more) children”.

<sup>16</sup>The effect of precariousness is the same for mothers and women without children; consequently, we do not include the interaction term.

This result suggests that whether or not job instability discourages couples from having children depends on expectations regarding women's employment prospects. More than 80% of women with an unstable employment situation that live in poor households have low levels of education: these women have restricted options in the labour market, and their opportunity costs of having children are low. They may respond to unfavourable employment prospects by choosing the alternative career of mothers (Friedman et al., 1994, McDonald, 2000b). On the other hand, career-minded women will postpone their fertility decisions during times of job instability. "These women might not be willing to accept the role of dependent housewife and will only decide to have children if they are convinced that they can be employed and rear children without detriment to either" (Kreyenfeld, 2010, p.354). We conducted a further robustness check for our results by interacting female job precariousness and female education: no negative impact on maternity intentions was found for women with low levels of education.

## **6.2. Assessing the endogeneity of economic insecurity**

The association between female occupational status, and in particular the status of being precarious, and fertility may be driven by unobserved factors. Women with precarious jobs are not a random sample of the population, and compared with other women they may have dissimilar observed and unobserved characteristics, such as preferences for family size and differences in fecundity. Moreover, there may be a problem of reverse causality: women who are more family oriented may choose stable, but less motivating jobs. If we neglect to control for these factors, the estimates may be biased. In order to assess the relevance of endogeneity issues, we performed a regression-based test to check whether women's employment instability is endogenous.

We used education cohorts as an econometric instrument for female job insecurity (see Section 4 for a discussion of the role of the "labour-market-cycle" on female job precariousness). In particular, we constructed a dummy indicating whether the woman left education in the periods 1981-85, 1995-2008. Since an instrumental variables estimator for probit models with endogenous regressors is not consistent (Dagenais, 1999, Lucchetti, 2002, Wilde, 2008), we preferred to estimate Instrumental Variables (IV) in the Linear Probability Model. Results are reported in Table 5. The test failed to reject the absence of endogeneity (the  $t$  test on the predicted residuals from the first stage is  $t=0.17$ ,  $P>|t|=0.869$ ), hence we used the probit model (2) and the multinomial logit (3) to estimate the effect of female employment instability on childbearing intentions.

Another issue to be addressed is the endogeneity of household income (and hence income insecurity). We used the occupational status of the male's father as an econometric instrument for household income (the share of the male's income on household income is on average higher than

the female's). Family background has been identified by the literature on intergenerational mobility as a key determinant of the economic success of individuals (Cingano and Cipollone, 2007). The elasticity of the income of male offspring with respect to their parents' income is generally positive. The probability of male offspring achieving decent economic conditions has been shown to be strongly affected by the parents' level of income and wealth (for a survey see Corak, 2006; for Europe and Italy see for example Franzini and Raitano, 2010, Giuliano, 2008, Brunetti and Fiaschi, 2010).

We performed a regression-based test to check the endogeneity of household income insecurity (see Table 5). The occupational status of the father of the male (whether he was a manager, a member of a profession or an employer) was found to be strongly and negatively correlated with household income insecurity ( $t=-3.33$ ). Since the coefficient on the first stage predicted residuals was not statistically different from zero, the test supported the assumption that income insecurity is not endogenous.

Lastly, we tested for the joint endogeneity of female job insecurity and household income. For each suspected endogenous variable, we obtained the reduced form residuals and then tested for the joint significance of these residuals in the structural equation (Wooldridge, 2003). The F test indicated that both possibly endogenous explanatory variables are in fact exogenous ( $F(2,1724)=0.01$ ,  $\text{Prob}>F=0.994$ ).

## **7. Conclusions**

This paper offers an explanation for the drop in fertility mainly related to the fact that the labour market reforms implemented in the mid-1990s introduced new forms of temporary labour contracts. The concept of flexibility was at the basis of these contracts, reserved for young individuals and females. They were also characterized by low levels of maternal and sick leave protection, clearly penalizing women and discouraging them from having children.

We have constructed three indicators of economic insecurity: having a precarious job, having a low level of household income and a low level of household wealth. We have shown that an unstable work status negatively affects the probability of a woman intending to have (more) children and leads to a postponement of childbirth, which has been identified by the literature as one of the main factors responsible for the decrease in fertility rates. In particular, we have argued that whether a woman with an unstable job will postpone attempting childbirth varies according to her future employment prospects: women with limited options in the labour market (those with low educational qualifications and low incomes) are not affected by job insecurity, career-minded women will postpone their child bearing decisions during times of job instability. Since women's

fertility declines with age (Dunson et al., 2002, 2004), a decision to delay attempting to become pregnant may turn out to be an irrevocable decision to be permanently childless.

The effect of male employment insecurity on fertility choices is not statistically significant, suggesting that women are primarily responsible for non-market services (care of children) . Wealth insecurity hinders the transition from zero to one child: wealth, in fact, is a variable resulting from investments planned and fulfilled over the life cycle. Low levels of wealth discourage the decision to have a first child, which is likely to have a major impact on a family's economic conditions. On the other hand, uncertainty about income, which is affected by temporary shocks, is shown to matter solely for mothers. It appears not to discourage the decision to have a first child, but seems to have a significant negative effect on successive pregnancies.

Our results suggest that policies aimed at increasing fertility levels should address – and seek to reduce – insecurity about women's future employment and households' income and wealth. More specifically, public action aimed at raising fertility should include appropriate labour market policies to tackle the rising incidence of precariousness among women workers. Moreover, closer attention should be paid to family policies aimed at reconciling motherhood and paid work, and maternal protection should be extended to women with unstable employment situations. The importance of family policies in determining the insecurity-fertility nexus arises from comparison with other European countries such as Germany and France: these face the same kind of labor market deregulation “at the margins” as Italy, but have different family policies and no negative impact on maternity has been found (Barbieri, 2011). “In such countries precarious employment is much less of a trap, and welfare is much more family-friendly, so that atypical employment does not constitute either an end-way or an impediment to conclude the process of family formation” (Barbieri, 2011, p. 31).

## Tables

Table 1.  
Multinomial logit for the female occupational condition

	Inactive	Unemployed	Insecure Employed	Self-employed
High school (diploma)	-1.372*** (0.172)	-0.821*** (0.291)	-0.743*** (0.285)	-0.664** (0.263)
Bachelor's degree and beyond*type of degree 1	-2.524*** (0.617)	-1.964*** (0.716)	-1.413* (0.781)	0.896* (0.529)
Bachelor's degree and beyond*type of degree 2	-2.451*** (0.389)	-0.526 (0.560)	0.028 (0.451)	0.098 (0.541)
Father's high occupation	0.410 (0.267)	0.680 (0.428)	0.652* (0.363)	1.010*** (0.330)
Mother's medium/high education	0.121 (0.251)	-0.608 (0.484)	0.027 (0.378)	-0.705** (0.332)
North	-0.995** (0.433)	-2.414*** (0.594)	-0.716 (0.575)	-0.515 (0.837)
Centre	-0.650* (0.389)	-1.649*** (0.558)	-0.628 (0.523)	-0.195 (0.724)
Regional rate of precariousness	7.226** (3.582)	18.520*** (5.137)	23.230*** (5.232)	11.090** (5.303)
Regional female unemployment rate	0.079** (0.032)	-0.023 (0.046)	0.009 (0.046)	0.040 (0.063)
End of education: 1981-85	-0.086 (0.227)	-0.264 (0.402)	0.854** (0.374)	-0.003 (0.349)
End of education: 1986-90	-0.097 (0.210)	-0.748** (0.370)	0.191 (0.330)	-0.761** (0.347)
End of education: 1995-2008	0.430* (0.247)	0.913*** (0.339)	0.804** (0.345)	-0.603 (0.409)
Constant	-0.952 (0.948)	-3.469** (1.360)	-6.100*** (1.344)	-3.351** (1.406)
Observations		2,142		
Wald chi2(48)		403.31		
Prob>chi2		0.000		
Pseudo R2		0.1496		

Source: Our calculations on SHIW, 2002-04-06-08 data.

