

Assessing the impact of family-friendly monetary transfers in a lowest-low fertility setting

(Draft for—not to be cited or quoted)

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Abstract

Using data from the Italian Labour Force Survey to reconstruct fertility histories for a large dataset of women, as well as aggregate-level statistics on abortion by parity and education, we assess the impact of a change in monetary transfers for households with at least three children on the behaviour of Italian women. We use low education as a proxy for being exposed to the measure. We thus assess the impact by evaluating both temporal discontinuity (using a simple regression discontinuity idea) and the discontinuity in the differences between educational group. We focus on women having two children and assess 1) changes in the propensity to choose abortion instead of birth; 2) changes in the propensity to have a third birth. We find evidence of impact of the policy change, with a stronger evidence for the choice of voluntarily terminating a pregnancy with voluntary abortion.

1. Introduction

Italy has been, together with Spain, the first country to reach the threshold of so-called “lowest-low” fertility (Kohler et al., 2002), i.e. below 1.3 children per woman, during the early 1990s. Several researchers have pointed to the existence of an “unmet need” at the national levels for family-friendly policies as one of the reasons behind lowest low fertility (see e.g. Demeny, 2003). Nevertheless, so far we have had no scientific evidence on the impact of policies that may affect fertility when it reaches lowest-low levels. Moreover, there seems to be a general skepticism in the literature concerning the issue of whether public policies may have an impact on choices concerning fertility. For instance, in a recent detailed overview on the impact of policies on fertility, Gauthier (2001) stated that “Overall, thus, the multivariate studies provide mixed conclusions as to the effect of policies on demographic and economic behavior, once other factors such as education, income, etc. are ‘controlled’ for. The effect – if any-- tends moreover to be small. Methodological issues may be at the basis of these inconclusive findings...”. (see also Gauthier, 2004).

In this paper, we assess the potential role of monetary public transfers to the benefit of households in the lowest-low fertility setting of Italy. To this purpose, we exploit a change in public policies concerning families with children that has been put in place in Italy since 1999. Exploiting a reconstruction on fertility choices that involves different types of sources and similarly to a program evaluation approach, we conduct macro- and micro-level analyses focused on the potential benefited and connect the observed discontinuity to the change in public policies. Our results show that the progression to third birth in lower social strata has been significantly affected by the change in policies.

This draft is organized as follows. In Section 2 we introduce some relevant features concerning the specific situation of Italy as far as fertility is concerned. In Section 3 we briefly describe the new policy measures that were put in place in 1999. In Section 4 we describe our strategy to assess the impact of the new policy measures. Results are presented in Section 5.

2. Some relevant features of Italian lowest-low fertility

It is now well-known that the emergence of lowest-low fertility in Southern Europe has not been connected to an important rise in childlessness (Kohler et al., 2002; Billari and Kohler, 2004). To be more specific, available parity-specific data on fertility show that most of the fertility decline that has been observed in Italy during the last twenty years of the Twentieth century is due to the sudden decrease of the progression to the third and the fourth child. More specifically, the probability to have a first and a second child has not changed since the marriages celebrated during the 1940s, i.e. these probabilities have not changed in spite of the tremendous economic and social changes characterizing Italy during the second half of the 20th century (see figure 1).

For the purpose of connecting fertility choices to specific public policies involving monetary transfers, although we see Italian lowest-low fertility as connected to a web of interrelated factors that do not have only an economic underpinning, it is crucial to argue that money counts at least to some extent, and to point to where it counts more. In particular, we argue that economic factors play a key role in determining the transition to parities higher than the first. In a recent survey (2002) on a sample of mothers aged around 42, living in five Italian cities, women had to answer on the reasons for having stopped at the parity they actually experienced. Concerning the transition to the third child (i.e. women who stopped at two children), economic reasons were cited as important for women who experienced a worsening of their financial

situation after the birth of the first or the second child. Women argue that monetary transfers for the first three years after the birth of a third child, or a lower but longer financial incentive could have changed their decision to stop at parity two (De Santis and Breschi, 2003). Although being possibly biased as any ex-post motivation, this role of economic factors is specific for third births.

