Corruption and the Management of Public Works in Italy[1]

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Abstract

Corruption in Italian public works construction has been persistent and widespread for many decades. Using a novel measure of corruption, we document the range of corruption affecting public works across Italian regions. We argue that the nature and extent of corruption characterizing Italian regions in the postwar era could not have occurred except as part of a larger pattern of nationally-orchestrated political corruption. We present separate evidence of the spread and incidence of political corruption and show that it is significantly associated with corruption in public works construction. Finally, we attempt to assess whether corruption in Italy declined following extensive judicial investigations in the first half of the 1990s, after which new legislation aimed at cleaning up public contracting was adopted.

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It is a fair guess that, historically, Italy has confronted levels of political corruption higher than those found in other countries at similar levels of development. Thanks to the availability of comparative rankings of countries according to the degree of perceived corruption starting in the 1990s, we can be confident in our assertion that contemporary Italy is a relatively corrupt country. In 2000, Italy ranked as the world's most corrupt wealthy democracy, its degree of perceived corruption on par, apparently, with countries a good deal poorer, such as Uruguay and Hungary.

However, summary national measures only capture part of the story. In large, diverse countries corruption is likely to vary widely across regions and governments. In this chapter we use a new measure of corruption to investigate the geographic dispersion of cumulative fraud and malfeasance affecting public works construction across Italy's 20 regions. Public works construction projects are especially vulnerable to collusion between elected officials, bureaucrats, and private contractors, as evidenced by the fact that "corruption in contracting occurs in every country — even those at the high end of the honesty index" (Rose-Ackerman 1999, p. 28). Transparency International's 2002 Bribe Payers' Index found that public works/construction was the sector most vulnerable to corruption in emerging economies worldwide.[2] Where corruption in government contracting is widespread and frequent it necessarily involves collusion among elected political representatives, public sector bureaucrats, and of course private contractors in the construction sector. Hence, in such situations, political and bureaucratic corruption intermingle.

The central argument of this paper extends this observation. If corruption — by which we mean the use of public office for personal gain — is geographically widespread and temporally persistent, elected public officials are necessarily regularly involved in it. As a result, extensive and persistent corruption in public works cannot be seen as an isolated phenomenon, hived off

from the broader political environment in which it arises. It is not merely an outgrowth of poor institutional design, an inadequate legal structure, or the insufficient political monitoring of bureaucrats, as standard principal-agent theories contend. A more appropriate analytic framework begins with the premise that public officials may take advantage of their control over the monopolistic provision of infrastructure goods to engage in rent-seeking (Krueger 1974). In such a framework, corruption involves a non-benevolent principal rather than bureaucratic or institutional slippage from a benevolent one (Aidt 2003). Reducing its frequency thus requires substantial changes in behaviour by elected public officials, as well as corresponding modifications of the incentives facing bureaucrats and businesses. Whether such changes have occurred in Italy, even in the wake of judicial revelations exposing widespread corruption, remains for us an open question.

Our chapter proceeds in five parts. In the first, we present a brief historical account of public infrastructure investments in Italy from the country's 1861 unification onwards. As a late industrializer that also experienced delayed national unification, much Italian public construction occurred in core sectors, such as roads and railways, well into the twentieth century. As a result, continuing opportunities for corruption existed in Italy that may well have been closed off in countries that industrialized and unified earlier. A second section maps infrastructure corruption across Italy's 20 regions as of the late 1990s using a novel measure: the difference between the cumulative amounts of public monies allocated to capital expenditures and the actually existing amounts of physical infrastructure. We use this measure as evidence of ongoing discrepancies between the North and South of the country in the extent of political corruption. Our third section focuses on the early 1990s with what is called *Tangentopoli*, when thousands of Italian politicians, public officials and entrepreneurs were investigated by the judiciary for suspected corruption in an operation known as "Clean Hands." We map the geography of political

corruption according to the Italian judiciary and offer an interpretation of some interesting differences between what the judiciary revealed and our measure of corruption in public works construction. We also assess the extent to which political corruption is statistically associated with infrastructure corruption. In a fourth section, we describe legal changes governing public works construction that occurred as a result of the Clean Hands operation and speculate about their possible impact on Italian corruption. Finally, a fifth section draws out some implications of our analysis for policy and anti-corruption efforts generally.

Historical Background: Late Unification, Late Industrialization

When Italy unified in 1861, its infrastructure was minimal and, more importantly, unevenly distributed. The first travellers from the North to the post-Bourbon South were appalled by the poor road conditions and general lack of infrastructure. Infrastructure in the southern part of the country had been deliberately neglected under the earlier regime. As the prominent Italian intellectual and politician Francesco Saverio Nitti later commented, "the Bourbons were convinced that roads would bring to the people not only new needs but also dangerous tendencies, and as a consequence they not only discouraged new construction but they sometimes thwarted it" (Nitti 1900; our translation).

One of the first tasks of the new Italian political elite was to try to correct such a situation despite deep public debt and the scarcity of resources typical of an unindustrialized country. In Figure 1, we graph public investments between 1890 and 1999 at constant prices.[3] Despite the two marked downturns in public investment that occurred during the twentieth century's world wars, it exhibits an upward trend over time. One of the main political goals over the entire period was to use infrastructure investements to correct regional imbalances and help promote economic growth in the less developed regions of the country. From the outset, the infrastructure problem was thus conceived of as part of a larger "Southern question:" how to bridge the gap between the

more developed North and a backward South. It is perhaps noteworthy that complaints about the infrastructure gap between North and South persist to the present.

[Figure 1 about here]

Although the first published assessment of the distribution of public investments by Nitti (1900) complained that "the greatest part of expenditures took place in Northern and Central Italy," more recently compiled evidence tends to dispute him, showing instead that in the decades immediately following unification, public investments in the South were disproportionately high (Picci 2002). The tendency to direct public investments at the South became even more pronounced after the turn of the century, as the percentage shares depicted in Figure 2 documents.

