



THE ROLE OF FAMILY IN SUICIDE RATE IN ITALY

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The Role of Family in Suicide Rate in Italy

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Abstract

We use national panel data at provincial level to investigate the relationship between suicide rates and socio-economic factors in Italy. The role of family, drug and alcohol consumption, social conformism and population density are the main factors in explaining the suicide rate in Italy. In a further step, we check for the differences in the suicide determinants between southern and northern provinces. The findings show that the number and size of families as well as alcohol or drug abuse play a key role in the northern provinces, while density and social conformism appear to be the main factors in the South.

Keywords: suicide rate; socio-economic determinants; role of family

Jel Classification: D10, K00, R00

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1. Introduction

Although psychiatric illness seems to be the main determinant of suicide (Barracough et al., 1974; Roy, 1982) and though suicide is considered an irrational behaviour by doctors and psychologists, the quest for those socio-economic factors which may act as precipitating elements, engaged sociologists first and economists later (Preti and Miotto, 1999).

Durkheim's theory of suicide was based on two assumptions (Pescosolido and Giorgianna, 1989): individuals are characterized by different levels of social norms, and social integration offers protection against suicidal tendencies. In this vein, social connectors like family and religion matter on the suicide rate.

On the other hand, economist tried to understand the suicide decision from an individual point of view. Hamermesh and Soss (1974) modelled the decision to suicide through a neoclassical approach: a suicide is a rational agent that opts to end her life when her discounted lifetime utility goes below an established threshold. From this perspective, several economical indicators are believed to have an impact on suicide rates and have been studied by economists, including different measures of income and economic wellness (real GDP per capita, growth of per capita income and (un)employment most of all).

If the existing literature tried to bridge the gap between sociological and economical explanations (Huang, 2006; Yamamura, 2010), however, the empirical results are not necessarily always robust and valid across different cultures and countries.

This paper contributes to the literature by evaluating empirically the determinants of suicide in Italy, looking both at economic and sociological aspects, at the province level, from 1996 to 2005.

Italy is characterized by a culture that is less favourable toward suicide than that of countries with non-christian roots, such as Japan for example. According to Pescosolido-Georgiana (1989), cults and especially Catholicism, *offer a high level of integration to individuals facing personal crises, all other things being equal*. In this sense we speculate on the limited role of economic factors in a country with strong social capital and religious ties. Italian society, historically family-based and conservative, could also generate social tensions and marginalisation that might lead to suicidal behaviour.

Like other Mediterranean countries such as Spain and Greece, Italy presents the lowest suicide rates (for an international comparison see among others Andrés 2005, Chen et al. 2009, and Noh, 2009). Moreover, Italy has experienced a decreasing trend in the suicide ratio

between 1996 and 2005, as shown in Figure 1, which illustrates the number of suicides per 100,000 inhabitants. The overall figures hide an inhomogeneous picture among different regions and municipalities in Italy. As shown in Figure 2, the northern part of Italy presents higher levels of suicide than the Southern part of the country, suggesting that the factors affecting suicide decisions may be different in the two areas. Furthermore Figure 2 shows significant differences in suicide rates between Italian provinces, even within the same region.

The remainder of the paper is organized as follows. Section II describes the data and outlines the economic framework. The results are summarized in Section III. Finally, Section IV concludes.

2. Data description and empirical model

Following Yamamura (2010), who analyses the relationship between suicide rate and socio-economic factors in Japan, the paper proposes the following empirical specification:

$$\begin{aligned}
 SUICIDE_{it} = & \beta_1 + \beta_2 GROWTH_{it} + \beta_3 INCOME_{it} + \\
 & \beta_4 UNEMPLOYMENT_{it} + \beta_5 DIVORCE_{it} + \\
 & \beta_6 MARRIAGE_{it} + \beta_7 HOUSEHOLD_{it} + \\
 & \beta_8 DENSITY_{it} + \beta_9 BIRTH_{it} + \beta_{10} ALCOHOL_{it} + \\
 & \beta_{11} DRUG_{it} + \beta_{12} RELIGION_{it} + \\
 & \beta_{13} SOCIALFUND_{it} + u_{it}
 \end{aligned}$$