In other societies, the decline in fertility has been concentrated on third births, and also analyses on the potential impact of policies have focused on the progression to third birth (see e.g. Hoem et al., 2001). Given these reasons, and the policy changes we are going to mention in the next Section, a focus on the progression to third births is an important one in the assessment of the role of financial incentives in the Italian context.

FIGURE 1 ABOUT HERE

3. A change in family-friendly policies: the “Legge Turco”

Within the framework we discussed, it is reasonable to suppose that an increasing financial support to households with children in Italy may have an impact on the probability of having the third or fourth child, mainly for poorer households. In this paper we want to assess specifically the impact of a new law (“Legge Turco”, Law number 448 of the Year 1998), that introduced two policy measures, with the explicit purpose of supporting the incomes of poor households with children. The measures of the law were in fact introduced in the year 1999.

Starting from 1999, the first measure, which for simplicity we shall call “FAM” from now onwards, provided a cash transfer of around 110 Euros per month for households with at least three children under 18 who had low household income levels (more specifically, less than 1,500 Euros a year, before taxation). This amount has slowly

grown year after year, following the life-cost index (it was around 120 Euros a month in 2001). The share of households receiving this transfer has been particularly sizeable for larger households, especially in Southern Italy (see table 1). About 300 million Euros were transferred in total both in 1999 and 2000.

The second measure, which for simplicity we shall call “MAT” from now onwards, started to provide a monetary transfer to households in which one of the partners (typically the woman) was not employed, with relatively mild restrictions on income levels. The transfer, for a period of 5 months, was a monthly amount of 100 Euros in 1999, 155 Euros in 2000, 260 Euros in 2001 and 2002. Also given the relatively low employment rates of Italian women, an important share of women received this transfer, especially in the South (see table 2).

MAT and FAM could also be simultaneously received, in an additive fashion. Consequently, in 2001 a couple with low household income and with 3 or more children under 18, received from the state:

380 euros a month during the first five months of life of their third child;

120 euros a month during their following period spent with at least 3 children under 18 within the household.

As stated above, FAM has been introduced for the anti-poverty purpose of helping families with many children, who in Italy – as elsewhere – have a high risk of being poor. They were not introduced as pronatalist measures, but could be “implicitly” pronatalist (Whittington et al., 1990). In fact, FAM and MAT could cause a significant increase of household income for low-income households, covering a non-negligible proportion of the cost of an additional child.

TABLES 1 & 2 ABOUT HERE

4. Assessing the impact of “Legge Turco”: data and methods

In order to assess the impact of the change in monetary transfers towards households with 3 or more children, we use ideas from two strands of literature. The first strand is the one that uses period effects to study the impact of policy reforms potentially affecting fertility (see e.g. Hoem, 1993). The second strand of literature is connected to the program evaluation approach, and in particular to the “regression discontinuity” design that exploits temporal or other discontinuities to assess the impact of specific interventions (see e.g. Hahn et al., 2002). In particular, the temporal discontinuity should be observed starting from the year 2000 (given both the need to know the policy change and the possibility to change behavior because of the policy change) for households whose fertility choices are potentially affected by the “Legge Turco”, i.e. “poor” households with at least two children. Our empirical analyses then follow two distinct approaches, a “micro” approach on the progression to third births and a “macro” approach on the decision to carry on a pregnancy leading to a third birth.

The first approach aims at measuring whether after 1999 the probability of having the third and subsequent children changes in a different way among households eligible or not eligible for receiving FAM and MAT. Ideally, the best choice would be to split the group of women with at least two children between those belonging to “poor” households (eligible for FAM and MAT) and those belonging to “rich” households (not eligible). However, we have important data problems to face. First, after 1997 in Italy, detailed exhaustive register data on births (e.g. including parity and educational level of the mother) are not available. To solve this problem, we made use of the data of a large-scale labor force survey using the own-children method to reconstruct birth histories. Second, even if in order to distinguish between “rich” and “poor” we should

have (longitudinal) data on income, which are not collected in the labor force survey. Other surveys collect such data (i.e. Bank of Italy Household Survey), but the sample size does not allow to focus on parity-specific questions. As our events, births of order 3+, are relatively rare in Italy (around 50,000 in 2000, i.e., 10% of births and 0.5% of women aged 20-44), the sample size of the Bank of Italy Household Survey is relatively small (less than one hundred 3+ children a year after 1990)¹. Consequently, in order to use the larger samples of the labor force survey we opted to consider education as a proxy of income. We feel that this is a problem, although it is not necessarily a very serious one. In Italy the association between education and income is particularly strong (the lower the education, the lower the income, see table 3).

