

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

SCIENCE @ DIRECT®

European Journal of Political Economy  
xx (2006) xxx–xxxEuropean Journal of  
POLITICAL  
ECONOMY[www.elsevier.com/locate/ejpe](http://www.elsevier.com/locate/ejpe)

# The determinants of corruption in Italy: Regional panel data analysis

Alfredo Del Monte<sup>a</sup>, Erasmo Papagni<sup>b,\*</sup><sup>a</sup> *Dipartimento di Teoria e Storia dell'Economia Pubblica, Università di Napoli "Federico II",  
Via Cintia, 80126, Napoli, Italy*<sup>b</sup> *Dipartimento di Diritto ed Economia, Seconda Università di Napoli,  
Corso del Gran Priorato di Malta, 81043, Capua, Italy*

Received 9 August 2004; received in revised form 9 January 2006; accepted 29 March 2006

## Abstract

Several measures indicate the presence of substantial corruption in Italian society. This paper investigates the determinants of corruption in Italy in the period 1963–2001 using statistics on crimes against the public administration at a regional level. Our estimates show that economic variables (government consumption, level of development) and political and cultural influences (party concentration, presence of voluntary organisations, absenteeism at national elections) significantly affect corruption in Italy.  
© 2006 Elsevier B.V. All rights reserved.

*JEL classification:* P37; Z13*Keywords:* Corruption; Regional differences; Social capital; Political systems; Italy

## 1. Introduction

Corruption inhibits economic growth (Mauro, 1995, 1998; Bliss and Di Tella, 1997; Mo, 2001; Del Monte and Papagni, 2001; Méndez and Sepúlveda, 2006), reduces the legitimacy of government in the eyes of the governed, can affect political stability (Anderson and Tverdova, 2003), and is a key element in the inability of poor societies to take advantage of development opportunities (Abed and Gupta, 2002). Treisman (2000) finds that economic variables explain corruption less than do socio-political variables.<sup>1</sup> A possible reason is that economic variables are affected by

\* Corresponding author. Tel./fax: +39 0771740845.

E-mail address: [erasmo.papagni@unina2.it](mailto:erasmo.papagni@unina2.it) (E. Papagni).<sup>1</sup> “The policy implications of this study are somewhat discouraging. Controlling for predetermined factors that themselves influence the choice of policies, policy decisions themselves either have little significant impact on corruption or else work painfully slowly” (Treisman, 2000, p. 441). See also Paldam (2002).

“non-economic structural” variables in the long and short run while economic variables affect institutional variables but only in the long run. In a cross-section analysis, institutional differences among countries are so great as to explain most of the variability of corruption. 28  
29  
30

Here we analyse corruption at a regional level within a country. Differences in “non-economic structural” variables remain but are much lower than between countries. Economic variables are shown to have greater weight in accounting for differences in the level of corruption across regions in a country than between countries. 31  
32  
33  
34

We shall focus on Italy. International indicators on the quality of government highlight Italy as an outlier among democratic and industrialized countries, with poor performance since the 1980s. After a period of seeking to eliminate corruption, Italy became locked into a pattern of low economic growth. Apart from intrinsic interest, our study of Italy distinguishing corruption at a regional level allows assessment of the role of economic variables in determining corruption. 35  
36  
37  
38  
39

The paper is organized as follows. Section 2 reviews some aspects of literature on corruption. Section 3 presents the Italian case through descriptive statistics and illustrates the economic causes and social and political events that could have affected the dynamics of corruption in Italy. Section 4 specifies an econometric model and discusses the results. Section 5 concludes the paper. 40  
41  
42  
43

## 2. Theories and empirics of corruption 44

### 2.1. *Economic causes of corruption* 45

The greater the presence of the state, the greater is the potential for corruption. The regulatory state encourages corruption because profits are determined more by government policies than by traditional management or entrepreneurial skills.<sup>2</sup> It has observed however that, in a principal-agent framework where the problem of the principal is to design an institution to govern the bureaucracy, it may not be efficient to eliminate corruption, as costs could exceed benefits (Acemoglu and Verdier, 2000). That is, with intervention designed to correct market failures, corruption is an unwelcome side effect of necessary intervention.<sup>3</sup> Also, there is not one direction of causality, as corruption can increase state intervention, since a firm could use bribes to obtain favourable government policies.<sup>4</sup> Treisman’s (2000) regression results on the causes of corruption show that greater state intervention in the economy was significantly associated with higher corruption only for 1 year. The relationship between government expenditure and corruption may, given these considerations, be non-linear and quite complex. 46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57

<sup>2</sup> Corruption is a means of influencing government decisions (Shleifer and Vishny, 1993). Becker and Stigler (1974) propose that higher salaries are a means of reducing malfeasance among government employees. For an overview of corruption, see Aidi (2003).

<sup>3</sup> Acemoglu and Verdier (2000) suggest that, when monitoring bureaucrats becomes more difficult, bureaucrats should receive higher wages and government intervention should decrease. But if government intervention continues to be required despite the increased difficulty of monitoring, the number of bureaucrats and their wages should increase substantially, as if the bureaucracy were expanding to seek additional rents. Therefore the possibility of corruption is likely to increase the size of government and public sector wages, compared to the case where corruption is not possible. However, this does not imply that government intervention is harmful. One of the findings of the model is that an inverse U-shaped relation between per capita income and government intervention is possible.

<sup>4</sup> An increase in government intervention increases corruption but, by increasing the number of bureaucrats and increasing wages, corruption can be prevented, although public expenditure increases as well, not only because there is an increase in government intervention but also to prevent corruption. Therefore the relationship between public expenditure and corruption is not clear and the causal relationship goes in both directions.

Other studies have emphasized the costs of corruption.<sup>5</sup> Part of the literature has focused on the relationship between enforcement, corruption, and deterrence. Polinsky and Shavell (2001) examined both the optimal amount of resources to be allocated to law enforcement and detection of bribery and optimal fine structures. However, detecting bribery is not only a problem of the size of resources to be allocated and of fine structures but depends very much on the efficiency of the institutions that provide information on which detection and enforcement are based. The problem is that the principal (government) may not be benevolent and inefficient policies are used to create and extract rents from the private sector. Therefore the quality of political and social institutions plays a very important role in efforts to control corruption.

## 2.2. Political causes of corruption

The legal system has been stressed as a source of variation in corruption across countries. The greater the effectiveness of the legal system, the less corruption there will be, but the findings of Treisman (2000) suggest caution in accepting the view that a legal system in itself determines corruption.<sup>6</sup> In cross-regional analysis within a country, the legal system is the same and, if quite unchanging over time, this factor cannot explain the difference in corruption between regions.

Another influence on corruption is decentralisation. The relationship is not clear. In a federal system competition among jurisdictions reduces opportunities for corrupt activities but also decentralized political systems may be more susceptible to corruption. Prud'homme (1995) and Tanzi (1995) have suggested that corruption may be greater at the local level because of the greater intimacy and frequency of interaction between private individuals and officials at more decentralized levels.

We may expect a democratic system to be less corrupt than a dictatorship, because of political competition. However, in a democratic system, the higher the level of political corruption, the lower may be the likelihood of emergence of a political party that promises clean government. If people believe that those in a position of power are likely to be self-interested and seek to benefit their family or some other social group to which they owe loyalty, the electorate will not believe that a change in the ruling party will reduce corruption. Therefore in a country where "civic community" is low, the ability of electoral competition to reduce corruption will be weak.