[Figure 2 about here]

Although the attempt to bridge the regional infrastructure and development gap constitutes a constant theme from Italian unification to the present, the types of public investments receiving relatively more resources shifted over time. This was due to changes in available technologies as well as alterations in political priorities. We use these shifts to periodize public construction. At the cost of some simplification, we identify the main periods in Italian infrastructure construction with the categories of infrastructure receiving the highest share of resources.

The Period 1861–1895: Railroads and Roads

Unlike France, pre-unification Italy had not yet developed an extensive railroad network, and as of 1861 there were a total of only 2,186 kilometres of railroads. Of these, 1,606 kilometres were in northern Italy, while the regions south of Tuscany, with the exception of Lazio and Campania, had no railroads at all (Amoruso 2004).[4] After political unification in 1861, railroads were seen as a way to physically integrate Italy's lengthy peninsula, and the latter part of the nineteenth century witnessed an expensive effort by the newly united country to build an

extensive railroad network.[5] The results were impressive. By 1866, Italy boasted 4,400 kilometres of railroad, or more than double the kilometres present only five years earlier. By 1905 the country's railroad network extended over 11,230 kilometres, roughly equivalent to half of the maximum extension that the network reached in the 1950s (Amoruso 2004). The network was national, in the sense that it linked all the country's regions from Sicily to Piedmont. However, there was still an important difference in the density of railroad construction. In the North the network, which served the economic needs of the then-industrializing regions, was effective in covering the full territory, while in the South the reach of the railroad network remained mainly confined to its backbone lines.

The 1880s witnessed the most pronounced effort in railroad construction. There were some years in the decade when railroad construction absorbed over 80 percent of total public investments made by the central government.[6] Roadbuilding accounted for a large share of the remaining public investment funds. The share of road construction in non-railroad public investment hovered around 50 percent until the early 1890s, dropping to a still respectable 30 percent in the mid 1890s.[7] Railroads and roads were the major public investments made by the newly-established Italian state.

As the data in Figure 1 show, the amounts of monies going into public investments in those early years were modest compared to expenditures in later periods. Public expenditures were constrained by the economic and financial situation, as well as by military needs, especially since Italy was at the time committed to territorial expansion to the Italian-speaking parts of the peninsula not yet under central government control.[8]

The Period 1900–1924: Buildings and Social Infrastructure

The beginning of the twentieth century represented a turning point in Italian politics, with a shift to governments (under Prime Minister Giovanni Giolitti) that were less authoritarian and

that demonstrated some social policy commitments. Public investments reflected this change in political priorities, giving greater importance to social investments. These included public buildings of various types that had previously been neglected in favour of railroads and roads.

Expenditures on public buildings had expanded even earlier, in the beginning of the 1890s.[9] At the same time, a shift in the geographic distribution of public investments further benefited the South, corresponding to a slowdown in the railroad expenditures that had privileged northern Italy.[10]

The Period 1924–World War II: The Empire, Restored

The March on Rome — the event that marks the beginning of Italy's fascist regime — took place in October 1922, following a period of postwar turmoil and uncertainty. Twenty years later, as the Italian war effort stepped up in 1941, civilian policies including public investments virtually ceased. The intervening two decades, known as the *ventennio* in Italian historiography, witnessed the formation of an ambitious public investment policy under Benito Mussolini. The regime's rhetoric of the restoration of the Roman Empire attributed an important role to public buildings, in particular, and infrastructure, in general, which were seen as tangible signs of imperial power and opulence. Just as imperial Rome had left behind a grandiose architecture, so fascist Rome mimicked its style with architecture characterized by a monumental conception of space. As ancient Rome had constructed an empire, so fascist Rome presented itself as a constructor of roads in colonial Africa and as a modernizer of Italy. In this period the first few Italian freeways were built, for a country that was entering the era of mass consumption, thereby anticipating themes that would become more obvious during the postwar economic boom of the 1950s and 1960s.

Under the fascists, significant progress was made in the electrification of the country, and an important role, at least in official propaganda, was played by a program of large scale land

reclamation that also contributed to the eradication of malaria. A series of very efficient financing organizations, the *Consorzio di Credito per le Opere Pubbliche* (Crediop) being the most important (Asso and De Cecco 1994), provided the necessary institutional and financial framework for such policies, particularly in the years following the 1929 crash.

Overall, the total resources were dedicated to public investment during the interwar period were not appreciably higher than earlier (see Figure 1). The geographic distribution of investments again prioritized the South, particularly during the second half of the 1930s, when the South received about half of total public investments made by the central government, with the Center and the North receiving about a quarter each. The situation began to change as the war approached: public investments decreased, to make room for more pressing military expenditures. Particularly after 1941, military spending to a great extent crowded out public investments.

The Period World War II–1990: Freeways and the Economic Miracle

Italy emerged from World War II defeated militarily and financially exhausted. In addition, its infrastructure had been severely damaged. The "economic miracle" that occurred subsequently describes a country not only able to recover from war's destruction but also to proceed at full speed with industrialization and modernization processes that had previously been only partial and geographically limited. By the end of the 1980s, Italy still had a visible North-South gap along multiple dimensions, but its industrial base had deepened and extended out from the traditional "industrial triangle" of Milan-Turin-Genoa to what had been predominantly agricultural regions, such as Emilia-Romagna and the Veneto. The overall result has been a vastly greater national income that allowed for a steep increase in public investments beginning in the 1950s, documented in Figure 1.

Until the mid-1980s, roads represented the most important expenditure category of the postwar era, peaking in the early 1970s when this category alone consumed over half of the share of total public investments (see Picci 2002, Figure 11). This major effort to construct an extensive network of freeways went hand in hand with the popularization of the automobile as the transportation means of choice. The showpiece of the day was the *Autostrada del Sole*, running from Milan to Naples, which was finished in 1964 after only eight years of work (see Menduni, 1999).