Notes: Base category: secure employment. Type of degree 1 includes: medicine, engineering, economics. Type of degree 2 includes all the other degrees. Marginal effects reported. Robust standard errors in brackets. Sample weights included. Family background variables and type of degree have missing values and this reduces the sample to 2,142 couples. Father's high occupation includes managers, members of a profession or employers.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 2.  
The effect of economic insecurity on fertility intentions

	(1)	(2)	(3)	(4)
No children	0.307*** (0.034)	0.308*** (0.054)	0.221*** (0.051)	0.275*** (0.058)
Female: inactive	-0.049 (0.031)			-0.008 (0.035)
Female: unemployed	-0.101** (0.043)			-0.065 (0.052)
Female: precarious*no children	-0.149*** (0.042)			-0.129*** (0.047)
Female: precarious*children	-0.099** (0.049)			-0.075 (0.054)
Female: self-employed	0.002 (0.045)			-0.004 (0.044)
Male: unemployed	-0.119** (0.049)			-0.093* (0.056)
Male: precarious	-0.023 (0.043)			-0.007 (0.046)
Male: self-employed	0.067** (0.034)			0.035 (0.035)
Wealth insecurity*no children		-0.212*** (0.071)		-0.190** (0.082)
Wealth insecurity*children		-0.182*** (0.061)		-0.070 (0.072)
Income insecurity*no children			-0.170** (0.084)	-0.013 (0.104)
Income insecurity*children			-0.268*** (0.067)	-0.186** (0.085)
Married	0.115*** (0.039)	0.096** (0.042)	0.105*** (0.041)	0.095** (0.042)
Male: none, elementary and middle school education	-0.192*** (0.049)	-0.179*** (0.051)	-0.171*** (0.050)	-0.167*** (0.051)
Male: high school (diploma)	-0.125*** (0.043)	-0.119*** (0.044)	-0.119*** (0.043)	-0.112** (0.044)
Male inactive	Yes	Yes	Yes	Yes
Female's education	Yes	Yes	Yes	Yes
Female's age	Yes	Yes	Yes	Yes
Female's age square	Yes	Yes	Yes	Yes
Geographical dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations			2,551	
Pseudo R2	0.17	0.17	0.17	0.18

Source: Our calculations on SHIW, 2002-04-06-08 data.

Notes: Marginal effects reported. Robust standard errors clustered at the household level in brackets. Sample weights included. Column (1) is job insecurity, columns (2) and (3) are income and wealth insecurity respectively, column (4) is (1)+(2)+(3).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3.  
Multinomial logit for fertility intentions

	Not now, we'll think about it later	No (we do not want or we would have liked to)
No children	0.069 (0.068)	-0.313*** (0.073)
Female: inactive	0.096** (0.046)	-0.063 (0.048)
Female: unemployed	0.166** (0.069)	-0.089 (0.062)
Female: precarious	0.160** (0.062)	-0.033 (0.066)
Female: self-employed	0.004 (0.062)	-0.014 (0.075)
Male: unemployed	0.299*** (0.085)	-0.204*** (0.055)
Male: precarious	-0.003 (0.062)	-0.033 (0.069)
Male: self-employed	0.012 (0.042)	-0.016 (0.045)
Wealth insecurity*no children	0.320*** (0.121)	-0.202 (0.142)
Wealth insecurity*children	-0.049 (0.100)	0.229** (0.095)
Income insecurity*no children	-0.400*** (0.139)	0.438*** (0.170)
Income insecurity*children	-0.116 (0.113)	0.356*** (0.115)
Marital status	Yes	Yes
Male's education	Yes	Yes
Female's education	Yes	Yes
Female's age	Yes	Yes
Female's age square	Yes	Yes
Geographical dummies	Yes	Yes
Year dummies	Yes	Yes
Observations		2,085
Wald chi2(46)		309
Prob>chi2		0.000
Pseudo R2		0.20

Source: Our calculations on SHIW, 2004-06-08 data.

Notes: Base category: yes. Responses "No, we do not want any (more) children" and "No, but we would have liked to have (more) children" are grouped in one category. Marginal effects reported. Robust standard errors clustered at the household level in brackets. Sample weights included.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 4.  
Job precariousness and income insecurity

	Not now, we'll think about it later	No (we do not want or we would have liked to)
Female job precariousness*low/medium income insecurity	0.196*** (0.067)	-0.042 (0.071)
Female job precariousness*high income insecurity	-0.120 (0.118)	-0.069 (0.127)
Observations		2,085
Wald chi2(44)		304
Prob>chi2		0.000
Pseudo R2		0.20

Source: Our calculations on SHIW, 2004-06-08 data.

Notes: Base category: yes. Responses "No, we do not want any (more) children" and "No, but we would have liked to have (more) children" are grouped in one category. Marginal effects reported. Whole set of regressors from Table 3 are included in the model. Robust standard errors clustered at the household level in brackets. Sample weights included.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5.  
Testing for endogeneity

<i>Suspected explanatory variable</i>	Female job insecurity	Household income insecurity
<i>First stage</i>		
education cohorts ('81-'85; '95-'08)	0.038** (0.014)	
male's father's high occupation		-0.082*** (0.024)
<i>Second stage (fertility intentions as dep.var.)</i>		
predicted residuals	0.102 (0.619)	-0.042 (0.543)
F-test (multiple endogenous variables)		
F(2,1724)		0.01
Prob>F		0.994
Observations	2,551	2,170

Source: Our calculations on SHIW, 2002-04-06-08 data.

Notes: Linear Probability Model. All exogenous variables listed in Table 3 and sample weights included. The first stage is the reduced form equation with the suspected endogenous variable as dependent variable. In the second stage, fertility intention is the dependent variable and predicted residuals, suspected endogenous variables and all exogenous variables are included as regressors. Robust standard errors clustered at the household level in brackets. F-test is the test for joint significance of the predicted residuals in the structural equation. Family background variables have missing values and this reduces the sample to 2,170 couples in the equation for household income insecurity. Father's high occupation includes managers, members of a profession or employers

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Appendix

Table A1.

Answers to the question: “Do you plan to have (more) children in the future?”

Female’s age	Yes	No	Don't know	Total
22 or less	49.2%	10.5%	40.3%	100%
23-28	63.5%	20.4%	16.1%	100%
29-33	33.9%	36.1%	30.0%	100%
34-38	13.7%	55.5%	30.8%	100%
39-43	4.0%	80.4%	15.6%	100%
44 or more	0.0%	93.5%	6.5%	100%
Observations				1,044

Source: Our calculations on SHIW, 2002 data

Notes: Sample weights included.

Table A2.

Answers to the question: “Do you plan to have (more) children in the future?”

Female’s age	Yes	Not now, we’ll think about it later	No, we don’t want any (more) children	No, but we would have liked to have (more) children	Total
22 or less	50.6%	39.0%	10.4%	0.0%	100%
23-28	48.3%	41.1%	7.4%	3.2%	100%
29-33	33.5%	33.8%	28.3%	4.4%	100%
34-38	19.0%	20.6%	50.9%	9.5%	100%
39-43	5.3%	11.9%	68.8%	14.0%	100%
44 or more	1.5%	4.6%	79.0%	14.9%	100%
Observations					4,019

Source: Our calculations on SHIW, 2004, 2006, 2008 data.

Notes: Sample weights included. Response “No, we do not want children” in 2008 is recoded as “No, we do not want any (more) children”.