Persson, Tabellini and Trebbi (2003) find a positive effect of proportional representation on corruption. They also find that larger voting districts—which would mean lower barriers to entry—are correlated with less corruption.

## 2.3. Cultural causes of corruption

The above suggests that countries that share similar political institutions and economic policies will have similar corruption levels. However, this is not what we observe. Although West European countries share similar political institutions and economic policies, Italy has much higher corruption than other countries (as shown by Table 1). This suggests that we should look at the effects of cultural and social differences on the level of corruption.

Social capital affects corruption. Social capital is created from the horizontal networks and relations between individuals, groups, and organizations in civil society. A well-developed

<sup>5</sup> Klitgaard (1988), Ackermann (1978).

<sup>6</sup> Erzfeld and Weiss (2003) find econometric evidence of a significant relationship between legal effectiveness and corruption.

t1.1 Table 1

t1.2 Index of perceived corruption

| t1.3 |         | 1980–1985 | 1988–1992 | 1996 | 2002 | 2003 |
|------|---------|-----------|-----------|------|------|------|
| t1.4 | Spain   | 6.82      | 5.06      | 4.31 | 7.10 | 6.9  |
| t1.5 | France  | 8.41      | 7.45      | 6.96 | 6.3  | 6.9  |
| t1.6 | Germany | 8.14      | 8.13      | 8.27 | 7.3  | 7.7  |
| t1.7 | Italy   | 4.86      | 4.3       | 3.42 | 5.2  | 5.3  |
| t1.8 | Belgium | 8.28      | 7.4       | 6.84 | 7.1  | 7.6  |
| t1.9 | UK      | 8.01      | 8.26      | 8.44 | 8.7  | 8.7  |

t1.10 Source: Transparency International.

network of organizations and associations establishes cooperative relations between individuals and firms. This is *horizontal trust*. Participation in voluntary associations is a measure of social capital and may have a positive effect on democracy and economic development. Ostrom (1990) proposes that “small-scale institutions enable a group of individuals to build on social capital thus created to solve larger problems with larger and more complex institutional arrangements.” Also, Coleman (1990) proposed that social organization facilitates social capital formation, and allows the achievement of goals that could not be gained in its absence, or at a higher cost. Putnam (1993) computed the level of “civic-ness” of each of Italy’s 20 regions in 1970 and found a remarkable concordance between the performance of regional governments and the degree to which social and political life in the regions approximates the ideal of civic community. Putnam suggested that low economic development as well as low social capital would lead a community into a “vicious cycle”, draining its social capital and transforming it into a less civic community. The opposite also holds, and a community with economic development and high social capital can enter a virtuous cycle leading to a productive community (Putnam, 1993).

The above-mentioned authors share the view that a society with established patterns of trust, cooperation and social interaction will generally have higher incomes, more democratic and effective government, and fewer social problems. This view implies two propositions to be tested separately: (a) associations increase horizontal trust, and hence growth (the Putnam effect); (b) associations increase democracy (vertical trust) as they increase favourable attitudes toward political institutions (the Toqueville effect).

The above discussion is quite important for understanding the causes of corruption. Corruption reflects a weak sense of loyalty to organized society. We could also say that corruption reflects a lack of civic virtue.<sup>7</sup>

Notions of social capital or civic virtues are interesting but there are two problems to solve in an econometric study. The first is that it is difficult to give the same meaning to an index of social capital in countries that are culturally very different. Therefore comparisons in the stock of social capital must be made either between regions of the same country or between countries that are very similar. The second problem is how to measure social capital. If we use a composite index, such as that used by Putnam or more recently by Micucci and Nuzzo (2003) for estimation of social capital in Italy, the problem can arise that such indicators are positively correlated in a given time but are negatively correlated or non-correlated when we consider longer periods of time. For example, in the Italian case there is a positive correlation between the index of intensity of associational activity in Italian regions and the participation in electoral voting. However we have a negative correlation when we

<sup>7</sup> Walzer proposes that: “Interest in public issue and devotion to public cause are the key signs of civic virtues” (cited by Putnam, 1993, p. 87). And: “Participation in a civic community is more public-spirited than that more oriented to shared benefits. Citizens in a civic community, though not selfless saints, regard the public domain as more than a battleground for pursuing personal interest” (Putnam, 1993, p. 88).

consider the period 1980–2000. Therefore it could be appropriate to analyse separately the effects of different components of social capital, and in particular the index of horizontal trust, namely index of intensity of associational activity, and vertical trust, such as degree of absenteeism.<sup>8</sup>

#### 2.4. *The dynamics of corruption*

One of the most interesting facts about corruption is that it varies greatly not only across countries but also in periods of time within a given country. Some authors (Myrdal, 1968; Huntington, 1968) expect that in the early stages of development changes in social and economic systems allow greater incentives as there are greater opportunities for corruption. This is intended to explain the increase in corruption that is commonly assumed to have taken place in recent times with independence and the transition from colonial status to self-government. From this theory we could expect, *ceteris paribus*, an inverted U relationship between corruption and economic development. In the early stage of growth, corruption increases and then decreases with economic development (Treisman, 2000).

Other theories emphasize that the same socio-economic structure can give rise to different levels of corruption. The expected profitability of engaging in a corrupt transaction, as perceived by a particular individual, may depend on how many other individuals in the organization or society are expected to be corrupt. There are many reasons why differences in returns change as corruption changes: (a) it is more difficult to detect a corrupt transaction as corruption increases since the capacity of public investigations and prosecution may be strained; (b) internalised moral feelings of guilt from breaking the rules diminish as the number of rule-breakers increases; (c) when many others engage in corruption, the loss of reputation when discovered is likely to decrease. It is also possible that corruption is positively correlated with previous corruption when the level of corruption was low or not very high, and after a peak is reached there is inverse correlation. This explanation has been formalized in the model of Andvig and Moene (1990), where it is assumed that the expected punishment for corruption when detected declines as more officials become corrupt because it is less costly to be discovered by a corrupt than a non-corrupt superior. This model generates two stable stationary Nash-type equilibria and highlights how the profitability of corruption is positively related to its frequency and how a transparency shift may lead to a permanent change in corruption. The theoretical model of Andvig and Moene can explain how an anticorruption campaign, by increasing both the moral cost of the bribe and the probability of being discovered, can shift an economy from a high to a low equilibrium corruption. On the other hand, a stable increase in corruption could be the result of a process of weakening of political institutions and the sense of loyalty to organized society. The spread of corruption among minor officials could stem from a deterioration of the morals of some politicians and higher officials. In this case it must be explained why such changes in social norms occur. A possible explanation is that they are caused by changes in the political system (i.e. from democracy to dictatorship and vice versa) that affect the structure of the incentives for corruption (Golden, 2000).

In the following section we apply the above theories to explain the dynamics of corruption in Italy.

### 3. Corruption in Italy

In a book published in 1974 on the peculiarities of the Italian political system,<sup>9</sup> there were several essays on the mechanisms that have resulted in the stability of the Italian political system

<sup>8</sup> On components of social capital, see also Bjørnskov (2006).

<sup>9</sup> Cavazza and Graubard (1974).

