Guaranteed Minimum Income and Fertility

Giuseppe Pio Dachille
INPS

Maria De Paola
INPS, University of Calabria and IZA

Roberto Nisticò
University of Naples Federico II, CSEF and IZA

Pasquale Tridico
INPS and University of Rome 3

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Motivation

- Low fertility rates have important socio-economic implications, e.g. an aging population, a shrinking workforce, and declining economic growth.
- The decision to have children crucially depends on household economic conditions.
- Cost of raising a child from birth through age 17 for a middle-income family: $223,610 (2015 USDA Expenditures on Children by Families).
- Understanding how the demand for children reacts to income support is timely and policy relevant.

In this paper

- We study the effect of guaranteed minimum income on fertility decisions.
- We exploit the introduction in 2019 of the Italian "Reddito di Cittadinanza" (RdC), which provided a minimum income to all individuals with a level of income below a given threshold.
- Italy is a valuable setting as it has the lowest fertility rate (1.3) and the highest age at first childbirth (32) in Europe.
- We use administrative data from the Italian Social Security Institute (INPS) and exploit the threshold-based setting of the scheme in a Fuzzy Regression Discontinuity Design.

Preview of results

- We find a positive effect for women living in the South, but a null effect for women living in the Centre-North.
- In the South, RdC recipients have a 1.3 percentage point higher probability of conceiving a child within two years.
- This corresponds to an increase in the mean fertility rate, computed over a two-year period, by 17%.
- Effect is driven by older women, women with pre-existing children and women living in rented houses; it is larger for women previously employed.

Related Literature & Contribution

- Income changes and fertility (Adsera, 2005; Lindo, 2010; Dettling and Kearney, 2014; Kearney and Wilson, 2018; Giuntella et al., 2022)
- Cash transfers and fertility in developed countries (Gauthier, 2007; Yonzan, 2020; González and Trommlerová, 2023).
- Income support and fertility in high-income countries (Cohen et al., 2013; González, 2013; Olivetti and Petrongolo, 2017; Raute, 2019).
- Welfare policies and fertility (Grogger and Bronars, 2001; Levine, 2002; Kearney, 2004, Jagannathan et al., 2004; Francesconi and Van der Klaauw, 2007; Brewer et al., 2012).

The Italian RdC Program

- Since its introduction in April 2019, the program has benefited about 3 million individuals to date, with an average monthly benefit of about €500.
- The investment allocated by the Government amounts to €7.1 billion for 2019, €8 billion for 2020, €8.3 billion in 2021.
- Eligibility: income and wealth requirements + participation to an active labor market policy (not yet implemented) if unemployed.
- Eligibility requirements were unknown before April 2019.

The benefit

- Lasts for 18 months and is renewable after a 1-month break, with no limit to the number of renewals.
- Consists of two components:
  - a cash transfer (min €480) complementing household income up to a threshold and increasing with household size according to an equivalence scale (max €20,592);
  - a contribution towards rent or mortgage payments, up to a yearly cap of €3,360 for tenants and €1,800 for mortgagers.
- Is provided for an extra year after a beneficiary enters the labour market or increases labour supply, with an implied marginal tax for labor income of 80% within one year, which rises to 100% afterwards.

Requirements for 1-member households

Requirement	**Owned house**	**Rented house**
a. Household taxable income	€6,000	€9,360
b. Financial assets	€6,000	€6,000
c. Real estate (no main residence)	€30,000	€30,000
d. ISEE value	€9,360	€9,360
e. Luxury vehicles or boats	NO	NO
f. Residency-citizenship	YES	YES
g. Participation to ALMP	YES	YES

Fulfilled requirements distribution

Requirement	**N**	**%**
a. Household taxable income	4,108,165	73.6
b. Financial assets	5,177,167	92.7
c. Real estate (no main residence)	5,473,675	98.0
d. ISEE value	5,493,954	98.3
e. Luxury vehicles or boats	5,582,073	99.9
f. Residency-citizenship	5,441,751	97.4
Requirements b-f	5,038,235	90.2
Requirements a-f	3,920,244	70.2

Data and Sample

- We use data on the universe of RdC applicants between April and June 2019 and fertility data from the *Assegno Unico Universale*.
- We focus on female applicants aged 16-45 who fulfilled all requirements b-f and were either accepted of rejected by June 2019 based on requirement a (532,430 individuals).
- Household income was more difficult to compute as it was given by the sum of all the incomes gained in year t-2 by all household earners minus all welfare benefits received in year t-1 and in year t.