The early 1980s marked a turning point in public investment policies. Resources dedicated to infrastructure levelled off and then decreased. In addition, the South share of total public investments started to decrease. Both changes were amplified as of the early 1990s when the scandals known as *Tangentopoli* caused a near-collapse of the system guiding infrastructure investment decisions. Before we discuss the collapse of that system, however, we turn to a discussion of corruption in public works construction.

From Spending to Infrastructure: How Much Did All that Money Buy?

Data on expenditures are only part of the story. One also needs to know how much public infrastructure that was actually built with all these public monies. The historical account presented in the preceding section documents that policies aimed at mitigating the North-South infrastructure gap emerged soon after Italy's 1861 unification. Despite more than a century of effort, however, it is commonly conceded that the South's infrastructure endowment is still below than that found in the northern part of the country. Such a consideration, in addition to offering a glimpse into one of the structural problems of the development of the Italian economy — namely, the North-South imbalance — is a useful starting point for consideration of the dispersion of corruption.

The impression that the South is less well endowed in public infrastructure compared with the national average is confirmed by an analysis of data that has been collected over a period of nearly three decades by Maurizio Di Palma and Claudio Mazziotta (see Biehl et al. 1990; Mazziotta 1998; Di Palma and Mazziotta 2002). Di Palma and Mazziotta construct an index of physical infrastructure across Italian regions, measuring the overall infrastructure endowment of each of the country's 20 regions. Their index comprises a meticulous accounting of kilometres of roads (highways, as well as national, provincial, and municipal roads), railroads (double and single track, electrified and non-electric), airports (square meters of runways and of parking areas), schools (numbers of school rooms in elementary, middle and high schools, as well as university personnel), health (numbers of hospital beds), child care facilities (numbers of cots), stadiums, theatres, and other public utilities and buildings. Although their data collection efforts began in the 1970s as part of an effort by the European Commission to evaluate which regions of member countries were underserved by which types of infrastructure (see Biehl 1986; Commission of the European Communities 1986), Di Palma and Mazziotta have continued their data collection since then, substantially enlarging an initially rather small set of measures to the 47 indicators of infrastructure currently collected.

Di Palma and Mazziotta combine the measures of these various types of public goods to create an overall index of physical infrastructure for each of Italy's regions. The actual creation of the index involves a complex and lengthy set of calculations (for details, see Mazziotta 1998; also described in Golden and Picci 2005, appendix B), in which the various types of goods are normalized either by population or by area (square kilometres) served, and then standardized and aggregated, so that all of them are ultimately indexed to the national average, which is set at 100. We will not describe the details of the construction of the index here; interested readers should consult the relevant technical materials we reference. But note that an index value of 124

indicates an endowment of physical infrastructure that is 24 percent higher than the national average, whereas a value of 79 means an index value that is only 79 percent of the national average. In Table 1, we report the Di Palma-Mazziotta index of public infrastructure endowment for each of the 20 Italian regions as of 1987 and 1997.

[Table 1 about here]

As the data reported in Table 1 indicate, Italy's southern regions — the country's 20 regions are listed in conventional order, that is, from north to south — are substantially less endowed with public capital than its northern regions. The index values fall as we move down the table from North to South, both in 1987 and in 1997. Comparing the data from 1987 with 1997, we see that overall, the southern regions had only 67 percent of the national average in 1987 and 63 percent in 1997. This suggests that the South became relatively worse off as regards its physical infrastructure during the 1990sDi Palma and Mazziotta's data on physical infrastructure also exhibit considerable regional variations by type of infrastructure. In Table 2, we report their index for what they class as economic infrastructure (roads, railroads, airports, ports, other transportation infrastructure, telecommunications, energy, oil and natural gas pipelines, and water supply), as opposed to social infrastructure (schools, hospitals, kindergartens, sports facilities, theatres, museums, parks, and other types of cultural facilities).[11] For simplicity, we do not reproduce the values for each of the nine specific types of infrastructure goods available in the Di Palma-Mazziotta data (transportation, telecommunications, energy, water supply, education, health, social infrastructure, sports facilities, and cultural venues). Overall, the data in Table 2 show that, while both social and economic infrastructure are relatively less in southern than northern regions, the South is more disadvantaged in economic goods than social goods.

[Table 2 about here]

Our next step is to develop a cumulative measure of what government has spent to build public infrastructure using the perpetual inventory method (PIM). The PIM essentially sums up expenses, at constant prices, back in time for as many years as the assumed service life of a given capital good. We detail the procedure in Golden and Picci (2005: 46ff), where we construct an index of government infrastructure expenditures that parallels the physical index created by Di Palma and Mazziotta. The measure of infrastructure spending that we compute uses standard and well-established techniques (see, for instance, OECD 1993 and OECD 2001).

Our cumulative expenditure index for 1987 and 1997 is reported in columns 3 and 4 of Table 1 as permanent inventory. The contrast between the measures of cumulative expenditures and the physical amounts of infrastructure characterizing Italy's 20 regions is notable both for 1987 and 1997. Although southern Italy has less physical infrastructure, it has received the lion's share of financial resources over the years. We interpret this as suggesting that much of the monies allocated to the South with the intended goal of constructing public infrastructure, in fact, had very little practical effect in contributing to a reduction of the geographic gap.

Where did all the money lavished on the South end up? In Golden and Picci (2005) we interpret the difference between existing physical infrastructure and cumulative infrastructure expenditures as a measure of corruption. There we compute a "corruption index," as of 1997 based on the ratio between the two measures of infrastructure, after adjusting for regional differences in costs[12]. Our measure of corruption thereby consists of the difference between what government cumulatively pays for public infrastructure and the physical quantities of infrastructure that exist (after controlling for regional variations in the costs of construction). The intuition underlying our measure is that, all else equal, governments that don't get what they pay for are those whose bureaucrats and politicians are siphoning off more public monies in corrupt transactions during the process of infrastructure construction.