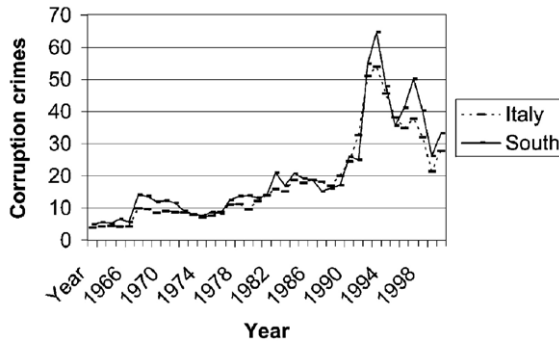


Fig. 1. Crimes of corruption in Italy and southern Italy in the period 1963–2001.

on the one hand and the inefficiency of public administration on the other. One of the most important mechanisms was the system of political patronage, in Italian called *clientelismo*, which allowed groups of citizens linked directly to politicians to reap high rewards through special laws (*leggine*) or through political appointments. Such rewards and appointments were not aimed at enhancing efficiency or recruiting professional expertise. The interaction between politicians, bureaucracy and groups of citizens directly linked to politicians was a characteristic of the Italian political system but it was only in the early 1970s that political corruption began to spread.<sup>10</sup> So in the book corruption was not considered a major problem of the Italian economy. However, in the 1980s corruption began to be seen as a problem and a growing number of citizens became intolerant to its spread (Cazzola, 1988). The different emphasis placed on corruption in the two periods from the Second World War to the 1970s and later is probably caused by the much higher spread, in the 1980s, of bribes in relations between citizens and public administration.

### 3.1. The dynamics of corruption crimes since 1963

The statistical evidence for this increase in corruption is given by corruption crimes per capita detected by Italian law. The number of crimes against public administration that we consider is based on Statutes no. 286 through 294 (ISTAT-Annals of Judicial Statistics). We exclude other statutes of crimes against the P.A. that do not involve crimes of corruption such as Statute 279—insulting a public officer (*oltraggio al pubblico ufficiale*), or Statute 295—neglect or refusal of an official duty (*omissione o rifiuto di atti di ufficio*).

This index is available for the period 1963–2001 and its dynamic is shown in Fig. 1. The figure shows the number of corruption crimes, on a per capita basis, in Italy and in the Mezzogiorno. The index is not a measure of actual corruption crimes, but only of the crimes reported to the police, and hence it has the drawback of underestimating the true phenomenon. Two other important criticisms could be levelled at the use of this index to evaluate the dynamics of corruption. First, many corruption crimes reported in year  $t$  were committed in year  $t-x$ . Therefore such crimes may have been committed under different circumstances (i.e. the institutional/legal framework when the crimes were committed was different from the year of the report). Secondly, an increase in the number of recorded crimes does not necessarily mean that the true number of crimes has

<sup>10</sup> There were many cases of political corruption even before the war. We recall the Banca Romana case under the Giolitti Government. In the period 1880–1976 in the *Corriere della Sera* newspaper, only very important national cases of corruption were reported (Cazzola, 1988). However, it was only after 1976 that political corruption became a serious phenomenon, and it was possible to read newspaper reports about corruption in many parts of Italy.

t2.1 Table 2  
t2.2 Indexes of corruption in Italy in the period 1980–2003

| t2.3  | Years     | Perceived Corruption Index = 10-CPI | Corruption crime per capita |
|-------|-----------|-------------------------------------|-----------------------------|
| t2.4  | 1980–1985 | 100                                 | 100.00                      |
| t2.5  | 1988–1992 | 111                                 | 157.6                       |
| t2.6  | 1995      | 136                                 | 319.2                       |
| t2.7  | 1996      | 128                                 | 268.1                       |
| t2.8  | 1997      | 97                                  | 244.4                       |
| t2.9  | 1998      | 105                                 | 265.3                       |
| t2.10 | 1999      | 103                                 | 224.2                       |
| t2.11 | 2000      | 105                                 | 150.6                       |
| t2.12 | 2001      | 88                                  | 195.1                       |
| t2.13 | 2002      | 93                                  | N/A                         |
| t2.14 | 2003      | 91                                  | N/A                         |

t2.15 Base year: 1980–1985 = 100. N/A means not available.

increased. There may have been only an increase in willingness to report crimes or the reporting capacity of the police/judicial legal institutions may have improved.<sup>11</sup>

In the Italian case the first criticism does not apply, as there was—at least until 1993—no change in the law of corruption. After 1993 the only important change in the law on corruption was the increase in penalties. As regards the second point, we checked the dynamics of the index based on reported crime against that of another index of corruption widely used in econometrics, Transparency International's annual index of perceived corruption.<sup>12</sup> This latter index is built using a series of surveys and is thus not subject to the criticism levelled above. Transparency International and Goettingen University have published historical data from 54 countries. Transparency International's annual index of perceived corruption (CPI) is available only from 1980: Table 1 shows the values of the index from 1980 to 2003 for some European countries. In the 1980s Italy showed high corruption compared to other industrialised countries and, at least according to this index, corruption increased in Italy till 1996 and subsequently decreased.

In Table 2 we compare the performance of the two corruption indexes in the last two decades. The number of corruption crimes is compared with an index given by (10-CPI). We call the first index IOC and the second index IPC. For both indices we have set the 1980–1985 value at 100. Interestingly, the dynamics of both (Fig. 2) are very similar in the period 1980–2000. Both indices show an increase in corruption till 1995, and then a decrease after this year.

The correlation coefficient between the two indexes during the period 1995–2001 is 0.70, which is quite high if we take account of major differences in the construction of the two indices. In fact, the IOC is made up by counts of crimes, and hence every crime has the same weight, while the CPI derives from surveys of opinions that are qualitative in nature, even if they are summarised in a quantitative index. The fact that the index of corruption based on official data has similar trends to that based on surveys reassures us that the former captures the phenomenon of corruption.

Another possible criticism of the index based on corruption crime per capita is that it could be affected by a systematic bias due to differences among regions between the actual number of

<sup>11</sup> These two points were raised by one of the two referees of this paper.

<sup>12</sup> The index is constructed by a team of researchers at Goettingen University from a number of annual surveys. The index relates to the perceptions of the degree of corruption as seen by business people, risk analysts and the general public and ranges between 10 (highly honest) and 0 (highly corrupt).

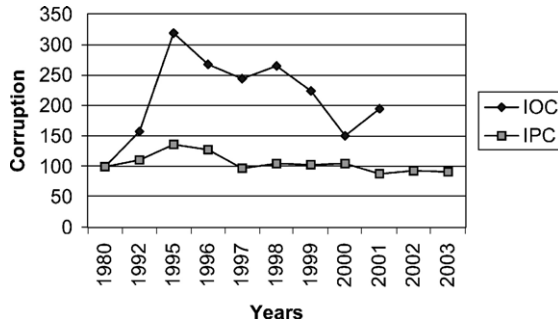


Fig. 2. A comparison of the time-series of two corruption indexes for Italy.

corruption crimes and the number reported and detected by the police. We carried out a regression (the results are in Appendix A) of the effect of an index of judicial efficiency on corruption crimes and found a positive but not significant relation. Therefore we might expect modest systematic differences between regions in the proportion of detected corruption crimes to actual ones.