TABLE 3 ABOUT HERE

To reconstruct birth histories, we use the four waves of Labor Force Survey, collected in Italy during 2003. The survey collects over a year information on more than 300,000 households (about 800,000 individuals), distributed in 1,351 of the over 8,000 Italian municipalities. In particular, we reconstructed using the own-children method the fertility histories of women aged 21-45 in 2003, who were born in Italy, more specifically, women born between 1958 and 1982. Each woman has been linked with their co-residing children. As in Italy mortality at adult ages is low, children of the relatively rare divorced parents are almost exclusively living with their mothers, and a very low proportion of people leave the parental family before 23, we were able to link more than 97% of children born in 1980-2002 to their mothers. A detailed assessment of the quality of this procedure and of the ability to reproduce fertility trends is done in Bordone et al. (2006).

¹ An exploratory analysis on data from the Italian Labour Force Surveys and the Bank of Italy Household Survey is carried in Rondinelli et al. (2006). Exploratory analyses show similar results to the one we present here.

After this matching procedure, for each woman we know the birth-year and the birth-order of rather all children born in 1990-2002 from mothers born in 1958-82. Every record (representing a woman) has been “transformed” into “person-year” records (from 1990 to 2002), where parity and age vary with time, and the other variables are education (low, medium, high), place of residence in 2003, and a dummy variable flagging if the woman had or not a child during that year. More specifically, we used a person-year reconstruction for women with two children, in order to analyze the probability to have a third child in each year using a discrete-time event history model. The eligibility to FAM and MAT is connected to low education, and the impact of the measures is associated to a shift in the period effect concerning parity progression for the low educated.

The second approach aims at measuring whether after 1999 the probability of terminating a pregnancy with voluntary abortion for “eligible” mothers who already have two or three children changes. The main idea is that the most affected by the measure could be women who did not explicitly plan a pregnancy and are undecided whether to carry the pregnancy to the end because of their financial problems. The turning-point should be again the 2000, and again women are split between “poor” and “rich” using their level of education. For each year of period 1990-2002, pregnant women (born in Italy during 1958-82) are given by the sum between births of women born in Italy (calculated expanding to total population the sampling data described above) and abortions of Italian women, calculated using individual data collected by Istat – National Statistics Institute – in the health authorized structures. Although these last data are surely better than the ones collected using sample surveys – where the most part of abortions is not declared – in some regions of Italy, mainly in the South, illegal abortions could be largely diffused (Figà Talamanca et al. 1986; Dalla Zuanna et al.,

2005). However, as our aim is to study discontinuity in trends around 1999, illegal abortion should not be a problem, if we assume the trend followed by legal and illegal abortions is not radically different because of the policy change. We thus assume that couples with relatively low income with the woman who is already pregnant may be the most affected by financial transfer measures. Our hypothesis is that if an impact is visible this should be more the case for women with low education, who may recur less to abortion after the introduction of FAM and MAT. After describing the trend, we run a linear regression on the propensity to terminate a pregnancy potentially leading to a third birth by separating the years until 1999 and the years 2000 and after. This is in line with a “regression discontinuity” design, in that it identifies the impact of the policy measure with the shift in the regression line before and after the policy is introduced.

5. Results

The results of our analyses, as we shall show, point towards the existence of an effect of the “Legge Turco” on reproductive choices for low-income households in Italy. Let us first analyze the results of the micro-level analysis, i.e. the event-history analysis on the progression to third birth. In our model (table 4), age of the woman and the length of the birth interval (as time-varying covariates) are controlled for using two cubic polynomials. We also control for the area of residence (in three categories) at the time of the survey. Our main parameters of interest are 1) a general period effect, captured by a year-specific dummy variable; 2) a period-specific effect of educational level, captured by a series of interaction terms between low education and the year-specific dummy variables. More specifically, the impact should be visible on the period-specific effect of educational level, with a shift in the third birth probabilities for the lower educated as compared to the rest of the population after 1999. The interaction terms, together with the related 95% confidence intervals, are displayed in Figure 2. In fact,

we see that after the introduction of the “Legge Turco”, the differential fertility of low educated women has significantly risen, with three consecutive years of rising differentials, all significant at the 10% level. Even if fertility differentials had risen also in 1995 and 1997, only after 1999 they have continuously risen. We cannot consider this as key evidence in favour of an impact of the “Legge Turco”, although the results are consistent with a possible impact of the policy change.