where $SUICIDE_{it}$ indicates the number of suicides per 100 thousands inhabitants in the i -th province at year t . The study employs data from 103 provinces for the time span between 1996 and 2005. $GROWTH$, $INCOME$ and $UNEMPLOYMENT$ represent the real economic growth, real income per capita and unemployment rate, respectively. They describe the economic condition in the i -th province at time t . As shown by Brainerd (2001) and Neumayer (2003), a negative correlation between suicide rate and economic performance is expected. $DIVORCE$, $MARRIAGE$ and $HOUSEHOLD$ are the number of divorces, marriages and households per 100 thousands residents, respectively. Neumayer (2003) and Yamamura (2010) find that higher number and size of families the suicide rate. $DENSITY$ is the number of inhabitants per squared kilometre, while $BIRTH$ is the number of births per 100,000 residents. $ALCOHOL$ and $DRUG$ indicate the share of people that consume alcohol between meals and the number of drug dealing offences per 100,000 inhabitants; positive signs are expected.

RELIGION is the percentage of religious marriages. Since religious practices are well distributed in the country, it stands for the degree of social convention. In this sense, we expect that the higher the percentage of religious marriages in a given province, the higher the level of social convention and, consequently, of suicide rate.

SOCIALFUND indicates the amount of per capita resources that local governments allocate for direct social programs, such as combating poverty and social exclusion. The expected sign is negative.

In order to explore the structural differences amongst northern and southern provinces of Italy, we run two different models: one for the Centre-North of Italy, and another for the South.

All data come from National Statistical Office of Italy (ISTAT), except for the economic variables that come from Istituto Tagliacarne. All variables are transformed in logarithm term, so the coefficients can be interpreted as elasticities.

3. Results and discussion

The results are provided in Table 2. Columns (1) and (4) show the results for the analysis run employing all observations. The results in columns (2)-(5) and (3)-(6) refer to the Centre-North and South models, respectively. The random-effects estimator is selected according to the Hausman test statistics. Furthermore, robust standard errors are performed in order to avoid heteroskedasticity problems.

As shown in table 2, except for UNEMPLOYMENT in column (2)², the economic variables are not significant in all regressions. These results appear not to be driven by multicollinearity problems between the economic variables. As Preti-Miotto (1999) argued, there are still concerns in the economic literature regarding the relationship between suicide decisions and economic conditions. As shown by Kunce and Anderson (2002), at an aggregate level there is no strong evidence that economic factors have a causal relationship with suicide decisions.

The number of divorces and births are not significant in all specifications. The MARRIAGE coefficient is significant and negative. One percent increase in the number of marriages leads to a decrease in suicide rate by 0.48%. Such effect seems to be relevant in the Centre-North provinces more than the South. The number of households is a

² A negative coefficient for unemployment rate is not a novelty in the empirical analysis of suicide (for instance, see Yamamura, 2010).

proxy of the size of families: the higher the number of households in a given province, the lower the average size of the families. As expected, the sign of the coefficient is positive in all models and equal to 1.89. DENSITY is significant and negative in all specifications. At the national level, an increase by 1% in the density of population reduces the suicide rate by 0.15%. Such result is not surprising because in Italy the suicide rate is higher in medium-small sized cities than in big municipalities (see Figure 2). Probably, the social ties and constraints are stronger in small communities than in large ones, causing higher levels of suicide.

The consumption of drug and alcohol affects the attitude toward suicide only in the Centre-North of Italy. RELIGION plays a role only in the South; where its coefficient is significant and positive. A rise by 1% in the share of religious marriages increases the suicide rate by 0.22%.

SOCIALFUND has the expected sign but is not significant in all regressions. Unfortunately, such variable may be endogenous. In fact, high suicide rates could cause higher amounts of resources to be spent in social programs. Therefore, the SOCIALFUND coefficient could be downward biased and inconsistent.

4. Conclusions

This paper has analysed the socioeconomic determinants of suicide rates in Italy. The answers obtained are consistent with the existing literature. The number of households and size of family negatively affect the suicide rate. Population density shows a negative effect, while drug-alcohol consumption a positive one. The religious marriages share, taken here as a proxy of “social conformism”, increases suicide rate.