### 3.2. The causes of corruption in Italy

There are three main aspects of corruption shown by Fig. 1. The first is that corruption crimes in Italy increased steadily between the mid-1970s and the first half of the 1990s. The question that needs answering is why Italy shifted from a system of political patronage, that is a form of constituency service that uses the power of politicians over public administration to benefit specific named clientele, to a system of political corruption that involves legislators, bureaucrats and businessmen who are the actors involved in bribery. The second aspect is that corruption is higher in southern than in northern Italy. So one must explain the differences in the corruption level between North and South. The third aspect is the decrease in corruption after 1993. This decrease could be a consequence of the so-called *Mani Pulite* (Clean Hands) campaign that seems to have affected expectations on the profitability of corruption, as people saw that legislators, administrators and the judiciary were intent on enforcing integrity of public officials at all levels. An explanation of corruption in Italy must deal with these three aspects. The purpose of this section is to answer the questions raised by the above aspects.

There could be many possible causes behind the spread of corruption in Italy, such as the rise of federalism, the increase in state intervention, and the rise of a new ruling class without the ideals of politicians who built the Italian Republic after World War II.

Golden (2000) suggested that in the 1970s there was a large exogenous increase in the incentives for political corruption both from the demand and supply side. The reasons pointed out by Golden were the following:

1. The passing of a law on the funding of political parties in 1974 that prohibited public companies from donating money to political parties or electoral campaigns. By making such donations illegal, the law on public financing criminalized existing practices.
2. The change in the leadership of the Socialist Party, a very important ally of the government, that for a variety of reasons transformed Italy's political system in the 1980s into one characterized by massive political corruption.
3. The collective incumbency advantage of the *Democristiani* (Christian Democrats) had by the late 1970s become stronger than ever. There was a belief—perhaps most notably among



Socialist politicians—that Italy had no genuine political opposition or alternative government, and that governing parties were invulnerable. As a result, facilitating services could be priced.  
 4. The lack of foreign competition for government contracts gave Italian firms the economic possibility and the incentives to pay the bribes expected of them.

Besides the above causes, the rise in corruption may be linked to the institutional development of federalism in Italy. In the last 30 years, Italy has gone through many institutional reforms from a highly centralized model to a decentralized one. The 1948 constitution specified five “special regions”, three located on national borders (Val d’Aosta, Trentino-Alto Adige, Friuli-Venezia Giulia) and two islands (Sicily and Sardinia). The law to create “ordinary regions” was passed in 1968 and the first regional councils were elected in June 1970. Two years were required for the central government to issue decrees transferring powers, funds and personnel to regions, so that only in 1972 did regional governments become operative. In 1985 Law 382 was passed authorizing the decentralization of important new functions to the regions. Central authorities retained general powers of “direction and coordination” over regional affairs but most regional funds came from the centre in the form of general purpose and special purpose transfers.

Decentralization of functions and central allocation of resources made politicians irresponsible and reduced incentives to allocate resources efficiently. For politicians the probability of being elected was much more linked to the number of *favori* (favours) that they could offer their “clients” than to the efficiency of public expenditure and the probability of being apprehended.<sup>13</sup> Further, decentralisation increased the number of politicians: the new entrants had to fund their own electoral campaigns and were driven to use resources from bribery to do so. As taxes and benefits were the exclusive domain of national government, local politicians were more interested in obtaining more resources from central government than using resources efficiently. The decentralization of functions from central governments to local governments (the power to issue licenses, the power to hire new staff, the power to choose the projects to finance, etc.) increased the opportunities for corruption.

All the above causes decreased the cost of corruption and, in the framework of the Andvig and Moene model, a self-reinforcing mechanism of corruption started. Italy began on a path toward a higher level of equilibrium of corruption that resulted in the dynamics shown in Fig. 1. The peak was reached in 1995, and after that year corruption decreased.

The reasons mainly lie in institutional change. In Italy in 1993 a strong anti-corruption campaign started called *Mani Pulite*. However, the number of trials per corruption crime had already increased steadily from 1989. The reaction of the public at large led to the downfall of the two main governing political parties, the Christian Democrats and Socialists. In Italy, as in other European countries, the wave of opinion against corrupt practices started at the beginning of the 1990s and peaked in the second half of the decade. Corrupt practices, which were tolerated as long as the danger of communism persisted, prevented any serious challenge to institutional power but were no longer accepted after the fall of the Berlin Wall. In Italy there were also economic reasons for the campaign against corruption. For the Italian economy the cost of corrupt practices had become increasingly high and was one of the causes of the very large budget deficit.<sup>14</sup> Thus ordinary citizens and business people supported magistrates investigating cases of political corruption. By the end of 1995 Italy’s anticorruption magistrates had gone on to arrest more than 1300 top business people, civil servants and politicians. The effects of the

<sup>13</sup> In many elections the politicians suspected of bribery, as soon as they became eligible again, were re-elected.

<sup>14</sup> Immediately after *Mani Pulite* there was a reduction in the cost of public works for government.

anticorruption campaign on the diffusion of bribery were not immediate but strong.<sup>15</sup> Italy's indices, based on detected crime, probably recorded the change in trend with a delay of 1 or 2 years.

A second reason for the decrease in corruption is due to the institutional change of the electoral system. In 1993 Law 81 changed the system to make the Mayor, the President of the Provincial Authority and the President of the Regional Authority electoral offices. The new system made the mayor and other presidents much more independent of political parties, and therefore more able to resist the pressure of lobbies than in the past. The new system weakened the extensive use of political patronage, one of the most important determinants of corruption. Therefore one would expect the new reform to reduce corruption.<sup>16</sup>

The above two causes shifted the Italian system from a stable high equilibrium level of corruption to a stable lower equilibrium of corruption. The question now is whether the effects of such changes can persist or whether the relaxing of the *Mani Pulite* campaign and a decrease in the cost of being corrupt will shift Italy back to a higher level of corruption.

However, the changes in the dynamic of corruption are only one part of the story, as there is another aspect related to differences in corruption between regions. Fig. 1 shows that there are great differences in the level of corruption between northern and southern Italy. A possible explanation is that these differences are due to cultural reasons.

In Italy many studies have shown that the distribution of civic values among regions is not uniform. The difference between North and South has been exemplified in the "amoral familism" theory: "Maximize the material, short-run advantage of the nuclear family: assume that all others will do likewise" (Banfield, 1958). Putnam (1993), who computed the level of "civic-ness" of each of Italy's 20 regions in 1970, correspondingly found a lower index in southern Italian regions and remarkable concordance between the performance of regional governments and the degree to which social and political life in those regions approximates to the ideal of civic community.<sup>17</sup> He found a parallel between the various regimes that characterized Italy at the beginning of the 14th century and the distribution of civic norms.<sup>18</sup>

On the other hand, it could be maintained, following the modernization theory, that corruption in southern regions is higher, because of a process of modernization that northern regions have already experienced.

<sup>15</sup> In a survey conducted at the end of 1993 among 786 Italian young entrepreneurs, 42% declared that corruption had been greatly reduced, 40% slightly reduced. 6% declared that the phenomenon of corruption had disappeared and 13% declared that the intensity of corruption was the same as before. "Sviluppo, criminalità e corruzione", *Quale impresa*, no. 7 1994.

<sup>16</sup> However, one of the effects of such a reform is to increase political stability, which another variable that affects corruption. The argument in favour of a positive relationship between corruption and political stability is as follows: when a new party comes to power, it will have an incentive to reform the corrupt practices of its predecessor (Geddes, 1997, p. 12). Political stability provides the time for reputations to be built and relationships to form across the public-private border in which both sides can have confidence. Thus, while increasing the potential loss if bureaucrats are fired, political stability can increase the expected return to corruption.