TABLE 4 AND FIGURE 2 ABOUT HERE

Given the consistent but not yet conclusive finding of the event-history analyses on the progression to third birth, we focus our analyses on the impact of the policy change on those who are most likely affected by this change, i.e. low-educated pregnant women who already have two children. Our reconstruction of abortion ratios for women with at least two children by educational level indicates a significant shift after the “Legge Turco”. Until 1999, only in one case was the abortion ratio of low-educated women lower than 40% (39.9% in 1998). After that, the value is 34.4% in 2000, 32.4% in 2001, and 31.8% in 2002 (see Figure 3). In terms of regression discontinuity estimation (as measured by the difference between the values of the two regression lines before and after the measure), the impact of the measure is to lower by about 5% the abortion ratio of low-educated women. The contrast is particularly striking when the same approach is applied to medium and high educated women—in none of the cases (see again Figure 3) the same discontinuity can be noticed. The results of a simple OLS regression on the yearly data on abortion ratios by educational level (Table 5) show that the higher abortion rates of the low educated as compared to the high educated (+18% before 1999) decreases and becomes no longer statistically significant after 1999. The same differential however persists for the medium educated, who are more likely to be above the threshold required by the “Legge Turco”.

TABLE 5 AND FIGURE 3 ABOUT HERE

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Tables and figures

Table 1 – % of families with three or more children under 18 who received FAM

	1999	2000
North	14.8	16.2
Center	21.7	23.7
South	58.8	64.2

Source: Lelleri and Marzano, 2002

Table 2 – % of women receiving MAT over total live births

	1999	2000
North	11,9	12,3
Center	22,8	24,1
South	51,3	56,5

Source: Lelleri and Marzano, 2002

Table 3 – Relative earnings of the population with income from employment. Men aged 30-44 with a below upper secondary education (upper secondary education = 100)

Australia (2001)	83
Canada (2001)	78
France (2002)	86
Germany (2002)	87
Italy (2000)	72
Korea (1998)	90
Netherlands (1997)	86
Spain (2001)	82
Sweden (2001)	86
United Kingdom (2001)	67
USA (2002)	70

Source: OECD, Education at a Glance 2004, table A11.1a

Table 4 – Detecting regression discontinuity for fertility rates, induced by “Legge Turco” in Italy. Births during 1990-2002 of women with two children born in Italy in 1958-82. Discrete-time event history (logit) model.

	Estimate	Std. Error	p-value
<i>Age effects</i>			
Age	-0.519	0.213	0.015
Age^2	0.020	0.007	0.004
Age^3	0.000	0.000	0.000
<i>Length of birth interval</i>			
Years	0.492	0.044	<.0001
Years^2	-0.056	0.007	<.0001
Years^3	0.002	0.000	<.0001
<i>Area (Reference=North)</i>			
Center	-0.289	0.061	<.0001
South	0.151	0.039	0.000
<i>Period effects</i>			
1990	0.749	2.143	0.727
1991	0.614	2.145	0.775
1992	0.625	2.143	0.770
1993	0.573	2.142	0.789
1994	0.560	2.141	0.794
1995	0.390	2.140	0.856
1996	0.526	2.139	0.806
1997	0.474	2.139	0.825
1998	0.627	2.139	0.770
1999	0.642	2.139	0.764
2000	0.656	2.140	0.759
2001	0.604	2.141	0.778
2002	0.538	2.142	0.802
<i>Additional period effect for women with lower education</i>			
1990	0.481	0.196	0.014
1991	0.520	0.181	0.004
1992	0.359	0.175	0.040
1993	0.398	0.166	0.017
1994	0.080	0.181	0.657
1995	0.331	0.172	0.055
1996	-0.043	0.185	0.815
1997	0.334	0.164	0.041
1998	0.201	0.163	0.217
1999	0.118	0.171	0.491
2000	0.272	0.165	0.098
2001	0.340	0.170	0.046
2002	0.397	0.179	0.027
n. events		3,658	
n. person-years		144,160	