Definition of Main Variables

- Outcome (Birth): dummy for women conceiving a child within two years since notification of the application outcome (June 2019-June 2021).
- Treatment (RdC recipient): women admitted into the program from April 2019 to December 2019, who received the income support for at least 6 months since start.
- Running (Distance from relative cut-off): difference to the relative household income threshold as of April-June 2019.
- IV (Below threshold): women who by June 2019 had a household income below the relative threshold.

Fuzziness

- Eligibility at baseline (i.e. by June 2019) does not guarantee that the individual will be treated over the sample period examined.
- Early recipients can be excluded ex-post due to subsequent administrative controls or changes in their economic conditions (3% in our sample)
- Applicants who were rejected by June 2019 can re-apply and become recipients afterwards (1% in our sample).

Empirical model

Main outcome equation:

$$Birth_i = \beta_0 + \beta_1 RdC_i + \beta_2 f(Distance_i) + \beta_3 RdC_i * f(Distance_i) + \beta_4 X_i + \varepsilon_i \quad (1)$$

First stage equation:

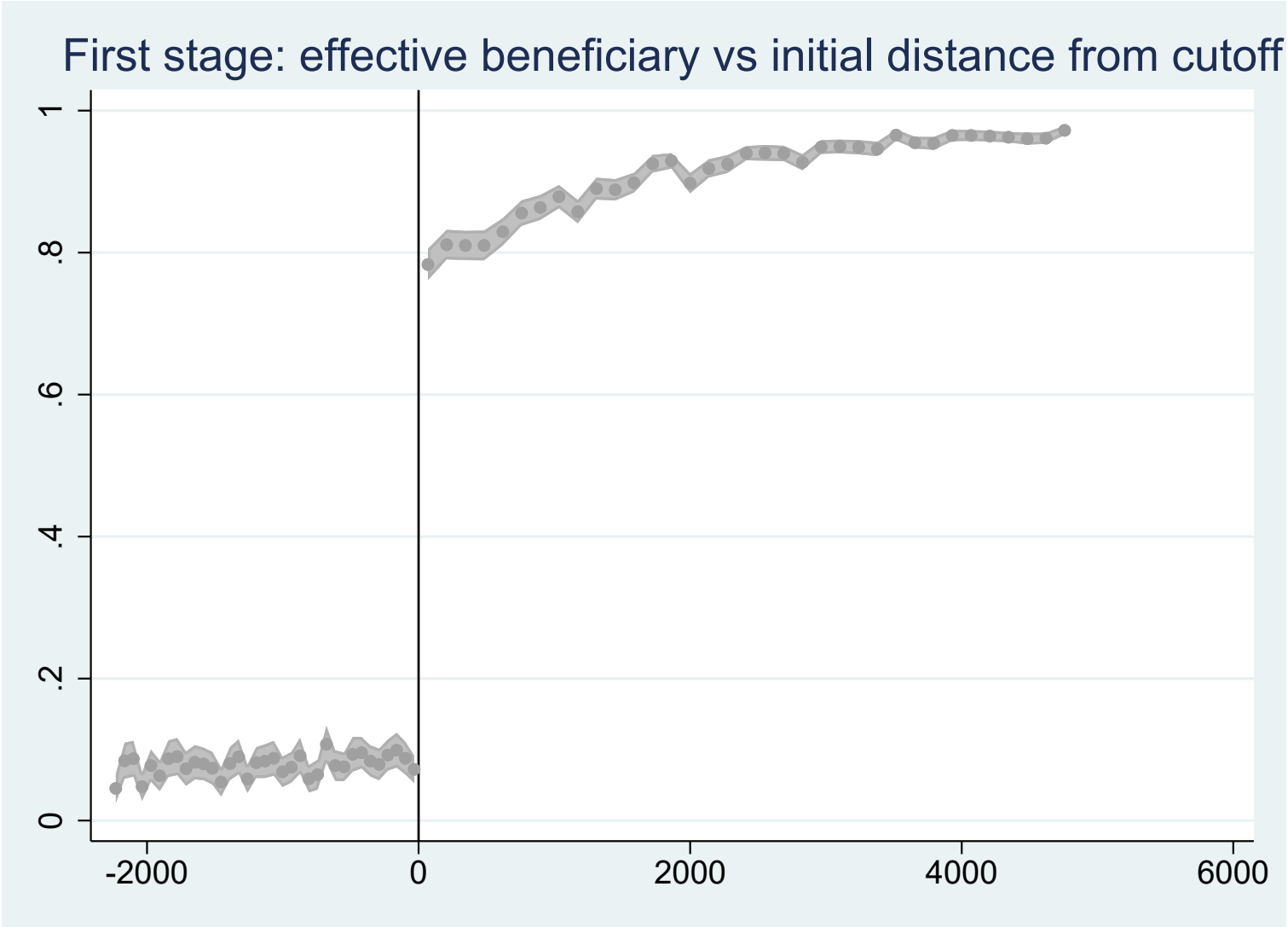
$$RdC_i = \alpha_0 + \alpha_1 Below_i + \alpha_2 f(Distance_i) + \alpha_3 Below_i * f(Distance_i) + \alpha_4 X_i + \mu_i \quad (2)$$