<sup>17</sup> Four indicators of civic sociability are considered by Putnam: 1) The vibrancy of association life, 2) The incidence of newspaper readership, 3) The electoral turn-out in the referenda, and 4) The incidence of preference voting. The four indicators are highly correlated in the sense that regions with a high turnout for referenda and low use of the personal preference ballot are virtually the same regions with a high diffusion of civic association and a high incidence of newspaper readership.

<sup>18</sup> The southern territories once ruled by Norman kings constituted the seven least civic regions in the 1970s. The Papal States (minus the communal republics that lay in the northern section of the Pope's domain) correspond to the next three or four regions up the civic ladder in 1970. At the end of the scale the heartland of republicanism in 1300 corresponds to the more civic regions of today, followed closely by the areas still further north in which republican tradition, though real, had proved somewhat weaker.

Another reason for the differences in corruption between Italian regions could be greater state intervention in the South. In Italy state intervention was quite high and increasing until the end of the 1980s. By the end of the 1980s and in the 1990s there was a reduction in the weight of the state in the economy; but the privatisation process <sup>19</sup> gave new opportunities for corruption but in southern regions, because they were less developed, after the Second World War state intervention was heavier than in northern regions. The share of public consumption in GDP was much higher for southern regions than for northern regions, and at least until 1990 the southern regions received a higher level of public investment per capita. Hence, if public expenditure has an influence on corruption, higher corruption in southern regions should be accounted for by variables that measure the extent of public policy.

Another variable that could explain the difference in corruption between regions is related to the degree of competition between political parties. We could expect a higher level of corruption in regions dominated for a long time by one political party.

#### 4. Econometric analysis of corruption in Italian regions

In this section we present the results of our econometric study. Data are time series over the period 1963–2001 for Italy's 20 regions.

Arguments in the previous sections have proposed that corruption is the result of economic, political, cultural and historical causes. These factors are strongly interrelated, albeit probably with different time lags. This allows non-biased cross-section estimation across countries to determine the factors that affect the level of corruption. Such regressions provide little scope, however, for understanding how history has changed the incentive structure that determines the level of corruption. With a large number of countries and a large number of structural variables representing institutions, it is very difficult to understand how changes in these variables affect the dynamics of corruption. Panel data at the regional level have the advantage that it is easier to identify how structural change in political institutions and social norms has affected the dynamics of corruption. On the other hand, regional data do not allow the use of variables that are the same for all regions (wages of bureaucrats, commercial policies, legal system, institutions that make property rights secure, judicial systems, etc.).

We have already discussed the dependent variable in our regressions: the number of corrupt activities reported to the police in the period 1963–2001 per one million inhabitants. The quality of this variable as an indicator of corruption was described in previous sections. It was also used in [Del Monte and Papagni \(2001\)](#), where it was included among regressors in econometric estimates of the growth rate of per capita income in the same panel of Italian regions. In that study it emerged that this measure of corruption significantly and negatively affected economic growth in Italy through its influence on private and public investment. Here we set up some econometric models to account for the causes behind the phenomenon of corruption in Italy in the long run.

##### 4.1. Data and econometric model

Against the background of the discussion of corruption in Italy presented in Section 3, we specify an econometric model where the main explanatory factors of corruption are (1) indexes of social capital, (2) economic development, (3) public expenditure, and (4) political competition and

<sup>19</sup> The SME case where businessmen and politicians corrupted judges to obtain favourable verdicts is a good example of such opportunities.

institutional changes. We have seen that in Italy (Putnam, 1993) the performance of regional government varies. This phenomenon in some regions could be ascribed to behaviour and social norms linked to the history of Italy. In order to capture the strength of civic virtues across the Italian regions, we collected data on the presence of Voluntary Organisations (VO) for the years 1982, 1993, and 2001, and the number of voters at national polls (1963–2001).<sup>20</sup> We used in regressions the ratio of VO to the population and the percentage of absenteeism at national polls. The first variable can be considered exogenous with respect to the corruption index. This is not the case for the second, since, when corruption is high, people could give up their democratic right to participate in national political life, and hence we assume that absenteeism is endogenous with respect to corruption. We also test the hypothesis of differences between the *Mezzogiorno* regions and the rest of Italy with respect to the influence of social capital on corruption by the use of a dummy variable (South).

Real per capita GDP and the size of the agricultural sector are often used as proxy variables for the level of development. In cross-countries analyses, per capita GDP often shows strong and inverse correlation with the size of agricultural income, so these two variables could be good substitutes as proxies of economic development. However, in our analysis we believe that the share of agriculture value-added in GDP better represents the degree of modernization of the economic structure, because differences in per capital GDP between regions within a country can be largely affected by the flow of resources from rich to poor regions. Furthermore, while the share of value-added in agricultural can be considered exogenous in estimates of corruption, this is not the case of per capita GDP that might be an endogenous variable.

Another important aspect of corruption is the pool of opportunities for illegal profits arising from businesses with the public administration. Public expenditure could be an endogenous variable because it can be influenced by corruption, since dishonest politicians are interested in the creation of opportunities for bribery. We consider two distinct items of public expenditure: consumption and infrastructure. Actually, there are often some different features in these two types of public businesses. Those that concern investment projects include: a greater monetary value, a more centralized decision making process, and a lower opportunity of hiding information on the projects. The variables enter the estimated equations as the ratio to regional GDP. Time series for government consumption refer to the years 1963–2001, and for public investment refer to the period 1963–1996.

We also investigate the effect of political lobbying and institutional changes on corruption. In order to capture the main features of political competition in Italian regions, we include among regressors of corruption the Herfindahl index of regional concentration of shares of parties at the Senate national elections since 1963. We thereby seek to capture the effects of both the strategic interaction among parties and between them and the voters on regional corruption. High fragmentation of political parties might cause government weakness and a favourable environment for the enforcement of special interests, while the opposite case of high concentration could also increase corruption due to the power given to politicians. Since the opposite situations of low and high concentration should be detrimental to public administration efficiency, we deal with this non-linear effect in the estimated model.

We take account of institutional changes in Italy's recent history. A dummy variable distinguishes the period before and after 1972 when regional governments became active. Another dummy variable distinguishes the five regions with *special statute* from the rest. Another dummy variable marks the years (1994 and later) in which courts fought hard against political corruption and Italy changed its proportional electoral law into a modified first-past-the-post system.

<sup>20</sup> Italy had 12 national parliament elections in the period 1963–2001. We constructed time series for this variable repeating the data of the last election till the year that preceded the next election.

We specify a dynamic econometric model. There are several reasons for choosing a dynamic specification. As is the case of any illegal activity, corruption breeds corruption since it makes further crimes easier (Andvig and Moene, 1990). Differences among regions arise only in the long run as a consequence of differences in structural factors such as economic development, social capital and political institutions. Yet, in many examples of corrupt transactions, time is needed for bargaining and time lags are involved in public decision-making.<sup>21</sup> Moreover, the use of counts of crimes against public administration reported to the police as a proxy for corruption involves problems with the time at which a crime was committed. Such problems that can be solved with dynamic autoregressive specification of the equation of corruption.