Although our measure was originally created for 1997 to coincide with the availability of the Di Palma-Mazziotta index of physical infrastructure as well as cost control variables, it represents the accumulation of corruption in public works contracting over a long period of time. The measure itself does not provide information about when the corruption took place: It could have occurred at a single point of time, or, as is more likely, over many years. The measure does not tell us who was involved in corrupt transactions or who benefited or where the monies ended up, only that in some regions public expenditures failed to produce the same amounts of public capital as in others. Nonetheless, our corruption measure is informative because it conveys hard information about the relationship between expenditures and output independently of what may be widely known or believed.

Our measure of corruption in public works as of 1997 is reported in the final column of Table 1; a higher value implies greater corruption. For ease of interpretation, we have normalized our index so that a value of 100 represents the national average, as Di Palma and Mazziotta did with their index of physical public goods. In order to visualize the geographic dispersion of corruption, Figure 3 maps the corruption index across Italy's regions.

[Figure 3 about here]

Our corruption measure reveals considerable geographic variation. The range on the index runs from a low of .36 (Campania) to a high of 1.79 (Umbria). The index values can be interpreted as meaning that in Campania, for instance, there is only 36 percent of the physical infrastructure one would expect if government had paid the national average, whereas in Umbria, there is 79 percent more infrastructure than would have been the case had the Italian government paid the national average for the public works existing there. In other words, the most corrupt region spends four times more per unit of public capital than the least corrupt region. This

suggests that massive amounts of fraud as well as inefficiency have characterized Italian public construction in some parts of the country but not others.

As the values listed in the final column of Table 1 document, our measure of corruption suggests considerably greater corruption in the southern half of Italy than in the northern regions. All the southern regions — the South begins with Lazio, the region that houses Rome, and extends down from there — exhibit values under 1, meaning that government expenditures on infrastructure are used to produce fewer units of public capital than the national average in those regions. With the exception of the Valle d'Aosta and Liguria, all the northern regions, by contrast, exhibit values greater than 1, indicating that monies allocated to infrastructure construction in the North generate better than average amounts of public goods. Our index, in other words, reveals a very marked divide in the cumulative amounts of corruption that appear to have occurred in the northern as opposed to the southern regions of the country.[13]

To some extent, of course, the fact that our measure should turn up a massive North-South divide in the extent of public works corruption in Italy is hardly surprising. The South of Italy has long been known for widespread criminality, especially in the form of the Mafia and analogous organizations, while at the same time corruption scandals have plagued local and regional governments there on and off for many decades (Chubb 1982; Arlacchi 1986; Walston 1988). However, the judicial investigations that took place in the early 1990s documented widespread political corruption in many northern regions as well. It is to these investigations that we now turn. These investigations provide an alternate type of data on public works corruption, embodied in the charges of malfeasance lodged by the judiciary against national legislators

Tangentopoli and the Exposure of Widespread Political Corruption

In February 1992, a small-time Socialist politician in charge of an old-age home in Milan's public sector was caught taking a small bribe from the home's cleaning company. After years of pursuing political corruption only to face repeated dead ends, the Milanese public prosecutors who had set up the sting successfully used this single incident to unravel massive networks of political corruption that ultimately incriminated a third of the country's lower house of representatives, five previous prime ministers, and thousands of businessmen, especially those associated with firms that contracted with the government for the provision of services or the construction of public works (della Porta and Vannucci 1999). The judicial investigations radiated out from Milan to offices elsewhere in Italy and dominated the press for years to follow. Ultimately, the political parties that had governed Italy since the end of World War II collapsed on the heels of the investigations, as virtually their entire leadership was implicated in systematic wrongdoing. In the elections held in 1994, the postwar political elite vanished and with it the Christian Democratic Party and the Italian Socialist Party, among others. The only traditional party to survive was the Italian Communist Party, which transformed itself, albeit with significant losses, into the Party of the Democratic Left.

Between February 1992, when the Clean Hands investigations began, and the fall of 2002, the Milanese prosecutors prepared cases against 4,520 persons, of whom 1,300 were indicted and another 1,320 cases passed to other jurisdictions. Half of the indictments led to convictions (Barbacetto et al. 2002: 704-05). Except for the judicial area of Milan, which kept meticulous records, we do not know how many persons were implicated, how many indicted, how many tried, or how many convicted, and similar information on events in other judicial districts is not available. Nationally, however, systematic information on the charges of wrongdoing that were lodged by the judiciary against members of the Chamber of Deputies, Italy's lower house, are

available (Golden 2004). These charges are known as *richieste di autorizzazione a procedere* or RAP and the data exist because of the unusual immunity protections enjoyed by Italian members of parliament in the postwar era. For the judiciary to officially investigate a member of parliament for suspected violations of specific criminal statutes required a majority vote by those present in the chamber of which the deputy was a member.[14] Over the course of the twentieth century, the Italian judiciary lodged thousands of requests for the removal of parliamentary immunity in order to proceed with investigations and arrest warrants against legislators. These requests are made through the Ministry of Justice by prosecutorial offices based in any one of Italy's 29 judicial districts and name a deputy or group deputies they wish to charge with a specific criminal charge or charges.

In using these data, we have, like others before us (including Cazzola 1988 and Ricolfi 1993), distinguished charges involving opinion crimes, such as libel and slander, which easily arise during the professional life of a politician, from other typically more serious charges.[15] We have not tried to distinguish those charges specifically involving corruption or abuse of office from other types of charges for two reasons. First, many parliamentarians had acquired so much legislative seniority by the XI Legislature (seated from 1992 to 1994), when the Clean Hands investigations took place, that they believed that their immunity would never be lifted. Because parliament had denied requests in the overwhelming number of cases over many decades, these deputies were practically encouraged to wilfully break the law. In these circumstances, distinguishing corruption — the use of public office for personal gain — from other sorts of malfeasance becomes almost impossible. Second, we do not know the extent to which the judiciary, although suspecting corruption and abuse of office, may have lodged other types of charges against deputies because of an inability to collect adequate evidence. We do know,

however, that suspected political corruption was the primary motivation behind the judicial investigations. We present a map of the proportions of deputies charged in Figure 4.