Table 5 – Detecting regression discontinuity for abortion ratios induced by “Legge Turco” in Italy, contrasting 1990-99 vs. 2000-02, low and medium vs. high education. Women with at least two children born in Italy during 1958-82. OLS estimates

	Coefficient	Std.Err.	t	P> t	[95% Conf. Interval]
Constant	.39151	.0198605	19.71	0.000	.3515092 .4315114
Year	-.01740	.0032584	-5.34	0.000	-.0239663 -.0108405
Years 2000-02 (ref. 1990-99)	.07338	.0350163	2.10	0.042	.0028506 .1439036
Years 1990-99 low education	.18185	.0232014	7.84	0.000	.1351249 .2285851
Years 2000-02 low education	.05532	.0423598	1.31	0.198	-.0300005 .1406338
Years 1990-99 medium education	.20215	.0232014	8.71	0.000	.1554249 .2488851
Years 2000-02 medium education	.16425	.0423598	3.88	0.000	.0789329 .2495671
Years 1990-99 high education	0				
Years 2000-02 high education	0				

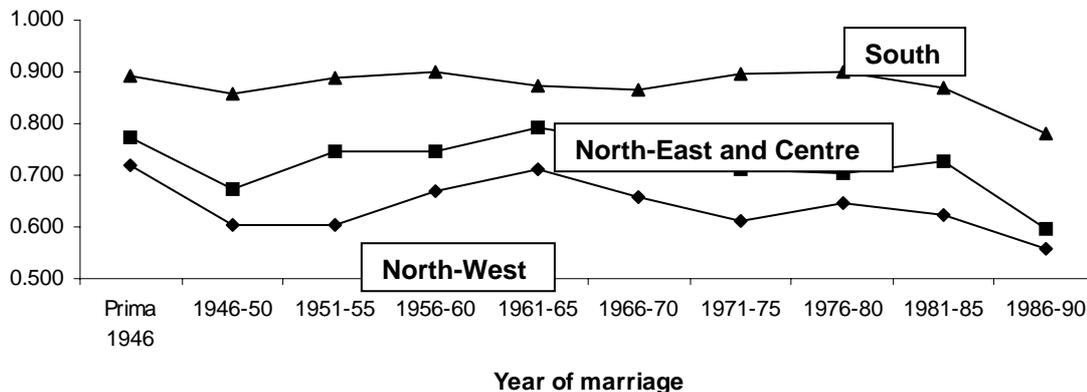
Source	SS	df	MS	
Model	.587397093	6	.097899515	Number of obs = 52
Residual	.161492119	45	.003588714	F(6, 45) = 27.28
Total	.748889212	51	.014684102	Prob > F = 0.0000
				R-squared = 0.7844
				Adj R-squared = 0.7556
				Root MSE = .05991

Figure 1 – Parity progression ratio for Italian couples by year of marriage and macro-region of residence at 1998. Married couples living together in 1998

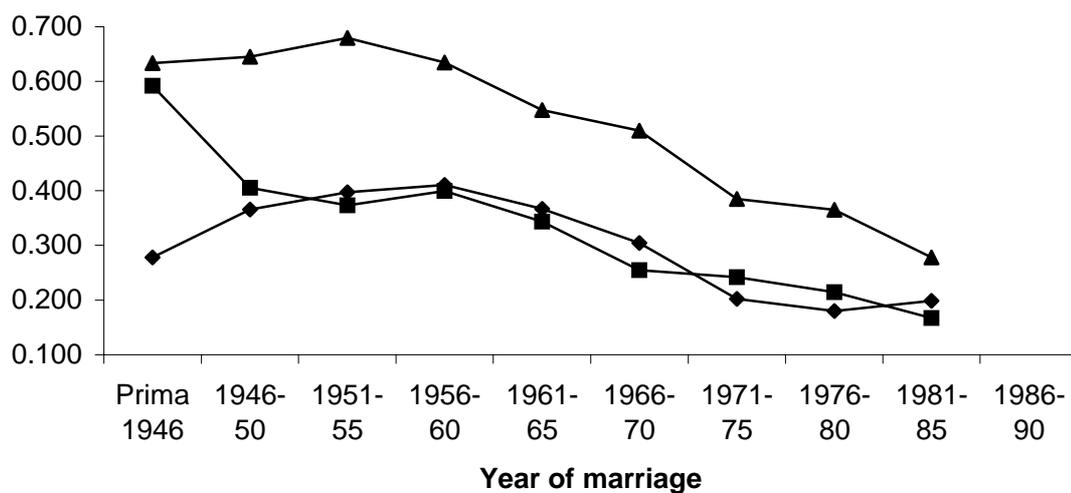
a) Proportion of marriages with at least one child