A single equation representing an Autoregressive Distributed Lags (ADL) model provides the basis for our econometric analysis:

$$\text{Corruption}_{jt} = \beta_0 + \sum_{i=1}^n \beta_i \text{Corruption}_{j,t-i} + \sum_{i=0}^m \mathbf{d}_i \mathbf{x}_{j,t-i} + f_j + u_{jt};$$

where  $j=1\dots 20$  regions,  $f_j$  are region-specific unobserved effects,  $u_{jt}$  are general stochastic errors, and  $\mathbf{x}$  is a vector of explanatory variables. In order to account for a non-linear effect of economic development, we include among explanatory variables the squared value of real per capita GDP and of the share of agriculture value-added, while a non-linear effect of political competition is tested by augmenting the model with the squared value of the Herfindhal index of party shares. In order to test the hypothesis of Acemoglu and Verdier (2000) of an inverted U relationship between public expenditure and corruption, we include among regressors the squared values of public consumption and investment.

The estimation methodology takes account of endogeneity problems that may arise from the specified model. We apply Two Stages Least Square after a within transformation of the data (2SLSDV). Given the large size of the time series that we use, this method provides consistent parameter estimates even in the context of a dynamic autoregressive model. Residual autocorrelation is tested through the OLS estimation of a first-order autoregressive model.

#### 4.2. Econometric results

The first estimation aimed at selecting appropriate time lags for the ADL equation. It emerged that a 1-year lag was a satisfactory choice since higher lags were not significant and the hypothesis of absence of residual autocorrelation could be accepted even in the model with a 1-year lag. Table 3 presents the whole set of parameter estimates for alternative specifications of the regression equation of per capita corruption. It can be seen that no regression equations exhibit residual autocorrelation. All estimated equations show significant goodness of fit, and most of the explanatory variables show significant parameters of the expected sign. In the following we discuss estimation results distinguishing economic, social capital and political variables.

#### 4.3. Economic determinants of corruption

Our estimates show significant positive parameters of the squared values of the share of agriculture value-added in GDP.<sup>22</sup> However, the estimates do not show a U-shaped relationship

<sup>21</sup> This feature of public decision-making in Italy is actually relevant.

<sup>22</sup> The value of per capita GDP in Italy varies in a range only on the increasing branch of the curve. Hence, corruption increases as per capital GDP, and therefore the degree of modernization, increases.

t3.1 Table 3

t3.2 Determinants of corruption in Italy: ratio of crimes against public administration to population (1963–2001)

| t3.3                             | (1)      | (2)      | (3)      | (4)      | (5)      | (6)      | (7)      | (8)      |
|----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| t3.4 Corruption per capita (-1)  | 0.309    | 0.331    | 0.367    | 0.367    | 0.357    | 0.363    | 0.273    | 0.173    |
| t3.5                             | (2.456)  | (8.675)  | (10.662) | (10.663) | (9.879)  | (10.441) | (5.446)  | (2.852)  |
| t3.6 GDP per capita (-1)         | 0.035    |          |          |          |          |          |          |          |
| t3.7                             | (2.397)  |          |          |          |          |          |          |          |
| t3.8 GDP p. c. (-1) squared      | -0.007   |          |          |          |          |          |          |          |
| t3.9                             | (-1.903) |          |          |          |          |          |          |          |
| t3.10 Agriculture (-1)           |          | -0.203   | -0.256   | -0.254   | -0.232   | -0.194   | -0.122   | -0.132   |
| t3.11                            |          | (-2.355) | (-3.226) | (-3.509) | (-3.294) | (-2.515) | (-2.914) | (-2.647) |
| t3.12 Agriculture (-1) squared   |          | 0.687    | 0.801    | 0.806    | 0.705    | 0.536    | 0.671    | 0.877    |
| t3.13                            |          | (2.136)  | (3.059)  | (3.126)  | (2.674)  | (1.801)  | (2.279)  | (2.549)  |
| t3.14 Public consumption (-1)    |          | 0.051    | 0.039    | 0.041    | 0.042    | 0.046    | 0.043    | 0.027    |
| t3.15                            |          | (1.719)  | (1.873)  | (1.929)  | (1.970)  | (2.159)  | (0.975)  | (0.297)  |
| t3.16 Public con. (-1) squared   |          | -0.011   | -0.009   | -0.009   | -0.009   | -0.010   | -0.008   | -0.003   |
| t3.17                            |          | (-1.724) | (-1.873) | (-2.003) | (-2.049) | (-2.211) | (-0.893) | (-0.165) |
| t3.18 Public investment (-1)     |          | -0.023   |          |          |          |          |          | -0.021   |
| t3.19                            |          | (-0.865) |          |          |          |          |          | (-0.431) |
| t3.20 Public inves. (-1) squared |          | 0.039    |          |          |          |          |          | -0.007   |
| t3.21                            |          | (1.195)  |          |          |          |          |          | (-0.131) |
| t3.22 Pol-concentration (-1)     | -0.250   | -0.158   | -0.163   | -0.164   | -0.177   | -0.164   | -0.239   | -0.235   |
| t3.23                            | (-3.721) | (-5.757) | (-7.156) | (-7.188) | (-6.508) | (-7.183) | (-4.702) | (-4.125) |
| t3.24 Pol-concent. (-1) squared  | 0.210    | 0.126    | 0.134    | 0.136    | 0.147    | 0.137    | 0.193    | 0.180    |
| t3.25                            | (3.569)  | (4.915)  | (6.153)  | (6.169)  | (5.720)  | (6.227)  | (3.794)  | (3.171)  |
| t3.26 Absenteeism (-1)           | 0.001    | 0.002    | 0.001    | 0.001    | 0.001    | 0.002    | 0.001    | 0.003    |
| t3.27                            | (0.514)  | 5.925    | (4.851)  | (5.066)  | (3.820)  | (4.548)  | (1.800)  | (2.913)  |
| t3.28 Absenteeism (-1)*South     |          |          |          |          |          | -0.001   |          |          |
| t3.29                            |          |          |          |          |          | (-1.608) |          |          |
| t3.30 Voluntary organizations    |          |          |          |          |          |          | -0.026   | -0.032   |
| t3.31                            |          |          |          |          |          |          | (-2.498) | (-2.537) |
| t3.32 Voluntary organ.*South     |          |          |          |          |          |          | 0.057    | 0.101    |
| t3.33                            |          |          |          |          |          |          | (2.167)  | (2.630)  |
| t3.34 Dummy Southern regions     |          |          |          |          |          | -0.007   | -0.013   |          |
| t3.35                            |          |          |          |          |          | (-0.819) | (-0.540) |          |
| t3.36 Dummy 1972                 |          |          | ≡0       |          |          |          |          |          |
| t3.37                            |          |          | (-0.333) |          |          |          |          |          |
| t3.38 Dummy 1972 spec-regions    |          |          |          | 0.002    |          |          |          |          |
| t3.39                            |          |          |          | (0.592)  |          |          |          |          |
| t3.40 Dummy 1994                 | 0.016    |          |          |          | 0.002    |          |          |          |
| t3.41                            | (1.400)  |          |          |          | (0.866)  |          |          |          |

t3.42 Table 3 (*continued*)

| t3.43 |              | (1)           | (2)           | (3)           | (4)           | (5)           | (6)           | (7)           | (8)           |
|-------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| t3.44 | $R^2$        | 0.543         | 0.550         | 0.554         | 0.554         | 0.554         | 0.550         | 0.446         | 0.477         |
| t3.45 | $\rho$       | 0.003         | -0.035        | -0.060        | -0.052        | -0.060        | -0.049        | -0.067        | -0.033        |
| t3.46 |              | (0.100)       | (-0.881)      | (-1.606)      | (-1.398)      | (-1.608)      | (-1.325)      | (-1.238)      | (-0.525)      |
| t3.47 | Observations | 740           | 660           | 740           | 740           | 740           | 740           | 360           | 280           |
| t3.48 | Period       | 1963–<br>2001 | 1963–<br>1996 | 1963–<br>2001 | 1963–<br>2001 | 1963–<br>2001 | 1963–<br>2001 | 1982–<br>2001 | 1982–<br>1996 |

t3.49 Within Two Stages Least Square estimates.