Table A3.  
Descriptive statistics

	Obs.	Mean	Std. Dev.	Min	Max
Plan to have (more) children	2,551	0.28	0.45	0	1
Married	2,551	0.96	0.20	0	1
Number of children	2,551	1.14	1.00	0	6
Female's age	2,551	32.94	4.06	16	38
Male's age	2,551	36.88	5.27	18	74
Male: none, elementary and middle school education	2,551	0.50	0.50	0	1
Male: high school (diploma)	2,551	0.40	0.49	0	1
Male: bachelor's degree and beyond	2,551	0.10	0.30	0	1
Female: none, elementary and middle school education	2,551	0.43	0.50	0	1
Female: high school (diploma)	2,551	0.44	0.50	0	1
Female: bachelor's degree and beyond	2,551	0.12	0.33	0	1
Male: inactive	2,551	0.00	0.04	0	1
Male: unemployed	2,551	0.03	0.18	0	1
Male: employed with a stable job	2,551	0.71	0.45	0	1
Male: precarious	2,551	0.06	0.24	0	1
Male: self-employed	2,551	0.19	0.39	0	1
Female: inactive	2,551	0.39	0.49	0	1
Female: unemployed	2,551	0.06	0.25	0	1
Female: employed with a stable job	2,551	0.40	0.49	0	1
Female: precarious	2,551	0.07	0.26	0	1
Female: self-employed	2,551	0.07	0.26	0	1
Wealth insecurity	2,551	0.48	0.29	0	1
Income insecurity	2,551	0.47	0.29	0	1
North	2,551	0.48	0.50	0	1
Centre	2,551	0.17	0.37	0	1
South and Islands	2,551	0.35	0.48	0	1
Year of the survey: 2002	2,551	0.18	0.39	0	1
Year of the survey: 2004	2,551	0.36	0.48	0	1
Year of the survey: 2006	2,551	0.35	0.48	0	1
Year of the survey: 2008	2,551	0.11	0.32	0	1

Source: Our calculations on SHIW, 2002-04-06-08 data.

Notes: Sample weights included. We constructed the index of wealth (income) insecurity taking into account the percentile of the weighted distribution in which the household falls. The index was constructed as the complement of this percentile.

## References

- Adsera, A., “Changing fertility rates in developed countries. The impact of labor market institutions,” *Journal of Population Economics*, 17, 1, 17–43, 2004.
- Aguero, J.M. and M.S. Marks, “Motherhood and female labor force participation: evidence from infertility shocks,” *American Economic Review*, 98, 2, 500–504, 2008.
- Ahn, N. and P. Mira, “A note on the changing relationship between fertility and female employment rates in developed countries,” *Journal of Population Economics*, 15, 4, 667–682, 2002.
- Amuedo-Dorantes, C. and J. Kimmel, “The motherhood wage gap for women in the United States: The importance of college and fertility delay,” *Review of Economics of the Household*, 3, 1, 17–48, 2005.
- Amuedo-Dorantes, C. and R. Serrano-Padial, “Labor market flexibility and poverty dynamics,” *Labour Economics*, 17, 4, 632–642, 2010.
- Bank of Italy, “*Relazione annuale sul 2008*,” Bank of Italy, Rome, 2009.
- Bank of Italy, “*Italian household budgets in 2008*,” Technical report, Bank of Italy, Rome, 2010.
- Bank of Italy, “*Relazione annuale sul 2011*,” Bank of Italy, Rome, 2012.
- Barbieri, P., “Flexible Employment and Inequality in Europe,” *European Sociological Review*, 25, 6, 621–628, 2009.
- \_\_\_\_\_, “Italy: No country for young men (and women),” in Bucholz, S. and D. Hofäcker, eds, *The flexibilization of European labor markets: The development of social inequalities in an era of globalization*. Edward Elgar, Cheltenham, UK/Northampton, MA, 2011.
- Barbieri, P. and S. Scherer, “Le conseguenze sociali della flessibilizzazione del mercato del lavoro in Italia,” *Stato e Mercato*, 74, 2, 291–322, 2005.
- \_\_\_\_\_, “Labour Market Flexibilization and its Consequences in Italy,” *European Sociological Review*, 25, 6, 677–692, 2009.
- Becker, G.S., “A theory of the allocation of time,” *Economic Journal*, 75, 299, 493–517, 1965.
- \_\_\_\_\_, *A Treatise on the Family*, Harvard University Press, Cambridge, MA, 1981.
- Becker, G.S. and H.G. Lewis, “On the interaction between the quantity and quality of children,” *The Journal of Political Economy*, 81, 2, S279–S288, 1973.
- Berloffa, G. and F. Modena, “Economic well-being in Italy: the role of income insecurity and intergenerational inequality,” *Journal of Economic Behavior and Organization*, 81, 3, 751–765, 2012.
- \_\_\_\_\_, “Measuring (in)security in the event of unemployment: are we forgetting someone?,” Department of Economics, University of Trento, WP N. 11/2011, 2011.
- Berloffa, G., F. Modena and P. Villa, “Inequality of opportunity for young people in Italy: understanding the role of circumstances,” Ecineq WP N. 241, 2011.
- Berloffa, G. and P. Villa, “Differences in equivalent income across cohorts of households: evidence from Italy,” *Review of Income and Wealth*, 56, 4, 693–714, 2010.
- Berton, F. M. Richiardi and S. Sacchi, *Flex-insecurity. Perché in Italia la flessibilità diventa precarietà*, Il Mulino, Bologna, 2009.
- Bettio, F. and P. Villa, “A Mediterranean perspective on the breakdown of the relationship between participation and fertility,” *Cambridge Journal of Economics*, 22, 2, 137–171, 1998.

- Billari, F.C. and H.P. Kohler, "The impact of union formation dynamics on first births in West Germany and Italy: are there signs of convergence?," in Klijzing E., Corijn M., eds., *Dynamics of Fertility and Partnership in Europe: Insights and Lessons from Comparative Research*, United Nations, Geneva/New York, 43–58, 2002.
- \_\_\_\_\_, "Patterns of low and lowest low fertility in Europe," *Population Studies*, 58, 2, 161–176, 2004.
- Blossfeld, H.P., E. Klijzing, M. Mills and K. Kurz, *Globalization, Uncertainty and Youth in Society*, Routledge, London/New York, 2005.
- Boeri, T. and A. Brandolini, "The Age of Discontent: Italian Households at the Beginning of the Decade," IZA DP N. 1530, 2005.
- Booth, A.L., M. Francesconi and J. Frank, "Temporary Jobs: Stepping Stones or Dead Ends?," *The Economic Journal*, 112, 480, F189–F213, 2002.
- Bossert, W. and C. D'Ambrosio, "Measuring economic insecurity," *International Economic Review*, forthcoming, 2013.
- Brandolini, A., P. Casadio, P. Cipollone, M. Magnani, A. Rosolia and R. Torrini, "Employment growth in Italy in the 1990s: institutional arrangements and market forces," in Acocella N., and R. Leoni, eds., *Social Pacts, Employment and Growth*, Physica-Verlag, Heidelberg, 31–68, 2007.
- Bratti, M., E. Del Bono and D. Vuri, "New mothers' labour force participation in Italy: The role of job characteristics," *LABOUR*, 19, s1, 79–121, 2005.
- Brunetti, I. and D. Fiaschi, "Intergenerational mobility in Italy," Department of Scienze Economiche, University of Pisa, DP N.102, 2010.
- Bumpass, L.L. and E.K. Mburugu, "Age at marriage and completed family size," *Social Biology*, 24, Spring, 31–37, 1977.
- Bumpass, L.L., R.R. Rindfuss and R.B. Janosik, "Age and marital status at first birth and the pace of subsequent fertility marriage and completed family size," *Demography*, 15, 1, 75–86, 1978.
- Burda, M., D.S. Hamermesh and P. Weil, "Total work, Gender and Social Norms," NBER WP N. 13000, 2007.
- Butz, W. and M. Ward, "The emergence of countercyclical U.S. Fertility," *American Economic Review*, 69, 3, 318–328, 1979.
- Calamai, L., "The link between devolution and regional disparities: evidence from the Italian regions," *Environment and Planning A*, 41, 5, 1129–1151, 2009.
- Chung, H. and W. van Oorschot, "Institutions versus market forces: Explaining the employment insecurity of European individuals during (the beginning of) the financial crisis," *Journal of European Social Policy*, 21, 4, 287–301, 2011.
- Cingano, F. and P. Cipollone, "University drop-out. the case of Italy," Economic Research Department, Bank of Italy, Temi di discussione (Economics WP) N. 626, 2007.
- Cipollone, P., "Is the Italian labour market segmented?," Economic Research Department, Bank of Italy, Temi di discussione (Economics WP) N. 400, 2001.
- Corak, M., "Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility," IZA DP N. 993, 2006.
- D'Addio, A.C. and M. Rosholm, "Exits from Temporary Jobs in Europe: A competing risks analysis," *Labour Economics*, 12, 4, 449–468, 2005.