- We estimate the model using a Local Linear Regression approach with MSE-optimal (asymmetric) bandwidth around the cut-off.
- X_i includes age, age^2, HH size, n. of children, n. of disabled members, rented house, migrant, months worked in 2017-18, area of residence.
- Standard errors clustered at the level of the running variable.

Descriptive statistics

Variable	Full sample Mean	SD	South Mean	SD
Birth	0.079	0.270	0.081	0.273
RdC (recipient)	0.743	0.437	0.774	0.418
Below (relative threshold)	0.688	0.463	0.731	0.444
Distance (from relative cut-off)	1621.386	2016.174	1799.311	1983.614
South	0.582	0.493	1.000	0.000
Age	31.394	8.897	31.202	8.730
Household size	3.762	1.528	3.746	1.466
Migrant	0.269	0.444	0.086	0.281
No. of minors	1.382	1.168	1.256	1.103
No. of disabled	0.168	0.440	0.174	0.448
Rented house	0.411	0.492	0.230	0.421
Months worked in 2017-18	3.425	7.062	2.877	6.505

Treatment Probability vs Distance from Relative Cut-off



First Stage Results

	(1) Full Sample	(2) Centre-North	(3) South
Below	0.7346***	0.7275***	0.7537***
	(0.0045)	(0.0061)	(0.0060)
Observations	131,009	57,178	85,070

Second Stage Results - Full Sample

	(1) No Controls	(2) +Demog controls	(3) +HH controls	(4) +Prior labor sup	(5) +Area dummies
RdC	0.0050	0.0053	0.0033	0.0051	0.0045
	(0.0047)	(0.0041)	(0.0040)	(0.0042)	(0.0042)
Observations	109,423	136,259	159,132	129,306	132,198
Control mean	0.0811	0.0815	0.0814	0.0815	0.0816
Left bandwidth	-2,855	-3,077	-3,052	-3,070	-3,117
Right bandwidth	+3,076	+4,081	+5,004	+3,796	+3,893

Second Stage Results - Centre-North

	(1) No Controls	(2) +Demog controls	(3) +HH controls	(4) +Prior labor sup
RdC	-0.0028	-0.0064	-0.0067	-0.0066
	(0.0065)	(0.0065)	(0.0059)	(0.0064)
Observations	58,436	56,032	72,950	56,688
Control mean	0.0816	0.0811	0.0810	0.0810
Left bandwidth	-2,919	-2,708	-2,753	-2,792
Right bandwidth	+4,082	+3,983	+5,837	+3,985