[Figure 4 about here]

The data depicted in the map show that southern regions had generally higher proportions of their national legislators charged than did northern regions. However, high proportions of legislators were charged wrongdoing in selected northern regions as well, including Piedmont, Lombardy (where Milan is located) and especially Fruili-Venezia Giulia, a traditionally Christian Democratic stronghold.

In Figure 5 we present a scatterplot of the proportion of deputies charged with potentially serious malfeasance during the XI Legislature (1992-94) against the Golden-Picci index of public works corruption for Italy's 20 regions.[16] As the reader can see, there is a very strong, almost linear relationship between the extent of political corruption as measured by judicial charges and the degree of corruption affecting public works construction. As a higher proportion of deputies are charged, public works corruption rises. The relationship is especially notable if we remove three outliers. Valle D'Aosta and Sardinia both had fewer deputies charged with malfeasance than one might expect given the degree of public works corruption observed, whereas Friuli-Venezia Giulia had an unusually high proportion of deputies charged. With the removal of these three outliers, the correlation coefficient between the proportion of deputies charged and the index of infrastructure corruption is -.80 and is highly significant (recall that the variables are scaled inversely, thus producing a negative coefficient). Even without the deletion of outliers, the correlation coefficient between the two variables is -.49, and is also highly significant (p = .03).

[Figure 5 about here]

Even though our infrastructure index of corruption is nominally calibrated for 1997, we have already noted that, in fact, it measures decades of accumulated corruption in public works

construction. The data depicted in Figure 1 document that spending on infrastructure investments temporarily collapsed after the Clean Hands operation exposed widespread fraud and corruption in those activities. Indeed, many of the charges that were lodged against deputies in the XI Legislature that sat from 1992 to 1994 involve the very corruption in public construction that our index captures as of 1997, by which time corrupt activities had probably ceased. The RAP, in other words, represent the political exposure of the underlying illegal activities that our infrastructure index measures. This is illustrated by the opening words of the requests to remove parliamentary immunity from the prosecutorial offices of Milan, who repeatedly contended that:

> an organic link between institutions, politicians and firms has emerged. This link is characterized not by occasional interactions, but by a planned strategy in which those individuals in leading positions of public bodies or publicly-owned enterprises were assigned specific roles by national political figures, who procured financing from those bodies with the aim of obtaining not only the public good but also private and illicit "returns" (Doc. 4, n. 223-A, 15 July 1993, lodged against Gianni De Michelis by the judicial district of Milan, signed by Di Pietro, Davigo, D'Ambrosio and Borrelli).

The prosecutors went on to identify kickbacks in public construction as a systematic and regularized mechanism by which party leaders in the governing political parties — especially the Italian Socialist Party and Christian Democracy — raised monies for both personal gain and party coffers.

Our index of public works corruption and the charges of wrongdoing against national legislators measure similar but not identical phenomena. We note three important differences. First, and most obviously, the RAP reflect judicial activism, especially apparent in the hardworking and dedicated Milanese prosecutorial offices, and not only actual wrongdoing by legislators. To some extent, that is, the RAP may be a less valid an indicator of "true" corruption than is our infrastructure index. We have tried to correct for this by dropping multiple charges against the same deputy during the life of the legislature, and focusing on the proportion of

deputies charged with serious malfeasance even once. The numbers of deputies charged repeatedly were quite numerous. Of the 222 deputies (out of a total of 630 in the Chamber) who were charged during the two year period we examine, 120 (or 54 percent) of those charged were charged more than once with non-opinion crimes. We consider multiple charges a clear measure of judicial determination. But even with that correction, the geographic distribution of RAP to some extent reflects the judicial zeal of the local prosecutorial offices. In this sense, the infrastructure index is a more "objective" measure of corruption.

Second, political corruption comprises a larger category of crimes than kickbacks in public works construction, although the latter was probably the modal corrupt transaction in pre-Tangentopoli Italy. In this regard, the RAP represent a more valid measure of corrupt activities than the infrastructure index, which is necessarily limited to corruption only in public works construction. Our measure of public works corruption is not able to capture such illegal political activities as the promise made by a deputy to a temporary public employee that his job would be converted to a permanent one if the deputy was subsequently reelected (Doc. 220, lodged against Angelo Mazzola on March 10, 1993 by the judicial district of Lodì), the use of government monies to buy office furniture from a specific firm without open bidding on the part of a local government official later to be elected deputy (Doc. 183, lodged against Antonio Miceli on January 28, 1993 by the judicial district of Messina), or the provision of free lunches to hundreds of public employees in local health clinics by a deputy during her election campaign (Doc. 133, lodged against Anna Nenna D'Antonio by the judicial district of Chieti).[17] These examples illustrate the fact that our measure of public works corruption is necessarily limited in the range of corrupt activities that it captures. Public works corruption may have been the heart of the system of kickbacks to the postwar governing parties, but political corruption nonetheless involves a more extensive set of illegal activities.

Finally, there is some reason to believe that the differences in the geographic distribution of RAP and our corruption index may stem from a recent diffusion of public works corruption, especially corruption under the control of organized crime, from the South to the North. Corruption in public construction was long a well-known feature of some large southern cities; Palermo is a notable example. In such a setting, the firms winning construction bids were typically under the control of organized crime (Chubb 1982). This was true even as early as the late 1950s and 1960s, when Palermo enjoyed a boom in publicly-financed construction. Only much more recently did public construction in the North fall under the control of organized crime (suggested in Colombo 1995). If this is the case, then the newly-arrived corruption affecting public works in northern cities would be captured better by the RAP than by our corruption index because the latter is a historically cumulative measure.

We may think of the Clean Hands operation that took place from 1992 to 1994 as, in part, exposing the levels of fraud and waste that we observe in the corruption index. Although the index was created as of 1997, it actually reflects longstanding patterns of public works corruption. What impact did the judicial revelations have on corrupt practices? In the next section, we describe the legal environment regulating public works contracting both before and after Tangentopoli and attempt to assess whether there has been a permanent decline in political corruption.