- D'Addio, A.C. and M. Mira D'Ercole, "Policies, Institutions and Fertility Rates: A Panel Data Analysis for OECD Countries," *OECD Economic Studies*, 9, 2, 7–45, 2005.
- Dagenais, M.G., "Inconsistency of a proposed nonlinear instrumental variables estimator for probit and logit models with endogenous regressors," *Economics Letters*, 63, 1, 19–21, 1999.
- Dalla Zuanna, G., "Few children in strong families. Values and low fertility in Italy," *Genus*, 60, 1, 39–70, 2004.
- de la Rica, S. and A. Iza, "Career planning in Spain: do fixed-term contracts delay marriage and parenthood?," *Review of Economics of the Household*, 3, 1, 49–73, 2005.
- Del Boca, D. and M. Locatelli, "The determinants of motherhood and work status: A survey," IZA DP N. 2414, 2006.
- Del Boca, D., S. Pasqua and C. Pronzato, "The impact of institutions on motherhood and work," CHILD WP N. 06, 2007.
- Del Bono, E., A. Weber and R. Winter-Ebmer, "Clash of Career and Family: Fertility Decisions after Job Displacement," *Journal of the European Economic Association*, 10, 4, 659–683, 2012.
- Dolado, J.J., C. García-Serrano and J.F. Jimeno, "Drawing Lessons from the Boom of Temporary Jobs in Spain," *The Economic Journal*, 112, 721, F270–F295, 2002.
- Dunson, D.B., B. Colombo and D.D. Baird, "Changes with age in the level and duration of fertility in the menstrual cycle," *Human Reproduction*, 17, 5, 1399–1403, 2002.
- Dunson, D.B., D.D. Baird and B. Colombo, "Increased Infertility With Age in Men and Women," *Obstetrics & Gynecology*, 103, 1, 51–56, 2004.
- Engelhardt, H. and A. Prskawetz, "On the changing correlation between fertility and female employment over space and time," *European Journal of Population*, 20, 1, 35–62, 2004.
- Ermisch, J.F., "Purchased child care, optimal family size and mother's employment: theory and econometric analysis," *Journal of Population Economics*, 2, 2, 79–102, 1989.
- Ferrera, M., *The Boundaries of Welfare. European Integration and the New Spatial Politics of Social Protection*, Oxford, Oxford University Press, 2005.
- Ferrera, M. and E. Gualmini, *Rescued by Europe? Social and Labour Market Reforms from Maastricht to Berlusconi*, Amsterdam, Amsterdam University Press, 2004.
- Fiorillo, D. and F. Sabatini, "Quality and quantity: the role of social interactions in individual health," *Social Science & Medicine*, 73, 11, 1644–1652, 2011.
- Franzini, M. and M. Raitano, "Non solo istruzione. Condizioni economiche dei genitori e successo dei figli nei paesi europei," in D. Checchi, ed., *Immobilità diffusa*, Il Mulino, Bologna, 11–51, 2010.
- Friedman, D., M. Hechter and S. Kanazawa, "A theory of the value of children," *Demography*, 31, 3, 375–401, 1994.
- Giuliano, P., "Culture and the Family: An Application to Educational Choices in Italy," *Rivista di Politica Economica*, 98, 4, 3–37, 2008.
- Goldstein, J., W. Lutz and M.R. Testa, "The emergence of sub-replacement family size ideals in Europe," *Population Research and Policy Review*, 22, 5-6, 479–496, 2003.
- Guadalupe, M., "The hidden costs of fixed term contracts: the impact on work accidents," *Labour Economics*, 10, 3, 339–357, 2003.

- Gustafsson, S., “Optimal age at motherhood. Theoretical and empirical considerations on the postponement of maternity in Europe,” *Journal of Population Economics*, 14, 2, 225–247, 2001.
- \_\_\_\_\_, “Having kids later. Economic analyses for Industrialized countries,” *Review of Economics of the Household*, 3, 1, 5–16, 2005.
- Gustafsson, S. and C. Wetzels, “Optimal age at first birth: Germany, Great Britain, the Netherlands and Sweden,” in Gustafsson S. and D. E. Meulders, eds, *Gender and the Labour Market*, Mac Millan, London, 2000.
- Hakim, C., *Models of the Family in Modern Societies: Ideals and Realities*, Ashgate, London, 2003.
- Heckman, J.J. and J.R. Walker, “The relationship between wages and income and the timing and spacing of births: Evidence from Swedish longitudinal data,” *Econometrica*, 58, 6, 1411–1441, 1990.
- Hondroyiannis, G., “Fertility determinants and economic uncertainty: An assessment using European panel data,” *Journal of Family and Economic Issues*, 31, 1, 33–50, 2010.
- Hotz, V.J., J.A. Klerman and R.J. Willis, “The economics of fertility in developed countries,” in Rosenzweig M.R. and O. Stark, eds., *Handbook of Population and Family Economics*, 275–347, 1997.
- Istat, *Time Use Survey*, Istat, Rome, 2010.
- Istat, *Rapporto annuale 2012*, Istat, Rome, 2012.
- Istat, *Bilancio demografico nazionale, gennaio 2013*, Istat, Rome, 2013.
- Karamessini, M., “Still a distinctive southern European employment model?,” *Industrial Relations Journal*, 39, 6, 510–531, 2008.
- Kertzer, D.I., M.J. White, L. Bernardi and G. Gabrielli, “Italy’s Path to Very Low Fertility: The Adequacy of Economic and Second Demographic Transition Theories,” *European Journal of Population*, 25, 1, 89–115, 2009.
- Kohler, H., F.C. Billari and J.A. Ortega, “The emergence of Lowest-Low fertility in Europe during the 1990s,” *Population and Development Review*, 28, 4, 641–680, 2002.
- Kim, M.H., C.Y. Kim, J.K. Park and I. Kawachi, “Is precarious employment damaging to self-rated health? Results of propensity score matching methods, using longitudinal data in South Korea,” *Social Science & Medicine*, 67, 12, 1982–1994, 2008.
- Kreyenfeld, M., “Economic Uncertainty and Fertility Postponement: Evidence from German panel data,” MPIDR WP N. 2005-034, 2005.
- \_\_\_\_\_, “Uncertainties in female employment careers and the postponement of parenthood in Germany,” *European Sociological Review*, 26, 3, 351–366, 2010.
- Kreyenfeld, M., G. Andersson and A. Pailhé, “Economic Uncertainty and Family Dynamics in Europe,” MPIDR WP N. 2012-006, 2012.
- Lucchetti, R., “Inconsistency of naive GMM estimation for QR models with endogenous regressors,” *Economics Letters*, 75, 2, 179–185, 2002.
- Madsen, K., “The Danish model of ‘flexicurity’: experiences and lessons,” *Transfer: European Review of Labour and Research*, 10, 2, 187–207, 2004.
- Marini, M.M. and P.J. Hodsdon, “Effects of the timing of marriage and first birth on the spacing of subsequent births,” *Demography*, 18, 4, 529–548, 1981.