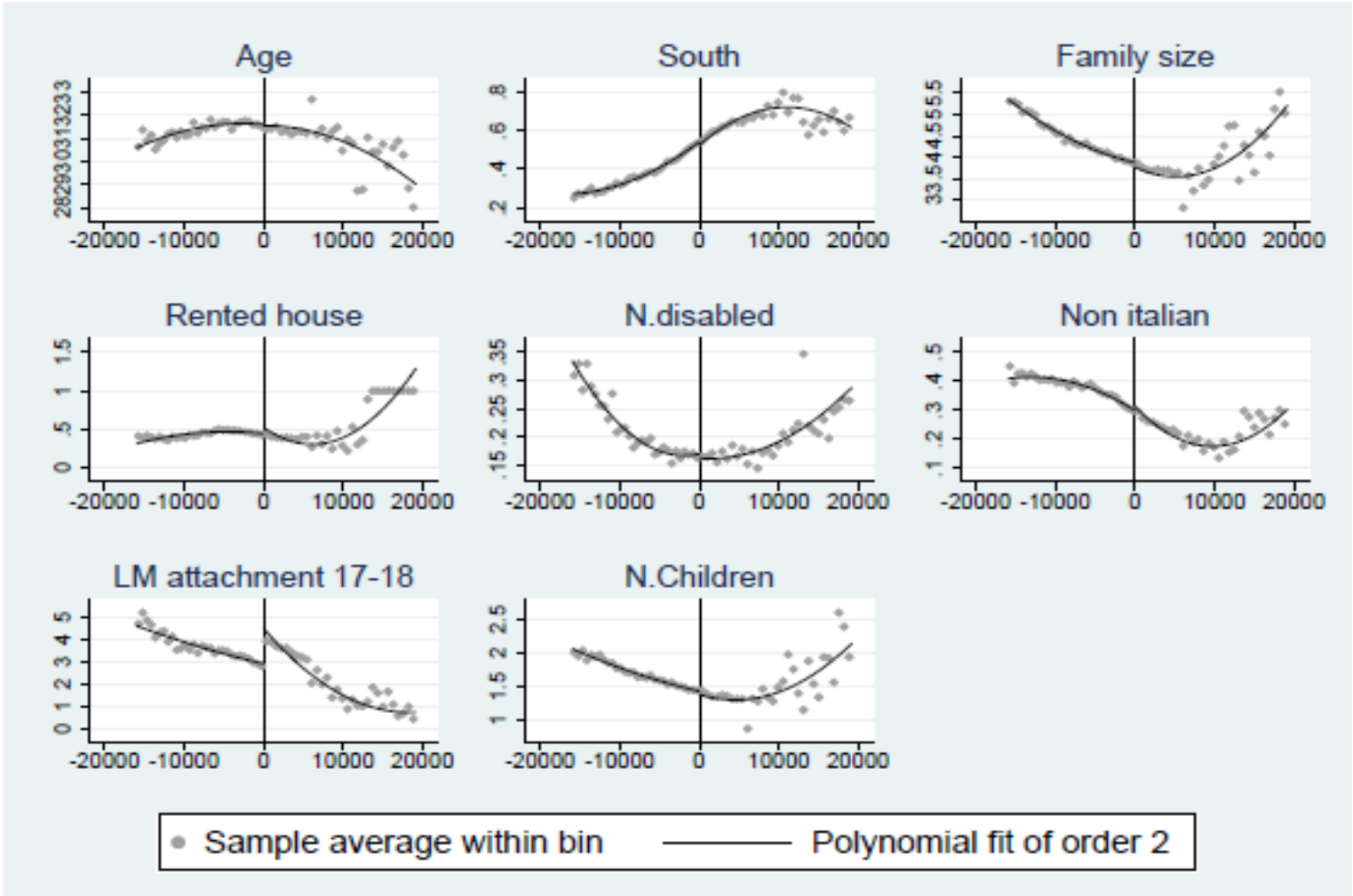
Second Stage Results - South

	(1) No Controls	(2) +Demog controls	(3) +HH controls	(4) +Prior labor sup
RdC	0.0148**	0.0158**	0.0134**	0.0137**
	(0.0069)	(0.0063)	(0.0060)	(0.0060)
Observations	51,070	66,060	81,614	83,911
Control mean	0.0802	0.0802	0.0800	0.0801
Left bandwidth	-2,295	-2,259	-2,240	-2,262
Right bandwidth	+2,681	+3,723	+4,707	+4,827