Controlling for the structural differences between the North and the South of Italy, we observe that the role of family, the abuse of alcohol-drug consumption and the density of population are the main determinants in the Centre-North provinces where the effects of urbanization are more evident, while “social conformism”, measured by the share of religious marriages, and population density are the main factors in the South, characterized by a more traditional and conservative culture.

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Table 1. Descriptive statistics

	Obs	Mean	Std. Dev.	Min	Max
SUICIDES	1,030	7.58	3.61	0.00	23.32
GROWTH	1,030	0.01	0.03	-0.48	0.12
INCOME	1,030	15,393.67	4,005.42	7,119.16	26,452.31
UNEMPLOYMENT	1,030	0.01	0.07	0.02	0.03
DIVORCE	1,030	129.24	56.37	0.17	441.93
MARRIAGE	1,030	456.30	65.33	232.20	978.42
HOUSEHOLD	1,030	39,211.48	3,611.65	31,217.34	50,329.55
DENSITY	1,030	244.30	330.80	36.54	2,661.62
BIRTH	1,030	885.37	135.15	565.03	1,412.48
ALCOL	1,030	0.25	0.07	0.11	0.55
DRUG	1,030	57.68	45.19	10.30	907.70
RELIGION	1,030	0.74	0.12	0.41	0.94
SOCIALFUND	1,030	0.69	1.33	0.00	11.32

Table 2. Regression results on suicide

	(1)	(2)	(3)	(4)	(5)	(6)
	All obs.	Centre-North	South	All obs.	Centre-North	South
GROWTH				0.02 (0.32)	-0.66 (0.42)	0.59 (0.46)
INCOME	0.06 (0.17)	0.08 (0.25)	-0.18 (0.31)	0.06 (0.18)	0.17 (0.27)	-0.29 (0.33)
UNEMPLOYMENT	-0.03 (0.05)	-0.10* (0.06)	0.06 (0.11)	-0.03 (0.055)	-0.10 (0.06)	0.04 (0.11)
DIVORCE	0.01 (0.02)	0.00 (0.02)	0.07 (0.07)	0.01 (0.02)	-0.00 (0.02)	0.07 (0.07)
MARRIAGE	-0.48*** (0.17)	-0.45** (0.19)	-0.44 (0.39)	-0.48*** (0.17)	-0.44** (0.19)	-0.47 (0.39)
HOUSEHOLD	1.89*** (0.39)	1.62*** (0.46)	1.79* (1.04)	1.89*** (0.39)	1.57*** (0.46)	1.78* (1.06)
DENSITY	-0.15*** (0.04)	-0.12*** (0.04)	-0.23** (0.11)	-0.15*** (0.044)	-0.13*** (0.037)	-0.23** (0.11)
BIRTH	-0.08 (0.16)	-0.14 (0.25)	-0.50 (0.48)	-0.08 (0.16)	-0.19 (0.25)	-0.54 (0.49)
ALCOHOL	0.41*** (0.13)	0.52*** (0.13)	0.15 (0.28)	0.41*** (0.13)	0.52*** (0.13)	0.16 (0.28)
DRUG	0.05 (0.03)	0.08** (0.04)	0.02 (0.07)	0.05 (0.03)	0.08** (0.04)	0.013 (0.07)
RELIGION	0.22* (0.12)	0.04 (0.20)	0.32*** (0.12)	0.22* (0.12)	0.06 (0.20)	0.32*** (0.12)
SOCIALFUND	-0.01 (0.06)	-0.01 (0.06)	-0.07 (0.15)	-0.01 (0.06)	-0.01 (0.05)	-0.07 (0.15)
CONSTANT	- 16.60*** (4.47)	-14.40** (5.69)	-9.34 (11.80)	- 16.59*** (4.48)	-14.51** (5.69)	-7.90 (11.9)
Observations	1,030	670	360	1,030	670	360
Dummy year	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.65	0.24	0.77	0.65	0.25	0.77

Robust standard errors are in parenthesis. *, ** and *** indicate significance at the 10%, 5% and 1%, respectively.