t3.50 Student's  $t$  in parentheses.  $\rho$  is the coefficient of a first order autoregressive model of residuals estimated by OLS.

t3.51 Regression (1): Endogenous variables, GDP p. c. (-1), GDP p. c. squared (-1), Absenteeism (-1); Instruments, exogenous var. and Agriculture (-1), Agriculture (-1) squared, Dummy 1972, GDP p. c. (-2), GDP p. c. squared (-2), Public consumption (-2), Absenteeism (-2), Corruption (-2).

t3.52 Regression (2): Endogenous variables, Absenteeism (-1), Public consumption (-1), Public investment (-1); Instruments, exogenous var. and Dummy 1972, GDP p. c. (-2), GDP p. c. squared (-2), Public consumption (-2), Absenteeism (-2), Corruption (-2), Public investment (-2).

t3.53 Regressions (3), (4), (5), (6), (7), (8): Endogenous variable, Absenteeism (-1); Instruments, exogenous var. and Dummy 1972, GDP p. c. (-2), GDP p. c. squared (-2), Public consumption (-2), Absenteeism (-2), Corruption (-2).

between corruption and economic backwardness. Calculations on time series show that the share of agriculture value-added varies in a range on the decreasing branch of the relation. Cross-regions variability of the degree of development seems too low to allow a satisfactory test of the theory.

Concerning the interpretation of the role of public expenditures—two endogenous variables in our estimates—those in public infrastructures do not influence corruption. The same cannot be said of public expenditure on consumption goods and services, because this variable has significant positive parameters. Also the squared value of public consumption enters estimates with significant parameters that identify an inverted U curve on the range of values of public consumption data. Hence the hypothesis by [Acemoglu and Verdier \(2000\)](#) seems to be confirmed in this respect. Public consumption parameter estimates lose significance for data for the period 1982–2001. However, these estimates seem negatively affected by the presence of the degree of absenteeism at national polls. In the period 1982–2001 correlation between the two variables is high (0.68) and some multicollinearity could be responsible for the result. It must be noted that such a high positive correlation is almost surprising and seems to reveal a linkage between public choices and voter behaviour: virtuous in regions with high political participation, vicious in regions with high electoral absenteeism.

#### 4.4. *Social capital factors of corruption*

From the full set of estimates it can be seen that the percentage of absenteeism and the presence of voluntary organisations in Italian regions are significant determinants of corruption. According to our estimates, in regions where the majority usually participates in national elections, there is lower diffusion of illegal behaviour in public administration. This effect can be interpreted as the consequence of positive social norms through which the community relates to public administration, even if it may also be considered a sign of an efficient local political system. The strength of social norms could also account for the negative influence of VO on corruption. Hypotheses in the literature on the difference between the Mezzogiorno and the rest of Italy in

terms of social capital are confirmed by our econometric estimates only in the case of Voluntary Organizations. 478  
479

#### 4.5. *Political competition and institutional changes* 480

We investigate the role of competition among parties at a regional level as a determinant of corruption by the inclusion in regressions of an index of concentration of shares of political parties, combined with its squared value. Estimated parameters strongly justify a U-shaped relation between corruption and political concentration over the range of values taken by Italian data in the period 1963–2001. This result accords with a view of political competition and lobbying where fragmentation and high concentration are both negative contexts and virtue lies in the middle. 481  
482  
483  
484  
485  
486

As regards institutional changes at a regional level, neither of the following dummies—years before and after 1972; special and ordinary statute regions; years before and after 1994—enters our estimates with significant parameters. These results should not be interpreted as pointing to the irrelevance of such changes, as these effects should have been captured by the rest of the included variables. This could be the case of party concentrations that changed as a consequence of the creation of regional governments, and of absenteeism and public consumption expenditure, the trend for which changed in the early 1990s when public opinion and courts fought against political crime. 487  
488  
489  
490  
491  
492  
493  
494

## 5. **Conclusions** 495

The econometric results of our analysis reveal the main aspects of Italian corruption: (a) Italy's patronage system changed into a full scale system of corruption in the early 1970s, (b) the level of corruption differs between Italian regions, and (c) the decrease in the level of corruption after 1993 is explained by political and cultural variables and economic variables. In Italy public expenditure on consumption goods and services seems to be an important cause of corruption. This result is more robust than that found by Treisman (2000). In Italy corruption increased as a consequence of changes in the political and institutional system, and corruption has spread even to those levels of administration such as the judiciary from which it was absent in the past. The spread of corruption weakened the sense of loyalty to civil and organized society and the climate of corruption created further incentives for corruption, due to the belief that known offenders could continue their corrupt practices with little risk of punishment. Interventionism increased the opportunities for corruption. The negative effect of corruption on growth (see Del Monte and Papagni, 2001) and the increasing cost of corruption for the business community were some of the main reasons for the success of the *Mani Pulite* anticorruption campaign that led to a change in the political regime in Italy. Only some of the causes that created the spread of corruption in Italy, such as the low probability of the opposition unseating the majority, have been eliminated. The increasing presence of voluntary organizations seems to have lowered corruption, but these changes are not strong enough, with signs (Table 2) of a new rise in the level of corruption. 496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513

We do not seek to minimize the importance of the incentive structure that may induce even opportunists to forgo corrupt practices but we believe that institutional change is more important than economic change in shaping the incentive structure. Therefore we believe that, to fight corruption in Italy, it is very important to promote institutional change, for example, by simplifying and increasing the transparency of public administration, choosing public administrators on the basis of merit and not of political links, and approving a law that prevents corrupt politicians being re-elected after initial proof of guilt. Such institutional change is very important for creating a 514  
515  
516  
517  
518  
519  
520



favourable climate for fighting corruption. Economic incentives alone are extremely unlikely to be a solution to the corruption problem in Italy. 521 522

## 6. Uncited references 523

|                            |     |
|----------------------------|-----|
| Ades and Di Tella, 1999    | 524 |
| Bardhan, 1997              | 525 |
| Becker, 1968               | 526 |
| Breton, 1996               | 527 |
| Cavazza and Graubard, 1974 | 528 |
| Herzfeld and Weiss, 2003   | 529 |
| La Porta et al., 1999      | 530 |
| Murphy et al., 1993        | 531 |
| Olson, 1982                | 532 |
| Rose-Ackerman, 1978        | 533 |

## Acknowledgements 534

We thank Miriam Golden and two referees for comments and suggestions. We also thank participants at the 73rd annual meeting of the Southern Economic Association, San Antonio (TX) for helpful comments. Laura Baraldi provided excellent research assistance. 535 536 537