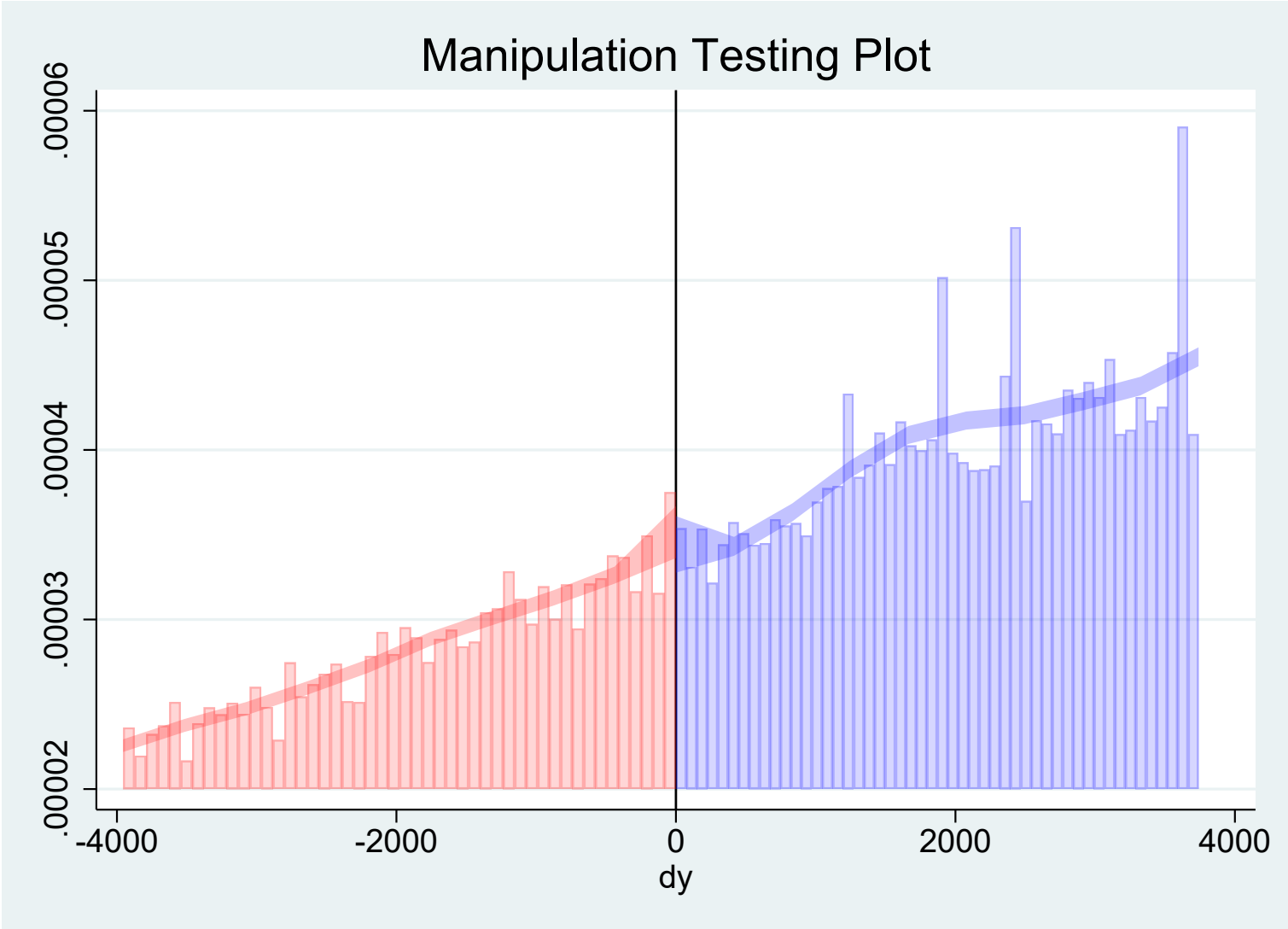
Check for Random Assignment

- Identifying assumption: if unobservable characteristics do not vary discontinuously around the cutoff, the assignement rule provides exogenous variation in the treatment.
- This may be violated if individuals strategically change their family composition or employment status because they want to meet the household income threshold.
- This is unlikely in our setting: the household income requirement refers to year t-2.

Balance Checks



McCrary Test



Heterogeneity by Age - South

	(1) Age<= 32	(2) Age> 32
RdC	0.0061	0.0210**
	(0.0082)	(0.0083)
Observations	42,681	34,373
Control mean	0.0905	0.0683
Left bandwidth	-2,718	-2,151
Right bandwidth	+4,451	+4,228

Heterogeneity by Parity - South

	(1) No children	(2) Children>= 1
RdC	0.0025	0.0162**
	(0.0101)	(0.0072)
Observations	20,272	57,798
Control mean	0.0751	0.0822
Left bandwidth	-2,084	-2,531
Right bandwidth	+4,019	+4,612

Heterogeneity by Home Ownership - South

	(1) Owned house	(2) Rented house
RdC	0.0074	0.0226*
	(0.0076)	(0.0135)
Observations	36,770	21,612
Control mean	0.0795	0.0835
Left bandwidth	-2,436	-2,020
Right bandwidth	+2,360	+5,380