b) Proportion of fecund marriages with at least two children



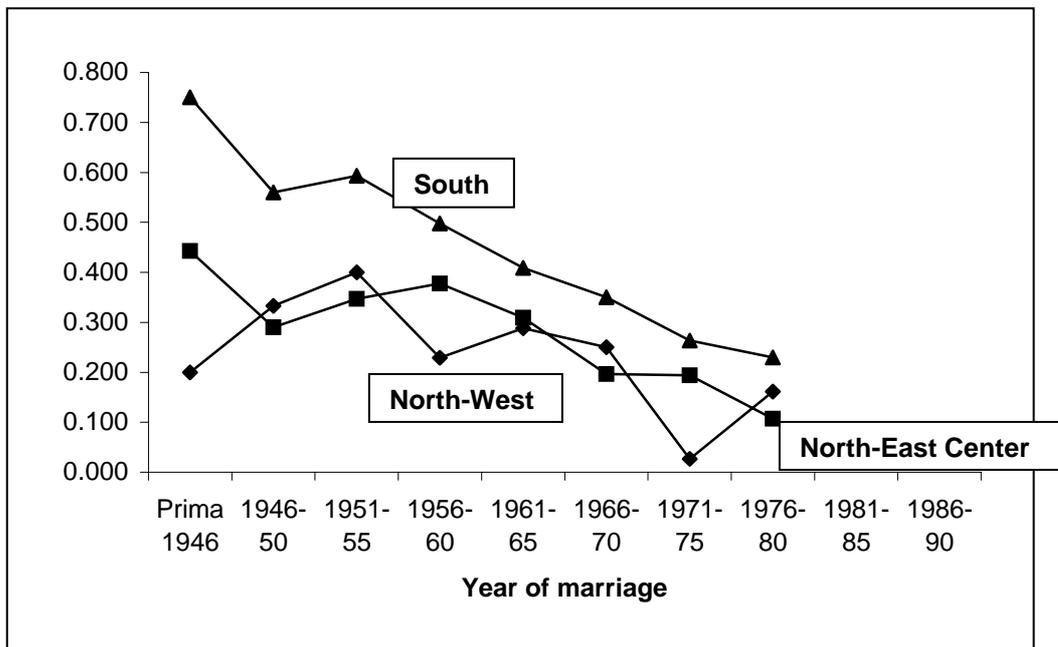
c) Proportion of marriages with two-children which had at least a third child



(continue)

Figure 1 – (continued)

d) Proportion of marriages with three-children which had at least the fourth child



Source: Dalla Zuanna, 2004.

Figure 2 – Fertility of low educated women with at least two children born in Italy during 1958-82: regression coefficients (with 95% confidence interval) of a discrete-time logit event history model where this group of women is contrasted with medium-high educated women (see table 4). In grey the area where “Legge Turco” could influence fertility