- Masseria, C and M. Giannoni, "Equity in access to health care in Italy: a disease-based approach," *European journal of public health*, 20, 5, 504–510, 2010.
- McDonald, P., "Gender Equity in Theories of Fertility Transition," *Population and Development Review*, 26, 3, 427–439, 2000a.
- McDonald, P., "Gender equity, social institutions and the future of fertility," *Journal of Population Research*, 17, 1, 1–16, 2000b.
- Menendez, M., J. Benach, C. Muntaner, M. Amable and P. O'Campo, "Is precarious employment more damaging to women's health than men's?," *Social Science & Medicine*, 64, 4, 776–781, 2007.
- Miller Torr, B. and S.E. Shorr, "Second Births and the Second Shift: A Research Note on Gender Equity and Fertility," *Population and Development Review*, 30, 1, 109–130, 2004.
- Mincer, J., "Opportunity costs and income effects," in Christ C., ed., *Measurement in Economics*, Stanford University Press, Stanford, CA, 1963.
- Modena, F. and F. Sabatini, "I Would if I Could: Precarious Employment and Childbearing Intentions in Italy," *Review of Economics and Household*, 10, 1, 77–97, 2012.
- Morgan, S.P., "Is low fertility a twenty-first-century demographic crisis?," *Demography*, 40, 4, 589–604, 2003.
- Origo, F. and L. Pagani, "Flexicurity and job satisfaction in Europe: The importance of perceived and actual job stability for well-being at work," *Labour Economics*, 16, 5, 547–555, 2009.
- Osberg, L., "Economic Insecurity," University of New South Wales, SPRC DP N. 88, 1998.
- \_\_\_\_\_, "Measuring Economic Insecurity and Vulnerability as Part of Economic Well-Being: Concepts and Context," *Economic Insecurity, Demography and Well-Being*, 31st General Conference of IARIW, St-Gallen, Switzerland, 2010.
- Osberg, L. and A. Sharpe, "Moving from a GDP-based to a well-being based metric of economic performance and social progress: results from the Index of Economic Well-Being for OECD countries 1980-2009," CSLS Research Report N. 2001-12, 2011.
- Prioux, F., "Recent Demographic Developments in France," *Population*, 59, 5, 595–617, 2004.
- Ranjan, P., "Fertility Behaviour under Income Uncertainty," *European Journal of Population*, 15, 1, 25–43, 1999.
- Rondinelli, C. and R. Zizza, "(Non)persistent effects of fertility on female labour supply," Bank of Italy, Temi di discussione (Economics WP) N. 783, 2011.
- Routledge, B. and J. von Amsberg, "Social Capital and Growth," *Journal of Monetary Economics*, 50, 1, 167–193, 2003.
- Sabatini, F., "Social Capital and the quality of economic development," *Kyklos*, 61, 3, 466–499, 2008.
- Scherer, S., "The Social Consequences of Insecure Jobs," *Social Indicator Research*, 93, 3, 527–547, 2009.
- Schultz, T.P., "The fertility transition: Economic explanations," Economic Growth Center, DP N. 833, 2001.
- Stiglitz, J.E., A. Sen and J.P. Fitoussi, "Report by the Commission on the Measurement of Economic Performance and Social Progress," OECD ([www.stiglitz-sen-fitoussi.fr](http://www.stiglitz-sen-fitoussi.fr)), 2009.
- Testa, M.R., "Childbearing preferences and family issues in Europe: evidence from the Eurobarometer 2006 survey," *Vienna Yearbook of Population Research*, 357–379, 2007.

- \_\_\_\_\_, “Family Sizes in Europe: Evidence from the 2011 Eurobarometer Survey,” European Demographic Research Paper 2012.2, Vienna Institute of Demography, Vienna, 2012.
- UNDESA, United Nations Department of Economic and Social Affairs, *World Economic and Social Survey 2008. Overcoming Economic Insecurity*, retrieved at <http://www.un.org/en/development/desa/news/policy/wess-2008.shtml>, 2008.
- Vignoli, D., S. Drefahl and G. De Santis, “Whose job instability affects the likelihood of becoming a parent in Italy? A tale of two partners,” *Demographic Research*, 26, 2, 41–62, 2012.
- Wilde, J., “A note on GMM estimation of probit models with endogenous regressors,” *Economics Letters*, 49, 3, 471–484, 2008.
- Willis, R.J., “A new approach to the economic theory of fertility behaviour,” *Journal of Political Economy*, 81, 2, S14–S64, 1973.
- Wilhagen, T. and F. Tros, “The concept of ‘flexicurity’: a new approach to regulating employment and labour markets,” *Transfer: European Review of Labour and Research*, 10, 2, 166–186, 2004.
- Wooldridge, J., *Introductory Econometrics: A Modern Approach*, South–Western College Publishing, 2003.

RECENTLY PUBLISHED “TEMI” (\*)

- N. 905 – *Family firms and the Great Recession: out of sight, out of mind?*, by Leandro D’Aurizio and Livio Romano (April 2013).
- N. 906 – *Price discovery in the Italian sovereign bonds market: the role of order flow*, by Alessandro Girardi and Claudio Impenna (April 2013).
- N. 907 – *Public-private wage differentials in euro area countries: evidence from quantile decomposition analysis*, by Domenico Depalo and Raffaella Giordano (April 2013).
- N. 908 – *Asking income and consumption questions in the same survey: what are the risks?*, by Giulia Cifaldi and Andrea Neri (April 2013).
- N. 909 – *Credit supply during a sovereign debt crisis*, by Marcello Bofondi, Luisa Carpinelli and Enrico Sette (April 2013).
- N. 910 – *Geography, productivity and trade: does selection explain why some locations are more productive than others?*, by Antonio Accetturo, Valter Di Giacinto, Giacinto Micucci and Marcello Pagnini (April 2013).
- N. 911 – *Trust and preferences: evidence from survey data*, by Giuseppe Albanese, Guido de Blasio and Paolo Sestito (April 2013).
- N. 912 – *Tempered stable Ornstein-Uhlenbeck processes: a practical view*, by Michele Leonardo Bianchi, Svetlozar T. Rachev and Frank J. Fabozzi (June 2013).
- N. 913 – *Forward-looking robust portfolio selection*, by Sara Cecchetti and Laura Sigalotti (June 2013).
- N. 914 – *When the baby cries at night. Inelastic buyers in non-competitive markets*, by Giacomo Calzolari, Andrea Ichino, Francesco Manaresi and Viki Nellas (June 2013).
- N. 915 – *Local development that money can’t buy: Italy’s Contratti di Programma*, by Monica Andini and Guido de Blasio (June 2013).
- N. 916 – *The effect of organized crime on public funds*, by Guglielmo Barone and Gaia Narciso (June 2013).
- N. 917 – *Relationship and transaction lending in a crisis*, by Patrick Bolton, Xavier Freixas, Leonardo Gambacorta and Paolo Emilio Mistrulli (July 2013).
- N. 918 – *Macroeconomic effects of precautionary demand for oil*, by Alessio Anzuini, Patrizio Pagano and Massimiliano Pisani (July 2013).
- N. 919 – *Skill upgrading and exports*, by Antonio Accetturo, Matteo Bugamelli and Andrea Lamorgese (July 2013).
- N. 920 – *Tracking world trade and GDP in real time*, by Roberto Golinelli and Giuseppe Parigi (July 2013).
- N. 921 – *Should monetary policy lean against the wind? An analysis based on a DSGE model with banking*, by Leonardo Gambacorta and Federico M. Signoretti (July 2013).
- N. 922 – *Marshallian labor market pooling: evidence from Italy*, by Monica Andini, Guido de Blasio, Gilles Duranton and William C. Strange (July 2013).
- N. 923 – *Do euro area countries respond asymmetrically to the common monetary policy?*, by Matteo Barigozzi, Antonio M. Conti and Matteo Luciani (July 2013).
- N. 924 – *Trade elasticity and vertical specialisation*, by Ines Buono and Filippo Vergara Caffarelli (July 2013).
- N. 925 – *Down and out in Italian towns: measuring the impact of economic downturns on crime*, by Guido de Blasio and Carlo Menon (July 2013).
- N. 926 – *The procyclicality of foreign bank lending: evidence from the global financial crisis*, by Ugo Albertazzi and Margherita Bottero (July 2013).