Heterogeneity by Prior Employment Status - South

	(1) Employed in 2017-18	(2) Unemployed in 2017-18
RdC	0.0238*	0.0147**
	(0.0133)	(0.0068)
Observations	19,652	56,416
Control mean	0.0917	0.0780
Left bandwidth	-2,281	-2,353
Right bandwidth	+4,626	+4,233

Conclusions

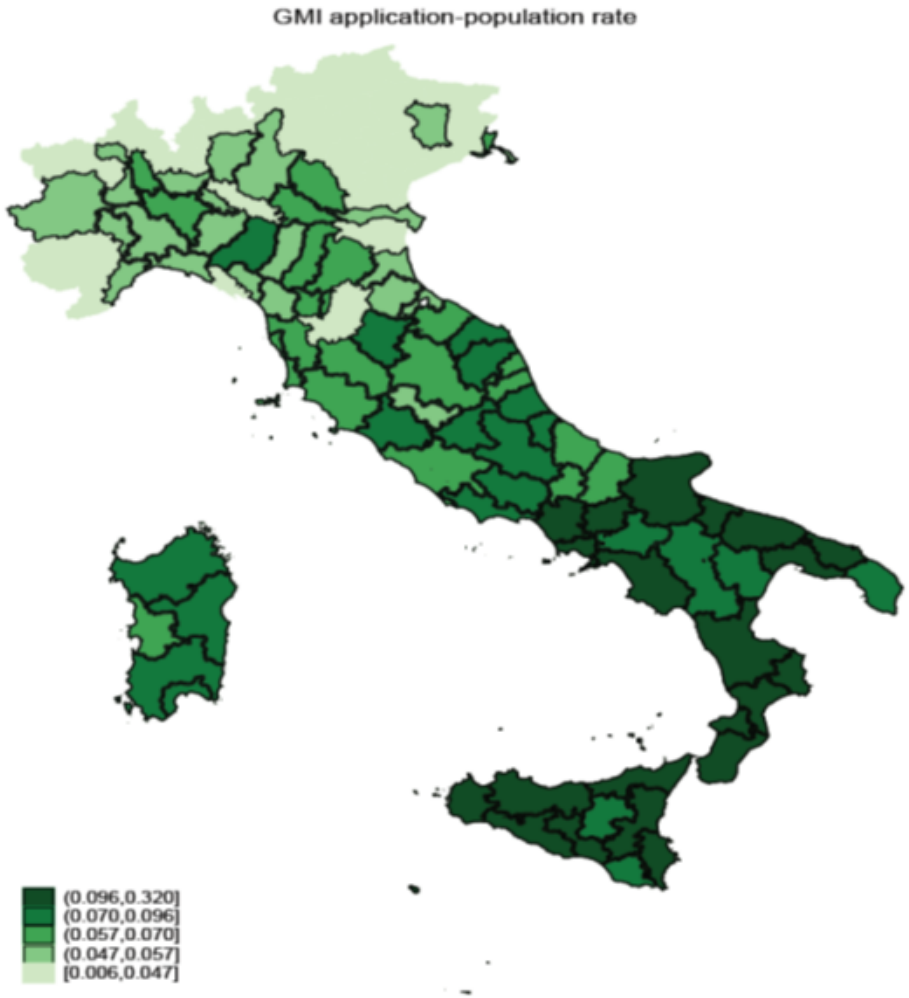
- We find that the Italian RdC increased fertility for women in the South but had no effects for women in the Centre-North.
- This might be explained by differences in social norms, which make women in the South more prone to have children and more responsive to improvements in their living conditions.
- The effect is driven by older women and women in more disadvantaged households, such as those in rented houses and with pre-existing children.
- The effect is larger for women who were previously employed.

Policy Implications

- The effect we estimate might be not only explained by the relatively small increase in income, but also by the reduced uncertainty and the increased level of self-confidence associated with inclusion into the program.
- Our results suggest that minimum income schemes, while designed to contrast poverty, may have indirect positive effects on fertility.
- This is especially relevant for the policy-making of Southern European countries, that are currently plagued by low fertility and high poverty rates.

THANK YOU!