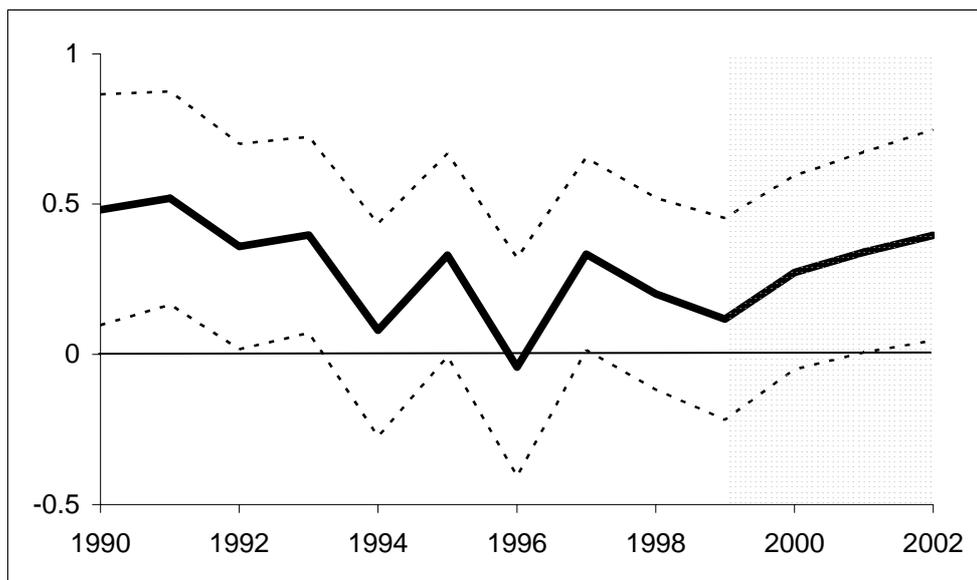
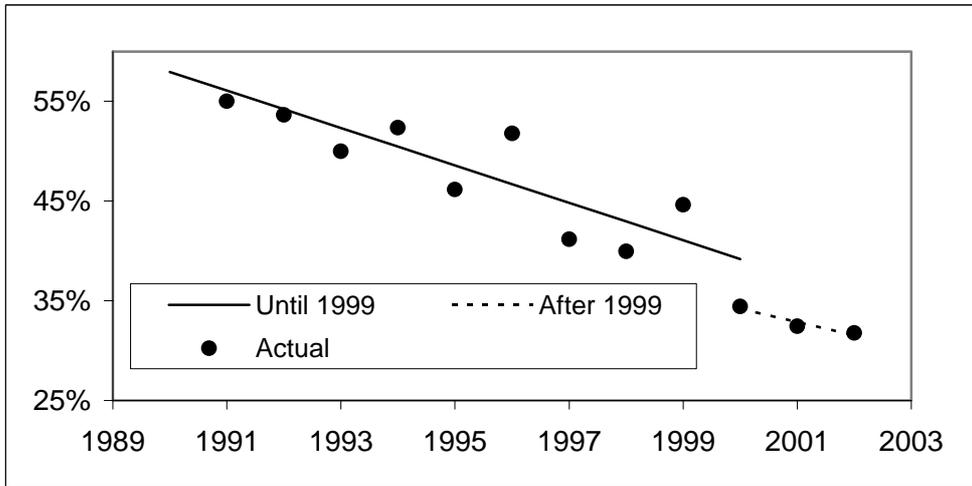
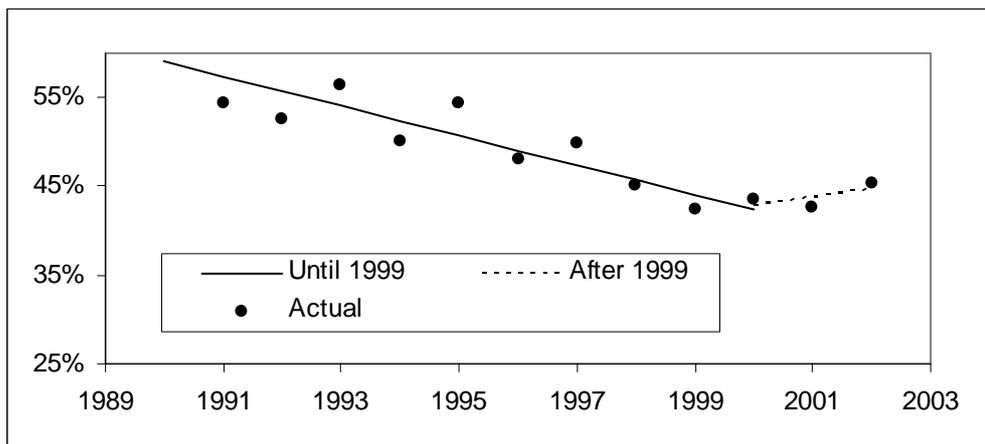


Figure 3 - Abortion ratios (Abortions / Abortions + Births) before or after the “Legge Turco” in Italy, by educational level. Women born 1958-1982 with at least two children

Low



Medium



High