---

(\*) Requests for copies should be sent to:

Banca d’Italia – Servizio Studi di struttura economica e finanziaria – Divisione Biblioteca e Archivio storico – Via Nazionale, 91 – 00184 Rome – (fax 0039 06 47922059). They are available on the Internet [www.bancaditalia.it](http://www.bancaditalia.it).

2010

- A. PRATI and M. SBRACIA, *Uncertainty and currency crises: evidence from survey data*, Journal of Monetary Economics, v, 57, 6, pp. 668-681, **TD No. 446 (July 2002)**.
- L. MONTEFORTE and S. SIVIERO, *The Economic Consequences of Euro Area Modelling Shortcuts*, Applied Economics, v. 42, 19-21, pp. 2399-2415, **TD No. 458 (December 2002)**.
- S. MAGRI, *Debt maturity choice of nonpublic Italian firms*, Journal of Money, Credit, and Banking, v.42, 2-3, pp. 443-463, **TD No. 574 (January 2006)**.
- G. DE BLASIO and G. NUZZO, *Historical traditions of civiness and local economic development*, Journal of Regional Science, v. 50, 4, pp. 833-857, **TD No. 591 (May 2006)**.
- E. IOSSA and G. PALUMBO, *Over-optimism and lender liability in the consumer credit market*, Oxford Economic Papers, v. 62, 2, pp. 374-394, **TD No. 598 (September 2006)**.
- S. NERI and A. NOBILI, *The transmission of US monetary policy to the euro area*, International Finance, v. 13, 1, pp. 55-78, **TD No. 606 (December 2006)**.
- F. ALTISSIMO, R. CRISTADORO, M. FORNI, M. LIPPI and G. VERONESE, *New Eurocoin: Tracking Economic Growth in Real Time*, Review of Economics and Statistics, v. 92, 4, pp. 1024-1034, **TD No. 631 (June 2007)**.
- U. ALBERTAZZI and L. GAMBACORTA, *Bank profitability and taxation*, Journal of Banking and Finance, v. 34, 11, pp. 2801-2810, **TD No. 649 (November 2007)**.
- L. GAMBACORTA and C. ROSSI, *Modelling bank lending in the euro area: a nonlinear approach*, Applied Financial Economics, v. 20, 14, pp. 1099-1112, **TD No. 650 (November 2007)**.
- M. IACOVIELLO and S. NERI, *Housing market spillovers: evidence from an estimated DSGE model*, American Economic Journal: Macroeconomics, v. 2, 2, pp. 125-164, **TD No. 659 (January 2008)**.
- F. BALASSONE, F. MAURA and S. ZOTTERI, *Cyclical asymmetry in fiscal variables in the EU*, Empirica, **TD No. 671**, v. 37, 4, pp. 381-402 (**June 2008**).
- F. D'AMURI, GIANMARCO I.P. OTTAVIANO and G. PERI, *The labor market impact of immigration on the western german labor market in the 1990s*, European Economic Review, v. 54, 4, pp. 550-570, **TD No. 687 (August 2008)**.
- A. ACCETTURO, *Agglomeration and growth: the effects of commuting costs*, Papers in Regional Science, v. 89, 1, pp. 173-190, **TD No. 688 (September 2008)**.
- S. NOBILI and G. PALAZZO, *Explaining and forecasting bond risk premiums*, Financial Analysts Journal, v. 66, 4, pp. 67-82, **TD No. 689 (September 2008)**.
- A. B. ATKINSON and A. BRANDOLINI, *On analysing the world distribution of income*, World Bank Economic Review, v. 24, 1, pp. 1-37, **TD No. 701 (January 2009)**.
- R. CAPPARIELLO and R. ZIZZA, *Dropping the Books and Working Off the Books*, Labour, v. 24, 2, pp. 139-162, **TD No. 702 (January 2009)**.
- C. NICOLETTI and C. RONDINELLI, *The (mis)specification of discrete duration models with unobserved heterogeneity: a Monte Carlo study*, Journal of Econometrics, v. 159, 1, pp. 1-13, **TD No. 705 (March 2009)**.
- L. FORNI, A. GERALI and M. PISANI, *Macroeconomic effects of greater competition in the service sector: the case of Italy*, Macroeconomic Dynamics, v. 14, 5, pp. 677-708, **TD No. 706 (March 2009)**.
- V. DI GIACINTO, G. MICUCCI and P. MONTANARO, *Dynamic macroeconomic effects of public capital: evidence from regional Italian data*, Giornale degli economisti e annali di economia, v. 69, 1, pp. 29-66, **TD No. 733 (November 2009)**.
- F. COLUMBA, L. GAMBACORTA and P. E. MISTRULLI, *Mutual Guarantee institutions and small business finance*, Journal of Financial Stability, v. 6, 1, pp. 45-54, **TD No. 735 (November 2009)**.
- A. GERALI, S. NERI, L. SESSA and F. M. SIGNORETTI, *Credit and banking in a DSGE model of the Euro Area*, Journal of Money, Credit and Banking, v. 42, 6, pp. 107-141, **TD No. 740 (January 2010)**.
- M. AFFINITO and E. TAGLIAFERRI, *Why do (or did?) banks securitize their loans? Evidence from Italy*, Journal of Financial Stability, v. 6, 4, pp. 189-202, **TD No. 741 (January 2010)**.
- S. FEDERICO, *Outsourcing versus integration at home or abroad and firm heterogeneity*, Empirica, v. 37, 1, pp. 47-63, **TD No. 742 (February 2010)**.
- V. DI GIACINTO, *On vector autoregressive modeling in space and time*, Journal of Geographical Systems, v. 12, 2, pp. 125-154, **TD No. 746 (February 2010)**.

- L. FORNI, A. GERALI and M. PISANI, *The macroeconomics of fiscal consolidations in euro area countries*, Journal of Economic Dynamics and Control, v. 34, 9, pp. 1791-1812, **TD No. 747 (March 2010)**.
- S. MOCETTI and C. PORELLO, *How does immigration affect native internal mobility? new evidence from Italy*, Regional Science and Urban Economics, v. 40, 6, pp. 427-439, **TD No. 748 (March 2010)**.
- A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap spread changes before and during the subprime financial turmoil*, Journal of Current Issues in Finance, Business and Economics, v. 3, 4, pp., **TD No. 749 (March 2010)**.
- P. CIPOLLONE, P. MONTANARO and P. SESTITO, *Value-added measures in Italian high schools: problems and findings*, Giornale degli economisti e annali di economia, v. 69, 2, pp. 81-114, **TD No. 754 (March 2010)**.
- A. BRANDOLINI, S. MAGRI and T. M. SMEEDING, *Asset-based measurement of poverty*, Journal of Policy Analysis and Management, v. 29, 2, pp. 267-284, **TD No. 755 (March 2010)**.
- G. CAPPELLETTI, *A Note on rationalizability and restrictions on beliefs*, The B.E. Journal of Theoretical Economics, v. 10, 1, pp. 1-11, **TD No. 757 (April 2010)**.
- S. DI ADDARIO and D. VURI, *Entrepreneurship and market size. the case of young college graduates in Italy*, Labour Economics, v. 17, 5, pp. 848-858, **TD No. 775 (September 2010)**.
- A. CALZA and A. ZAGHINI, *Sectoral money demand and the great disinflation in the US*, Journal of Money, Credit, and Banking, v. 42, 8, pp. 1663-1678, **TD No. 785 (January 2011)**.