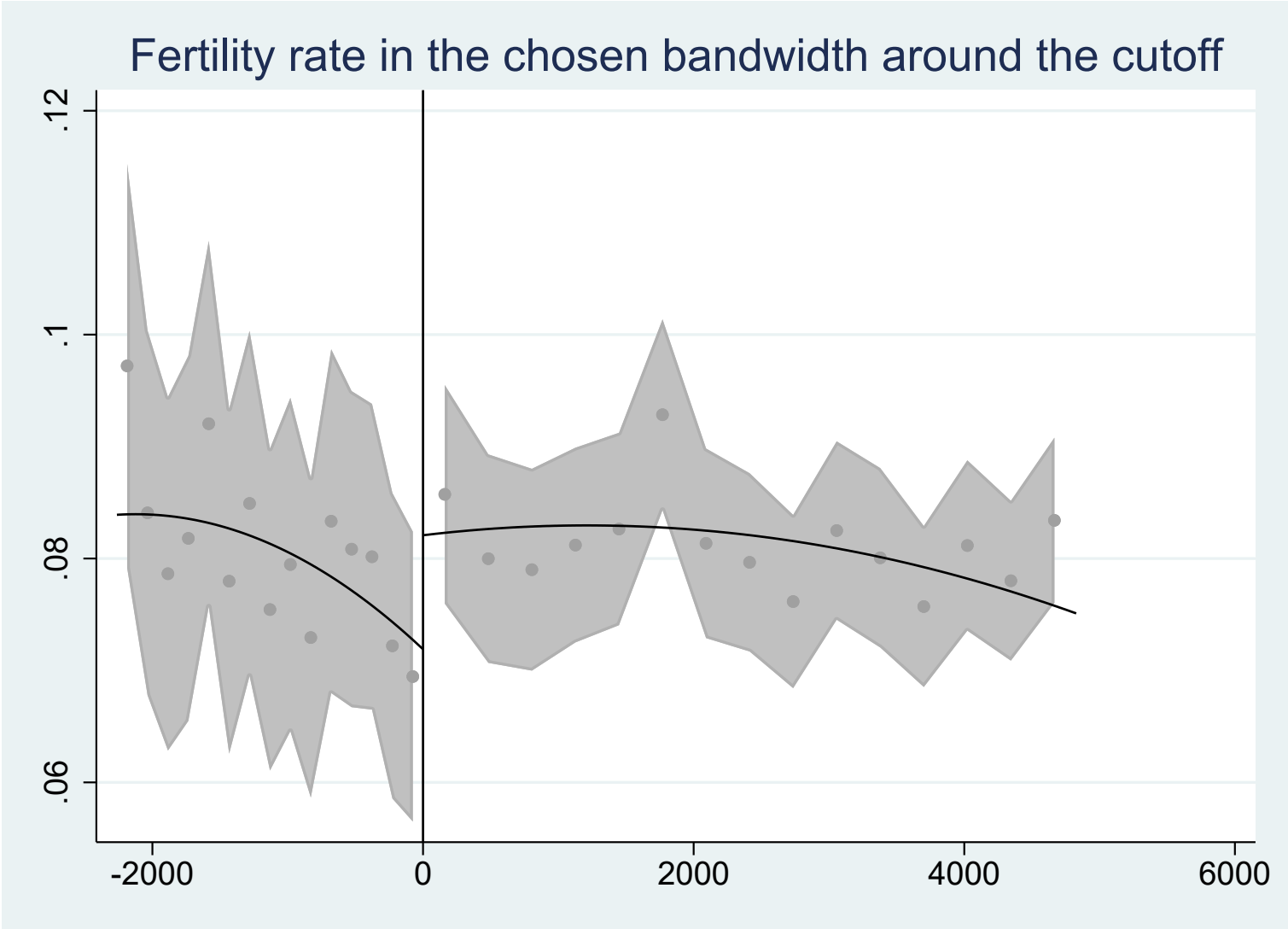
Geographical distribution of applicants in the bandwidth