## Appendix A 538

In regions where there is lower judicial efficiency, the probability of detection and being charged may well be lower. This could cause a lack of faith in the judicial system and discourage people from reporting corruption crimes to the police. On the other hand, the lower probability of being detected could increase, *ceteris paribus*, the number of corruption crimes in regions where judicial efficiency is lower. In order to evaluate the likely influence of judicial efficiency on the reliability of statistics on reported crimes, we performed regressions of those statistics on an index of the length of judicial processes (IPDUR)—taken from Marselli and Vannini (1997)—which shows very distinct regional variations in Italy. IPDUR is the ratio of the number of judicial proceedings pending in the regional courts at the beginning and end of each year to the number of judicial proceedings initiated or completed in that same year times 365. The time period is 1970– 539 540 541 542 543 544 545 546 547 548

t4.1 Table 4

t4.2 The effect of judicial efficiency on the ratio of crimes against public administration to population (1963–2001)

| t4.3  | Dependent variable: corruption per capita | Least squares with dummy variables | Random effects |
|-------|---|------------------------------------|----------------|
| t4.4  | Corruption per capita (–1)                | 0.474                              | 0.491          |
| t4.5  |   | (3.97)                             | (11.052)       |
| t4.6  | Corruption per capita (–2)                | 0.200                              | 0.217          |
| t4.7  |   | (1.530)                            | (4.530)        |
| t4.8  | IPDUR                                     | 0.001                              | 0.001          |
| t4.9  |   | (1.020)                            | (0.773)        |
| t4.10 | $R^2$                                     | 0.400                              | 0.391          |
| t4.11 | Hausman test (2 d.g.f.)                   |                                    | 0.144          |
| t4.12 | Observations                              | 280                                | 280            |

t4.13 Standard errors are in parentheses.

1996. The source is: ISTAT, *Annuario delle statistiche giudiziarie*, Rome, several issues. 549  
 Regressions of per capita corruption on the average length of judicial process show a not 550  
 significant parameter (Table 4). 551

## References 552

- Abed, G.T., Gupta, S., 2002. *Governance, Corruption, and Economic Performance*. International Monetary Fund, Washington, DC. 553  
 554  
 Acemoglu, D., Verdier, T., 2000. The choice between market failure and corruption. *American Economic Review* 90, 555  
 194–211. 556  
 Ades, A., Di Tella, R., 1999. Rents, competition and corruption. *American Economic Review* 89, 982–993. 557  
 Aidt, T., 2003. Economic analysis of corruption: a survey. *Economic Journal* 113, F632–F652. 558  
 Anderson, C., Tverdova, Y.V., 2003. Corruption, political allegiance, and attitudes toward government in contemporary 559  
 democracies. *American Journal of Political Science* 47, 91–109. 560  
 Andvig, J.H.R., Moene, K.O., 1990. How corruption may corrupt. *Journal of Economic Behavior & Organization* 13, 63–76. 561  
 Banfield, E.C., 1958. *The Moral Basis of a Backward Society*. The Free Press, New York. 562  
 Bardhan, P., 1997. Corruption and development: A review of issues. *Journal of Economic Literature* 35, 1320–1346. 563  
 Becker, G.S., 1968. Crime and punishment: An economic approach. *Journal of Political Economy* 78, 526–536. 564  
 Becker, G.S., Stigler, J., 1974. Law enforcement, malfeasance and the compensation of enforcers. *Journal of Legal Studies* 565  
 3, 1–18. 566  
 Bjørnskov, C., 2006. The multiple facets of social capital. *European Journal of Political Economy* 22, 22–40. 567  
 Bliss, C., Di Tella, R., 1997. Does competition kill corruption? *Journal of Political Economy* 105, 1001–1023. 568  
 Breton, A., 1996. *Competitive Governments: An Economic Theory of Politics and Public Finance*. Cambridge University 569  
 Press, Cambridge UK. 570  
 Cavazza, F.L., Graubard, S.R., 1974. *Il Caso Italiano*. Garzanti, Milan. 571  
 Cazzola, F., 1988. *Della Corruzione*. Il Mulino, Bologna. 572  
 Coleman, J., 1990. *Foundations of Social Theory*. Harvard University Press, Cambridge MA. 573  
 Del Monte, A., Papagni, E., 2001. Public expenditure, corruption and economic growth: The case of Italy. *European* 574  
*Journal of Political Economy* 17, 1–16. 575  
 Geddes, B., 1997. The political uses of corruption and privatization. Paper presented at the annual meeting of APSA, 576  
 Washington, DC. 577  
 Golden M., 2000. Political patronage, bureaucracy and corruption in post-war Italy. Unpublished paper. Department of 578  
 Political Science, University of California at Los Angeles. 579  
 Herzfeld, T., Weiss, C., 2003. Corruption and legal (in)effectiveness: an empirical investigation. *European Journal of* 580  
*Political Economy* 19, 621–632. 581  
 Huntington, S.P., 1968. *Political Order in Changing Societies*. Yale University Press, New Haven. 582  
 La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W., 1999. The quality of government. *Journal of Law,* 583  
*Economics & Organization* 15, 222–279. 584  
 Marselli, R., 1997. Estimating a crime equation in the presence of organized crime: Evidence from Italy. *International* 585  
*Review of Law and Economics* 17, 89–113. 586  
 Mauro, P., 1995. Corruption and growth. *Quarterly Journal of Economics* 110, 681–712. 587  
 Mauro, P., 1998. Corruption and the composition of government expenditure. *Journal of Public Economics* 69, 263–279. 588  
 Méndez, F., Sepúlveda, F., 2006. Corruption, growth and political regimes: Cross country evidence. *European Journal of* 589  
*Political Economy* 22, 82–98. 590  
 Micucci, G., Nuzzo, G., 2003. *La misurazione del capitale sociale: evidenze da un'analisi sul territorio italiano*. 591  
 Unpublished paper. Bank of Italy, Rome. 592  
 Mo, P.K., 2001. Corruption and economic growth. *Journal of Comparative Economics* 29, 66–79. 593  
 Myrdal, G., 1968. *The Asian Drama*. The Twentieth Century Fund, New York. 594  
 Murphy, K.M., Shleifer, A., Vishny, R.W., 1993. Why is rent-seeking so costly to growth? *American Economic Review* 595  
 Papers and Proceedings 83, 409–414. 596  
 Olson, M., 1982. *The Rise and Decline of Nations*. Yale University Press, New Haven CT. 597  
 Ostrom, E., 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University 598  
 Press, New York. 599  
 Paldam, M., 2002. The cross-country pattern of corruption: economics, culture and the seesaw dynamics. *European* 600  
*Journal of Political Economy* 18, 215–240. 601

- Persson, T., Tabellini, G., Trebbi, F., 2003. Electoral rules and corruption. *Journal of the European Economic Association* 1, 958–989. 602  
603
- Polinsky, A.M., Shavell, S., 2001. Corruption and optimal law enforcement. *Journal of Public Economics* 81, 1–24. 604
- Prud'homme, R., 1995. On the danger of decentralization. *World Bank Research Observer* 10, 201–220. 605
- Putnam, R.D., 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton University Press, Princeton NJ. 606  
607
- Rose-Ackerman, S., 1978. *Corruption: A Study in Political Economy*. Academic Press, New York. 608
- Shleifer, A., Vishny, R.W., 1993. Corruption. *Quarterly Journal of Economics* 108, 599–617. 609
- Tanzi, V., 1995. Fiscal federalism and decentralization: A review of some efficiency and macroeconomic aspects. *Annual World Bank Conference on Development Economics, 1995*. World Bank, Washington, DC. 610  
611
- Treisman, D., 2000. The causes of corruption: A cross-national study. *Journal of Public Economics* 76, 399–457. 612  
613  
614

UNCORRECTED PROOF