Figure 1. Number of suicides in Italy

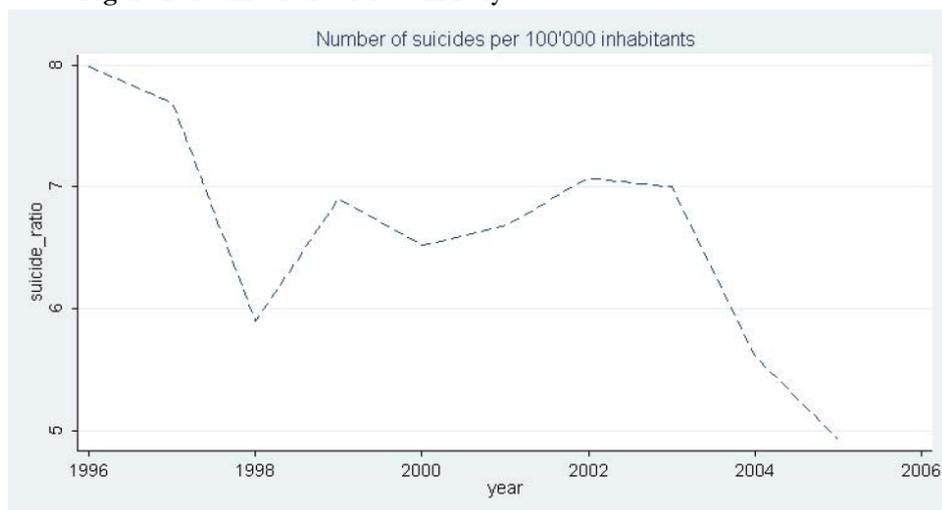
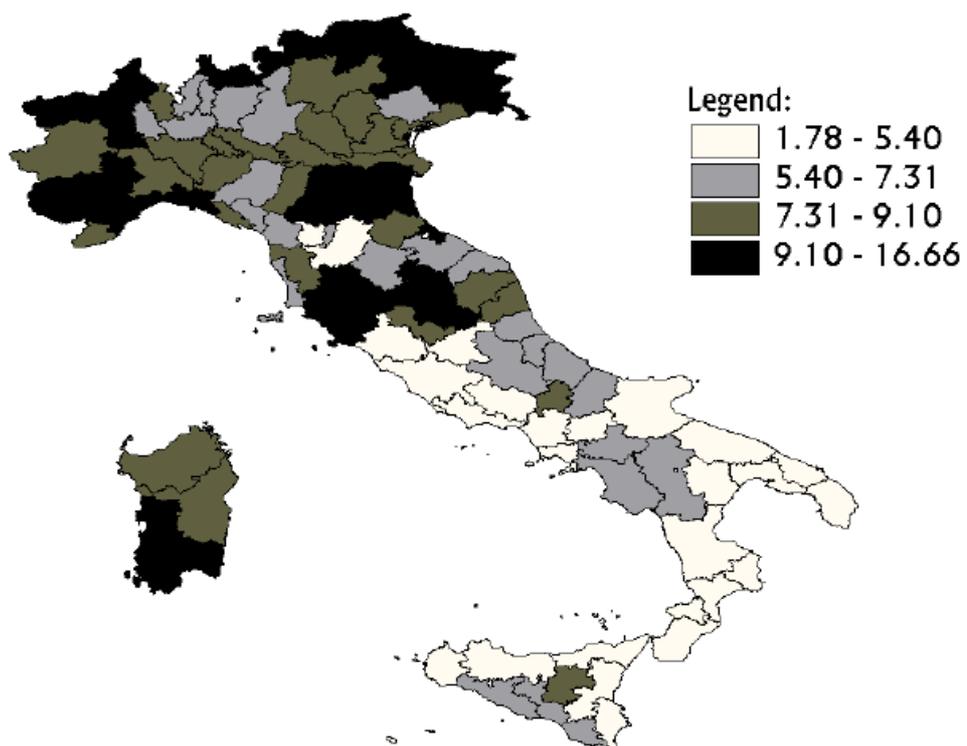


Figure 2. Average number of suicides per 100,000 inhabitants in Italy (1996-2005)



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