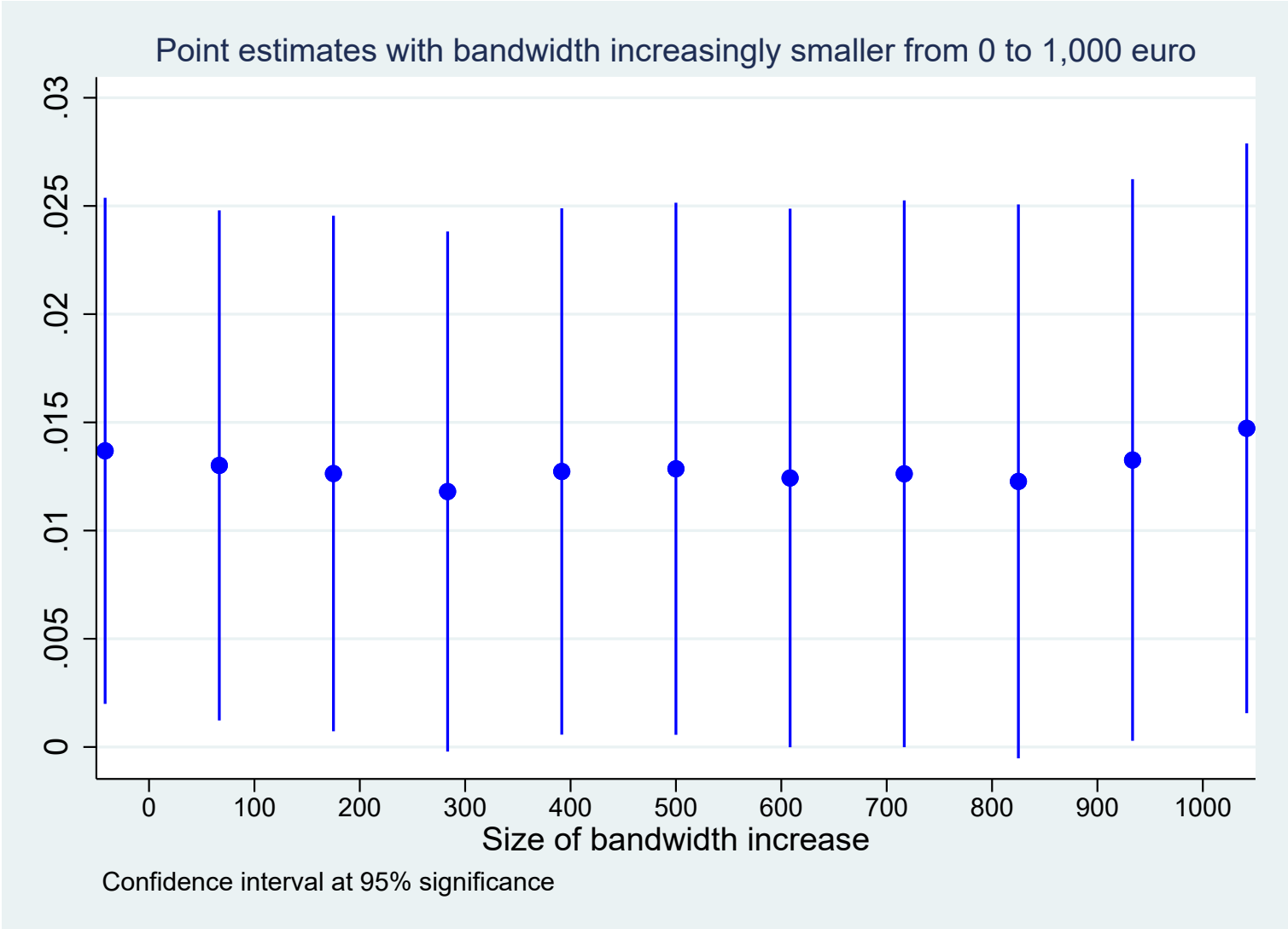
The Equivalence Scale

- The equivalence scale is as follows: 1 (1 component); 1.57 (2 components); 2.04 (3 components); 2.46 (4 components); 2.85 (5 components).
- These values are incremented by 0.35 in case of each further component, 0.2 in case of 3 children, 0.35 in case of 4 children and 0.5 in case of 5 children.
- These values are further incremented by 0.2 and by 0.3 for the presence of children under the age of 18 and 3, respectively.

RD plot - South



Robustness - South



Robustness - South

	(1) + Region dummies	(2) MSE symm.	(3) Non-par. convent.	(4) Non-par. bias-corr.	(5) Non-par. robust
RdC	0.0152**	0.0112*	0.0126**	0.0116**	0.0116
	(0.0062)	(0.0068)	(0.0057)	(0.0057)	(0.0085)
Observations	70,976	47,587	326,622	326,622	326,622
Control mean	0.0801	0.0807	0.0083	0.0083	0.0083
Left bandwidth	-2,257	-2,388	-2,262	-2,262	-2,262
Right bandwidth	4,053	2,388	4,827	4,827	4,827