2011

- S. DI ADDARIO, *Job search in thick markets*, Journal of Urban Economics, v. 69, 3, pp. 303-318, **TD No. 605 (December 2006)**.
- F. SCHIVARDI and E. VIVIANO, *Entry barriers in retail trade*, Economic Journal, v. 121, 551, pp. 145-170, **TD No. 616 (February 2007)**.
- G. FERRERO, A. NOBILI and P. PASSIGLIA, *Assessing excess liquidity in the Euro Area: the role of sectoral distribution of money*, Applied Economics, v. 43, 23, pp. 3213-3230, **TD No. 627 (April 2007)**.
- P. E. MISTRULLI, *Assessing financial contagion in the interbank market: maximum entropy versus observed interbank lending patterns*, Journal of Banking & Finance, v. 35, 5, pp. 1114-1127, **TD No. 641 (September 2007)**.
- E. CIAPANNA, *Directed matching with endogenous markov probability: clients or competitors?*, The RAND Journal of Economics, v. 42, 1, pp. 92-120, **TD No. 665 (April 2008)**.
- M. BUGAMELLI and F. PATERNÒ, *Output growth volatility and remittances*, Economica, v. 78, 311, pp. 480-500, **TD No. 673 (June 2008)**.
- V. DI GIACINTO e M. PAGNINI, *Local and global agglomeration patterns: two econometrics-based indicators*, Regional Science and Urban Economics, v. 41, 3, pp. 266-280, **TD No. 674 (June 2008)**.
- G. BARONE and F. CINGANO, *Service regulation and growth: evidence from OECD countries*, Economic Journal, v. 121, 555, pp. 931-957, **TD No. 675 (June 2008)**.
- R. GIORDANO and P. TOMMASINO, *What determines debt intolerance? The role of political and monetary institutions*, European Journal of Political Economy, v. 27, 3, pp. 471-484, **TD No. 700 (January 2009)**.
- P. ANGELINI, A. NOBILI e C. PICILLO, *The interbank market after August 2007: What has changed, and why?*, Journal of Money, Credit and Banking, v. 43, 5, pp. 923-958, **TD No. 731 (October 2009)**.
- G. BARONE and S. MOCETTI, *Tax morale and public spending inefficiency*, International Tax and Public Finance, v. 18, 6, pp. 724-49, **TD No. 732 (November 2009)**.
- L. FORNI, A. GERALI and M. PISANI, *The Macroeconomics of Fiscal Consolidation in a Monetary Union: the Case of Italy*, in Luigi Paganetto (ed.), Recovery after the crisis. Perspectives and policies, VDM Verlag Dr. Muller, **TD No. 747 (March 2010)**.
- A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap changes before and during the subprime financial turmoil*, in Barbara L. Campos and Janet P. Wilkins (eds.), The Financial Crisis: Issues in Business, Finance and Global Economics, New York, Nova Science Publishers, Inc., **TD No. 749 (March 2010)**.
- A. LEVY and A. ZAGHINI, *The pricing of government guaranteed bank bonds*, Banks and Bank Systems, v. 6, 3, pp. 16-24, **TD No. 753 (March 2010)**.
- G. BARONE, R. FELICI and M. PAGNINI, *Switching costs in local credit markets*, International Journal of Industrial Organization, v. 29, 6, pp. 694-704, **TD No. 760 (June 2010)**.

- G. BARBIERI, C. ROSSETTI e P. SESTITO, *The determinants of teacher mobility: evidence using Italian teachers' transfer applications*, *Economics of Education Review*, v. 30, 6, pp. 1430-1444, **TD No. 761 (marzo 2010)**.
- G. GRANDE and I. VISCO, *A public guarantee of a minimum return to defined contribution pension scheme members*, *The Journal of Risk*, v. 13, 3, pp. 3-43, **TD No. 762 (June 2010)**.
- P. DEL GIOVANE, G. ERAMO and A. NOBILI, *Disentangling demand and supply in credit developments: a survey-based analysis for Italy*, *Journal of Banking and Finance*, v. 35, 10, pp. 2719-2732, **TD No. 764 (June 2010)**.
- G. BARONE and S. MOCETTI, *With a little help from abroad: the effect of low-skilled immigration on the female labour supply*, *Labour Economics*, v. 18, 5, pp. 664-675, **TD No. 766 (July 2010)**.
- S. FEDERICO and A. FELETTIGH, *Measuring the price elasticity of import demand in the destination markets of italian exports*, *Economia e Politica Industriale*, v. 38, 1, pp. 127-162, **TD No. 776 (October 2010)**.
- S. MAGRI and R. PICO, *The rise of risk-based pricing of mortgage interest rates in Italy*, *Journal of Banking and Finance*, v. 35, 5, pp. 1277-1290, **TD No. 778 (October 2010)**.
- M. TABOGA, *Under/over-valuation of the stock market and cyclically adjusted earnings*, *International Finance*, v. 14, 1, pp. 135-164, **TD No. 780 (December 2010)**.
- S. NERI, *Housing, consumption and monetary policy: how different are the U.S. and the Euro area?*, *Journal of Banking and Finance*, v.35, 11, pp. 3019-3041, **TD No. 807 (April 2011)**.
- V. CUCINIELLO, *The welfare effect of foreign monetary conservatism with non-atomistic wage setters*, *Journal of Money, Credit and Banking*, v. 43, 8, pp. 1719-1734, **TD No. 810 (June 2011)**.
- A. CALZA and A. ZAGHINI, *welfare costs of inflation and the circulation of US currency abroad*, *The B.E. Journal of Macroeconomics*, v. 11, 1, Art. 12, **TD No. 812 (June 2011)**.
- I. FAIELLA, *La spesa energetica delle famiglie italiane*, *Energia*, v. 32, 4, pp. 40-46, **TD No. 822 (September 2011)**.
- R. DE BONIS and A. SILVESTRINI, *The effects of financial and real wealth on consumption: new evidence from OECD countries*, *Applied Financial Economics*, v. 21, 5, pp. 409-425, **TD No. 837 (November 2011)**.
- F. CAPRIOLI, P. RIZZA and P. TOMMASINO, *Optimal fiscal policy when agents fear government default*, *Revue Economique*, v. 62, 6, pp. 1031-1043, **TD No. 859 (March 2012)**.

