Soap Operas and Fertility: Evidence from Brazil

Eliana La Ferrara, Alberto Chong, and Suzanne Duryea (2012)

Fernanda da Silva

Motivation

1. Massive influence of television in the country
2. Urban and rural areas
3. Big part of the adult population does not have much years of scholling
4. Reorientation of beliefs on the role of women in society

Motivation

Television

- Rede Globo
- Today, the coverage area is of 98.4% of the municipalities in Brazil
- *Novelas* or Soap Opera

Fertility Decline

- Total fertility rate declined 50% from 1970 to 1990
- Use of contraceptive methods
- Education

Novelas and Fertility

- Recurrent themes are:
  - freedom
  - criticism of religious
  - circulation of modern ideas, such as female emancipation in the work sphere (RIOS-NETO, 2001)
- Emphasis in the family size

Main Specification

They estimate the probability that a woman (aged 15-49) gives birth in a given year as a function of individual controls and Globo presence

$$Birth_{ijt} = \mathbf{X}_{ijt}\beta + \gamma Globo_{jt} + \mu_j + \lambda_t + \epsilon_{ijt}$$

- $Birth_{ijt}$= 1 means a woman i living in area j gives birth to a child in year t
- $Globo_{jt}$= 1 if area j received the signal of Rede Globo at least one year prior to year t (to account for the length of pregnancy)

Endogeneity Problems

1. Political link
2. Globo may have chosen to enter wealthier locations first, as the latter would yield higher profits from advertising

To get around of these problems:

- Include controls for education, wealth and consumption
- Falsification tests
- Robust: different measures of fertility

Data

Individuals:

- Brazilian Census of 1991, builting a retrospective history of a woman's fertility for the previous 12 years (1979-1991)
- Dependent variable (*Birth*), for each woman they could know how many children it has < 12

Data

Rede Globo:

- For each broadcasting station, they know the year and the location where it was installed
- $Globo_{jt}$ coverage is the dummy variable
- To account for a 9-month pregnancy delay, they require that the area received the signal for the first time at least the year before

Data

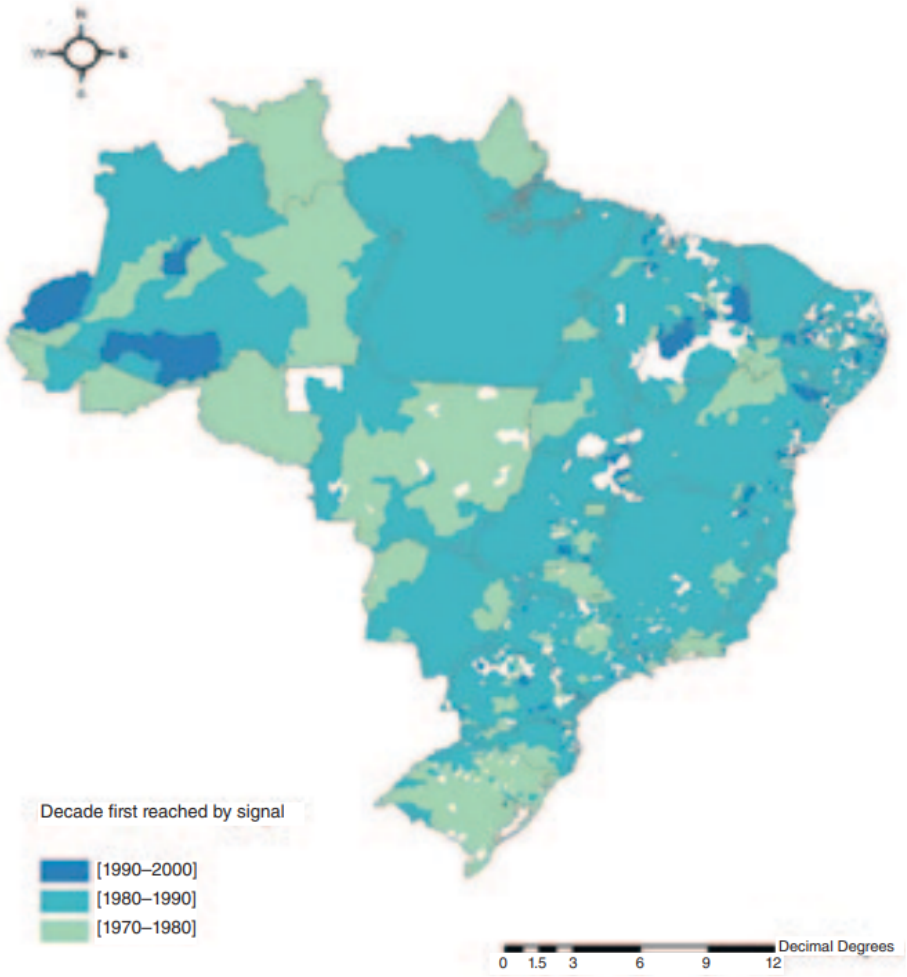

FIGURE 2. REDE GLOBO EXPANSION ACROSS SPACE

Data

Rede Globo traditionally airs three sets of novelas:

1. 6pm - typically historical plots and have the **lowest** audience
2. 7pm - mostly contemporary comedies with elements of conspiracy
3. 8pm - heavily focused on social issues and have by far the **highest** audience

Data

TABLE 1—NOVELA CONTENT ANALYSIS. CHARACTERISTICS OF MAIN FEMALE CHARACTER

	Full sample percent novelas	Age of female1 < 50 percent novelas	Age of female1 < 50 and married percent novelas
Number of children			
0	62.2	71.6	45.8
1	19.8	20.0	29.2
2	9.9	7.4	20.8
3	4.5	1.1	4.2
4 or more	3.6	0	0
	$(N = 111)$	$(N = 95)$	$(N = 24)$
Married			
Yes	28.4	25.5	—
	$(N = 109)$	$(N = 94)$	
Divorced or separated			
Yes	12.7	10.6	—
	$(N = 110)$	$(N = 94)$	
Unfaithful to partner			
Yes	24.6	27.7	41.7
	$(N = 110)$	$(N = 94)$	$(N = 24)$

Source: Authors' calculations based on novela content analysis

Main Result

TABLE 2—GLOBO COVERAGE AND FERTILITY

Dependent variable = 1 if gives birth in year t (BIRTH)	[1]	[2]	[3]
Panel A.			
Globo coverage	−0.0269	−0.0115	−0.006
	(0.0037)***	(0.0026)***	(0.0015)***
Constant	0.1177	0.1126	0.111
	(0.0015)***	(0.0016)***	(0.0011)***
Year fixed effects	Yes	Yes	Yes
Area fixed effects	No	State	AMC
Number of areas		27	3,485
Observations	2,102,431	2,102,431	2,102,431
R^2	0.003	0.006	0.012

	[4]	[5]	[6]	[7]	[8]	[9]
Panel B.						
Globo coverage	−0.0075	−0.0042	−0.0047	−0.0074	−0.0037	−0.0047
	(0.0012)***	(0.0010)***	(0.0012)***	(0.0013)***	(0.0011)***	(0.0012)***

Heterogeneous Effects

TABLE 3—HETEROGENEOUS EFFECTS, EDUCATION, AND WEALTH

Dependent variable = 1 *if gives birth in year t (BIRTH)*	[1]	[2]	[3]
Globo coverage	−0.0101	−0.013	−0.0043
	(0.0014)***	(0.0015)***	(0.0013)***
Globo coverage × education of head	0.0013		
	(0.0002)***		
Globo coverage × education of woman		0.0018	
		(0.0002)***	
Globo coverage × wealth			0.0018
			(0.0005)***
Education of head	−0.0012		−0.0002
	(0.0001)***		(0.0001)
Education of woman		−0.0044	
		(0.0001)***	
Wealth	−0.0204	−0.0161	−0.0218
	(0.0003)***	(0.0004)***	(0.0005)***
Controls[a]	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
AMC fixed effects	Yes	Yes	Yes
Observations	2,102,136	2,102,136	2,102,136
R^2	0.05	0.05	0.05

Falsification Tests

TABLE 6—PLACEBO REGRESSIONS

Dependent variable = 1 *if gives birth in year t* (*BIRTH*)	[1]	[2]	[3]	[4]
Globo coverage in t	−0.0043	−0.0038		
	(0.0016)***	(0.0014)***		
Globo coverage in $t+1$	−0.0008	0		
	(0.0015)	(0.0015)		
Globo coverage in neighboring AMC			−0.0011	−0.0012
			(0.0010)	(0.0010)
Controls[a] in t	No	Yes	No	Yes
AMC fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,913,150	1,912,855	2,101,996	2,101,701
R^2	0.013	0.050	0.012	0.050

Robustness

TABLE 7—ROBUSTNESS

Dependent variable = 1 *if gives birth in year t* (*BIRTH*)	[1]	[2]	[3]
Panel A. Individual level			
Globo coverage	−0.0047 (0.0012)***	−0.0047 (0.0012)***	−0.0049 (0.0012)***
TV owner	−0.0114 (0.0010)***		
Electricity		−0.0042 (0.0016)**	
Woman employed			−0.0206 (0.0005)***
Controls[a]	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
AMC fixed effects	Yes	Yes	Yes
Observations	2,102,136	2,102,136	2,102,136
R^2	0.05	0.05	0.05

Conclusion

- After controlling for time varying controls and for time-invariant area characteristics, the presence of the Globo signal leads to significantly lower fertility
- Heterogeneity
- Exposure to the *novelas*
- Policy implications