Tangentopoli and After: Has Corruption Declined in Italy?

The exposure of massive political corruption with the scandals of the early to mid-1990s provided the impetus for substantial legislative reform governing public works construction in Italy. The original legal framework for Italian public works was established by an act dating from the early years of unified Italy (Law 2248, adopted 20 March 1865). However, a host of

new laws were subsequently added, so that by the 1980s the overall legislative framework was Byzantine.[18]

Beginning with the 1957 Treaty of Rome, European-level regulations and directives also were in effect in Italy. Such legislation prohibits a series of practices that would limit competition in public works contracting (see Lauria 1998). However, although, in principle, it was possible to seek legal redress for breaches of European laws and treaties from the Italian judiciary, this rarely occurred. Such a procedure would be lengthy and costly, and the outcome uncertain given the existence of conflicting Italian legislation.

This legislative confusion facilitated discretionary behavior, and as one of Tangentopoli's most prominent prosecutors remarked:

> collusion between administrators and entrepreneurs has been made possible by the total inadequacy of our laws on public contracts [...] that allowed projects to be assigned to "friendly firms" using a variety of mechanisms, such as the unjustified recourse to urgent procedures; overly detailed specifications of the requirements to participate in the bidding process, together with tenders tailored to the intended winner; price variations as the works were already underway that allowed for the compensation of very low bids that had in turn anticipated these later price adjustments; the choice of private bidding procedures, made possible by easy circumvention of the existing regulations (D'Ambrosio1998, p. 1; our translation).

Although it is comparatively easier to circumvent complex regulations, the direction of causality also goes in the opposite direction. Because legislative and regulatory complexity facilitate corruption, rationalization efforts will be resisted by those vested interests who are extracting rents. In fact, efforts to simplify and rationalize the legal and regulatory framework in Italy were successful only in the aftermath of Tangentopoli, when the postwar political elite was in shambles with the revelations of systematic, widespread and nationally-coordinated kickbacks in public construction.

In 1991 a referendum, opposed by the parties in government, reduced the number of preference votes that electors could cast in national elections from three (or in large districts,

four) to one. The intended aim of the referendum was to reduce the scope for the corruption and clientelism that stemmed from intraparty competition, especially within the ruling Christian Democratic party (Golden and Chang 2001). At the same time, the referendum's outcome offered a clear indication that the electorate was shifting against the political establishment. In 1993, in the aftermath of Tangentopoli, the electoral system was transformed from pure proportional representation to a mixed system in which a quarter of legislative seats were allocated proportionally and three-quarters by plurality. The 1994 legislative elections that followed would mark the official ending of Italy's First Republic, the disappearance of traditional parties such as the Christian Democrats and the Italian Socialist Party, and the emergence of the newly formed Forza Italia under the leadership of Silvio Berlusconi.

In this changed political context, new legislation was adopted regulating public works contracting. Reform of public works legislation was long overdue, as relevant actors were well aware.[19] Law n. 109 was passed on February 11, 1994 (known as Law "Merloni I," after the then Minister of Public Works). It made some important changes in public works contracting, not only because it finally presented a coherent legislative framework in a single text but also because it established a series of principles to regulate the procedures used.

The law made it more difficult to avoid open bidding as the instrument of choice for selecting firms, and likewise made it more difficult to alter the established price of a project on the grounds that "unforeseen conditions" had occurred during construction. Moreover, the law made a clearer distinction between the public administration, which was given important responsibilities in establishing general infrastructure needs as well as planning individual projects, and the firms which were to execute them. Finally, a new independent body, the *Autorità Indipendente di Vigilanza e dell'Osservatorio dei Lavori Pubblici*, was established with the responsibility of monitoring and supervising the entire process.[20]

Whether these changes have succeeded in curbing corruption and in ensuring more effective management of public works remains an open question. Initially, the drastic drop-off in public construction that followed the Clean Hands revelations must have limited corruption, purely by virtue of the fact that so little new construction was occurring. But we have very little systematic information with which to assess whether the investigations led to a more permanent reduction in corruption. One modest indication is Italy's ranking in the Corruption Perceptions Index, prepared by Transparency International (TI) on an annual basis. In 1995, the first year for which data are available, Italy had a score of 2.99 and ranked 33rd out of 41 countries considered. In 2004, Italy had a score of 4.8 (higher scores imply less corruption) and ranked 42nd out of 145 countries (data taken from Transparency International's Web site: http://www.transparency.org/surveys/index.html#cpi). Given changes in the underlying data used to create the index, it is difficult to compare values over time, but these data suggest some improvement in the extent of corruption in Italy relative to other countries.

With respect to legislative effectiveness, however, attempts to simplify the legislative framework and to reduce discretion do not appear to have had much impact. The speed and ease of the process of public construction has worsened over time, as illustrated by the eight years it took to build the *Autostrada del Sole*, at the height of the economic boom, and the never-ending quibbles that have characterized the construction of more recent works.[21] The Merloni laws appear not to have had a salutary effect and the trend towards federalism, as exemplified by the Constitutional Law n. 3 of 2001, has contributed to the creation of a complex multi-level governance structure that does not permit prompt planning and execution of infrastructure.

Finally, even promising legislative reforms may stall in the implementation phase. The *Autorità per la vigilanza sui lavori pubblici* was eventually established in 1999, and after six years it can be safely said that it has fallen short of expectations. It has not contributed much to

increasing transparency in public works, and the creation of data on "standardized costs," a key component to allow for benchmarking of single works, is still at a preliminary stage.[22] From the point of view of, say, a journalist interested in public works, the existence of the *Autorità* is almost inconsequential.