2012

- F. CINGANO and A. ROSOLIA, *People I know: job search and social networks*, *Journal of Labor Economics*, v. 30, 2, pp. 291-332, **TD No. 600 (September 2006)**.
- G. GOBBI and R. ZIZZA, *Does the underground economy hold back financial deepening? Evidence from the italian credit market*, *Economia Marche, Review of Regional Studies*, v. 31, 1, pp. 1-29, **TD No. 646 (November 2006)**.
- S. MOCETTI, *Educational choices and the selection process before and after compulsory school*, *Education Economics*, v. 20, 2, pp. 189-209, **TD No. 691 (September 2008)**.
- M. PERICOLI and M. TABOGA, *Bond risk premia, macroeconomic fundamentals and the exchange rate*, *International Review of Economics and Finance*, v. 22, 1, pp. 42-65, **TD No. 699 (January 2009)**.
- F. LIPPI and A. NOBILI, *Oil and the macroeconomy: a quantitative structural analysis*, *Journal of European Economic Association*, v. 10, 5, pp. 1059-1083, **TD No. 704 (March 2009)**.
- G. ASCARI and T. ROPELE, *Disinflation in a DSGE perspective: sacrifice ratio or welfare gain ratio?*, *Journal of Economic Dynamics and Control*, v. 36, 2, pp. 169-182, **TD No. 736 (January 2010)**.
- S. FEDERICO, *Headquarter intensity and the choice between outsourcing versus integration at home or abroad*, *Industrial and Corporate Chang*, v. 21, 6, pp. 1337-1358, **TD No. 742 (February 2010)**.
- I. BUONO and G. LALANNE, *The effect of the Uruguay Round on the intensive and extensive margins of trade*, *Journal of International Economics*, v. 86, 2, pp. 269-283, **TD No. 743 (February 2010)**.
- S. GOMES, P. JACQUINOT and M. PISANI, *The EAGLE. A model for policy analysis of macroeconomic interdependence in the euro area*, *Economic Modelling*, v. 29, 5, pp. 1686-1714, **TD No. 770 (July 2010)**.
- A. ACCETTURO and G. DE BLASIO, *Policies for local development: an evaluation of Italy's "Patti Territoriali"*, *Regional Science and Urban Economics*, v. 42, 1-2, pp. 15-26, **TD No. 789 (January 2006)**.
- F. BUSETTI and S. DI SANZO, *Bootstrap LR tests of stationarity, common trends and cointegration*, *Journal of Statistical Computation and Simulation*, v. 82, 9, pp. 1343-1355, **TD No. 799 (March 2006)**.

- S. NERI and T. ROPELE, *Imperfect information, real-time data and monetary policy in the Euro area*, The Economic Journal, v. 122, 561, pp. 651-674, **TD No. 802 (March 2011)**.
- G. CAPPELLETTI, G. GUAZZAROTTI and P. TOMMASINO, *What determines annuity demand at retirement?*, The Geneva Papers on Risk and Insurance – Issues and Practice, pp. 1-26, **TD No. 805 (April 2011)**.
- A. ANZUINI and F. FORNARI, *Macroeconomic determinants of carry trade activity*, Review of International Economics, v. 20, 3, pp. 468-488, **TD No. 817 (September 2011)**.
- M. AFFINITO, *Do interbank customer relationships exist? And how did they function in the crisis? Learning from Italy*, Journal of Banking and Finance, v. 36, 12, pp. 3163-3184, **TD No. 826 (October 2011)**.
- R. CRISTADORO and D. MARCONI, *Household savings in China*, Journal of Chinese Economic and Business Studies, v. 10, 3, pp. 275-299, **TD No. 838 (November 2011)**.
- P. GUERRIERI and F. VERGARA CAFFARELLI, *Trade Openness and International Fragmentation of Production in the European Union: The New Divide?*, Review of International Economics, v. 20, 3, pp. 535-551, **TD No. 855 (February 2012)**.
- V. DI GIACINTO, G. MICUCCI and P. MONTANARO, *Network effects of public transport infrastructure: evidence on Italian regions*, Papers in Regional Science, v. 91, 3, pp. 515-541, **TD No. 869 (July 2012)**.
- A. FILIPPIN and M. PACCAGNELLA, *Family background, self-confidence and economic outcomes*, Economics of Education Review, v. 31, 5, pp. 824-834, **TD No. 875 (July 2012)**.

2013

- F. CINGANO and P. PINOTTI, *Politicians at work. The private returns and social costs of political connections*, Journal of the European Economic Association, v. 11, 2, pp. 433-465, **TD No. 709 (May 2009)**.
- F. Busetti and J. MARCUCCI, *Comparing forecast accuracy: a Monte Carlo investigation*, International Journal of Forecasting, v. 29, 1, pp. 13-27, **TD No. 723 (September 2009)**.
- A. FINICELLI, P. PAGANO and M. SBRACIA, *Ricardian Selection*, Journal of International Economics, v. 89, 1, pp. 96-109, **TD No. 728 (October 2009)**.
- L. MONTEFORTE and G. MORETTI, *Real-time forecasts of inflation: the role of financial variables*, Journal of Forecasting, v. 32, 1, pp. 51-61, **TD No. 767 (July 2010)**.
- E. GAIOTTI, *Credit availability and investment: lessons from the "Great Recession"*, European Economic Review, v. 59, pp. 212-227, **TD No. 793 (February 2011)**.
- A. ACCETTURO e L. INFANTE, *Skills or Culture? An analysis of the decision to work by immigrant women in Italy*, IZA Journal of Migration, v. 2, 2, pp. 1-21, **TD No. 815 (July 2011)**.
- G. BARONE and G. DE BLASIO, *Electoral rules and voter turnout*, International Review of Law and Economics, v. 36, 1, pp. 25-35, **TD No. 833 (November 2011)**.

FORTHCOMING

- M. BUGAMELLI and A. ROSOLIA, *Produttività e concorrenza estera*, Rivista di politica economica, **TD No. 578 (February 2006)**.
- M. BRATTI, D. CHECCHI and G. DE BLASIO, *Does the expansion of higher education increase the equality of educational opportunities? Evidence from Italy*, in R. Matoušek; D. Stavárek (eds.), Labour, **TD No. 679 (June 2008)**.
- A. MERCATANTI, *A likelihood-based analysis for relaxing the exclusion restriction in randomized experiments with imperfect compliance*, Australian and New Zealand Journal of Statistics, **TD No. 683 (August 2008)**.
- P. SESTITO and E. VIVIANO, *Reservation wages: explaining some puzzling regional patterns*, Labour, **TD No. 696 (December 2008)**.
- P. PINOTTI, M. BIANCHI and P. BUONANNO, *Do immigrants cause crime?*, Journal of the European Economic Association, **TD No. 698 (December 2008)**.
- Y. ALTUNBAS, L. GAMBACORTA and D. MARQUÉS-IBÁÑEZ, *Bank risk and monetary policy*, Journal of Financial Stability, **TD No. 712 (May 2009)**.

- M. TABOGA, *The riskiness of corporate bonds*, Journal of Money, Credit and Banking, **TD No. 730 (October 2009)**.
- F. D'AMURI, *Gli effetti della legge 133/2008 sulle assenze per malattia nel settore pubblico*, Rivista di Politica Economica, **TD No. 787 (January 2011)**.
- E. COCOZZA and P. PISELLI, *Testing for east-west contagion in the European banking sector during the financial crisis*, in R. Matoušek; D. Stavárek (eds.), *Financial Integration in the European Union*, Taylor & Francis, **TD No. 790 (February 2011)**.
- F. NUCCI and M. RIGGI, *Performance pay and changes in U.S. labor market dynamics*, Journal of Economic Dynamics and Control, **TD No. 800 (March 2011)**.
- A. DE SOCIO, *Squeezing liquidity in a "lemons market" or asking liquidity "on tap"*, Journal of Banking and Finance, **TD No. 819 (September 2011)**.
- O. BLANCHARD and M. RIGGI, *Why are the 2000s so different from the 1970s? A structural interpretation of changes in the macroeconomic effects of oil prices*, Journal of the European Economic Association, **TD No. 835 (November 2011)**.
- E. GENNARI and G. MESSINA, *How sticky are local expenditures in Italy? Assessing the relevance of the flypaper effect through municipal data*, International Tax and Public Finance, **TD No. 844 (January 2012)**.
- S. FEDERICO, *Industry dynamics and competition from low-wage countries: evidence on Italy*, Oxford Bulletin of Economics and Statistics, **TD No. 879 (September 2012)**.
- F. D'AMURI and G. PERI, *Immigration, jobs and employment protection: evidence from Europe before and during the Great Recession*, Journal of the European Economic Association, **TD No. 886 (October 2012)**.