Such a situation is, at least in part, explained by the loss of public interest in the issue of corruption in Italy after the heady days of Tangentopoli. Once the judicial investigations tapered off and the political climate changed, the public works sector no longer received much public attention. At the same time, the underlying incentives for relevant actors have changed with the alteration of the electoral system from pure PR to a mixed PR-majoritarian system, but with controversial effect. The literature on the impact of electoral system characteristics on corruption is currently inconclusive (Persson, Tabellini, and Trebbi 2003; Chang and Golden 2004; Kunicova and Rose-Ackerman 2005). In our view, incentives for corruption were provided by the search for preference votes in Italy's previous open-list system of proportional representation. These have been removed with the new electoral system, and this has been reflected in a likely overall decline in the extent of corruption affecting Italy. However, the legal and political environment still leaves room for opportunities for corruption.

Final Considerations

Based on the Italian case, we conclude that when corruption is widespread and persistent, it is likely to involve elected public officials as well as bureaucratic officials. The hundreds of national legislators accused of involvement in malfeasance by the judiciary in the early 1990s were the same men who, working with their local counterparts, effectively conspired to make bid-rigging common in Italian public construction. In Italy there probably were more overlapping pieces of legislation regulating the process than may have been the case elsewhere,

and that may have allowed for greater slippage and confusion. However, and apart from this, the laws regulating the construction process were not much different than those elsewhere, and the acts that eventually brought down the Italian political elite were as illegal in that country as in the rest of Europe. In that regard, the Italian case illustrates that the "right" laws are themselves insufficient to prevent widespread corruption from taking hold.

When combinations of laws and institutions permit an entire political elite to become more interested in rent-seeking than in protecting the public good, the wholesale replacement of that elite may well be necessary to break deep-seated patterns of corruption. But without very substantial institutional reforms occurring simultaneously, even that may prove inadequate. And as the Italian case reminds us, even political reform, legal innovation, and leadership change together may only partially break longstanding patterns of malfeasance. A critical factor in ensuring the ongoing success of anti-corruption efforts may be the creation of a political elite that has a vested interest in ensuring meritocratic observance of regulations and legislation governing public service, public construction, and public procurement, as suggested by Samuel Kernell and Michael P. McDonald's research on the eradication of patronage in the U.S. postal system (Kernell and McDonald 1999). Designing the institutional incentives that give a substantial fraction of the political elite a vested interest in honesty should be a priority for future research.

Incentives, however, always need a satisfactory assessment of behaviours in order to be in place. In recent history, Italy has badly failed in monitoring the performances of its public work sector and of its actors, to the point that the intervention of the judiciary in the early 1990s could have the spectacular effects that we have described[23]. The objective corruption measures illustrated above (with reference to Golden and Picci, 2005) suggests one possible way forward—better information on the variation in the productivity of public spending can be used to pressure poorly performing regions to improve. The burden of proof can be put on national and local

politicians from such regions to justify the divergence on the basis of costs or the character of public spending.

Monitoring of behaviours on a regular basis, however, is hardly amenable to had-hoc studies as the one described, and needs appropriate institutions that are capable of systematicllay collecting and organizing the relevant data. Such a need was well present in the minds of the Italian legislators who, on the aftermath of Tangentopoli, introduced the *Autorità per la vigilanza sui lavori pubblici* and gave it precise monitoring responsabilities.

A prerequisite for success in this, as in any, institution building effort, is the presence of a firm political will, whose lack is probably the main culprit for the failure of the *Autorità per la vigilanza sui lavori pubblici*. Within these limitations, however, there is ample space for experimenting creative solutions. In particular, the use of up-to-date information technologies could alleviate the difficulties of institution building, by providing stable monitoring instruments that are somehow built into an information system that would allow for the management of public works. A proposal along this lines is in Picci (2005), where the behaviours recorded by an appropriate public works' management system are automatically recorded and summarized, and such information establish a set of incentives that effectively bind behaviours of the relevant actors.

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Table 1. Di Palma-Mazziotta regional index of physical infrastructure, 1987 and 1997; Perpetual Inventory Index, 1987 and 1997; Golden-Picci "corruption" index, 1997

Region	Year 1987		Year 1997		
	Physical index	Permanent inventory	Physical index	Permanent inventory	Corruption index
PI	117.4	65.763	118.4	74.318	1.638
VA	146.1	112.18	132.6	159.32	0.855
LO	118.1	105.74	118.4	109.64	1.161
TA	141.3	82.217	122.9	108.24	1.236
VE	110.2	92.342	115.3	97.356	1.220
FR	120.2	111.38	125.5	117.75	1.077
LI	137.0	206.08	127.3	199.18	0.669
EM	137.7	102.01	144.1	101.14	1.611
TO	120.8	84.190	112.8	81.902	1.613
UM	98.2	66.608	109.0	64.203	1.783
MA	110.1	88.388	109.7	85.925	1.312
LA	130.3	129.35	111.3	132.12	0.817
AB	93.2	106.68	92.3	98.889	0.956
MO	71.8	112.18	62.1	109.01	0.583
CM	69.1	151.54	51.1	140.34	0.362
PU	65.5	91.417	63.3	87.450	0.722
BA	72.2	133.67	70.0	135.23	0.533
CL	65.8	133.74	50.3	123.75	0.409
SI	61.2	109.82	66.1	108.15	0.607
SA	74.8	87.635	66.5	89.434	0.838

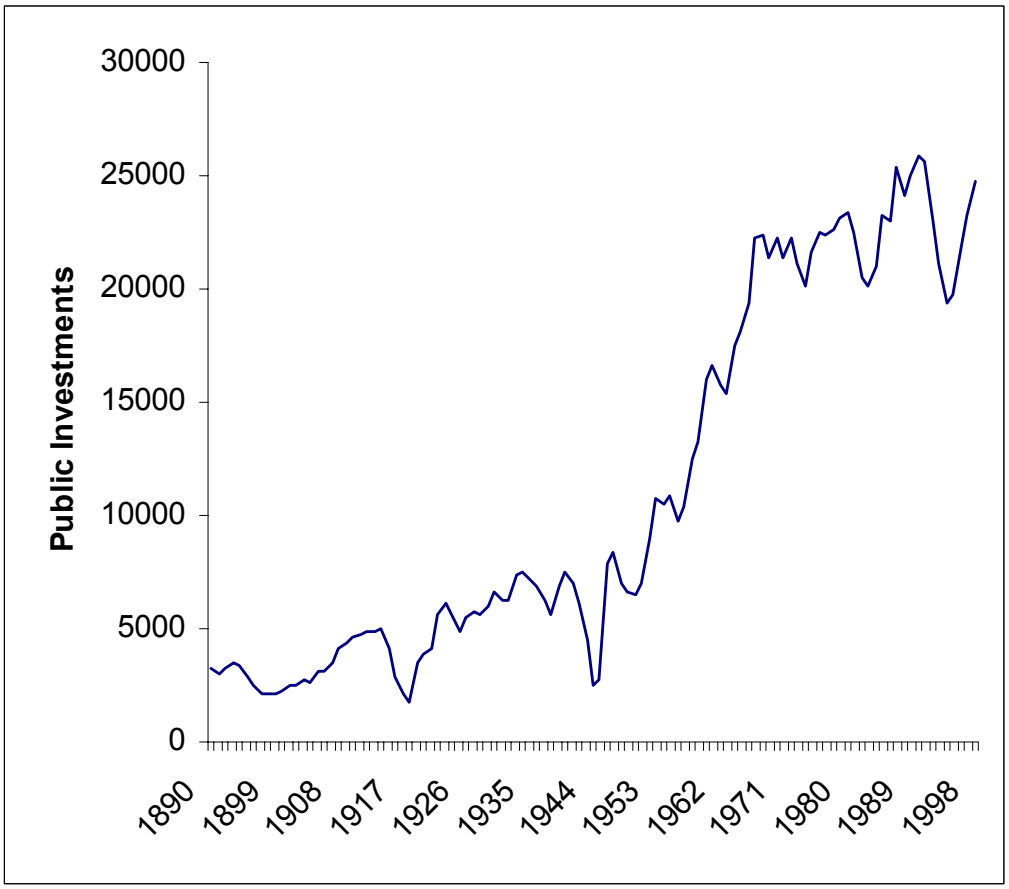
Sources: Di Palma and Mazziotta (2002) and Golden and Picci (2005). For regional abbreviations, see Table A1.

Table 2. Physical Infrastructure Index by Type of Infrastructure (1997)

Region	Economic	Social
PI	123.9	114.1
VA	121.0	142.8
LO	126.0	112.7
TA	94.2	152.0
VE	135.2	101.6
FR	131.4	121.0
LI	146.8	113.6
EM	140.0	147.4
TO	106.7	117.9
UM	98.3	118.5
MA	107.6	111.4
LA	108.8	113.3
AB	81.4	102.0
MO	46.5	78.4
CM	54.6	48.4
PU	61.7	64.7
BA	56.8	82.7
CL	43.2	56.9
SI	66.1	66.1
SA	49.8	83.8

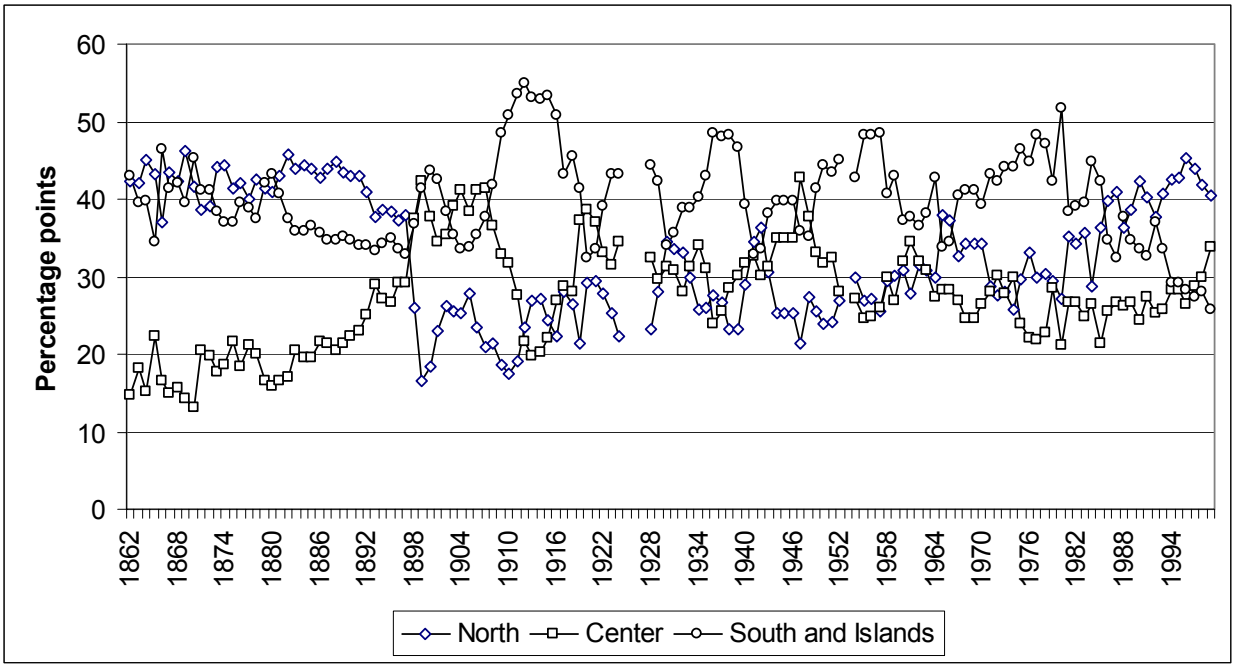
Source: Di Palma and Mazziotta (2002). For regional abbreviations, see Table A1.

Figure 1. Public Investments, 1890 to 1998, aggregate. Constant 1990 Prices (millions of lire)



Sources: Rossi et al. (1992); for years after 1992, see Picci, 2002.

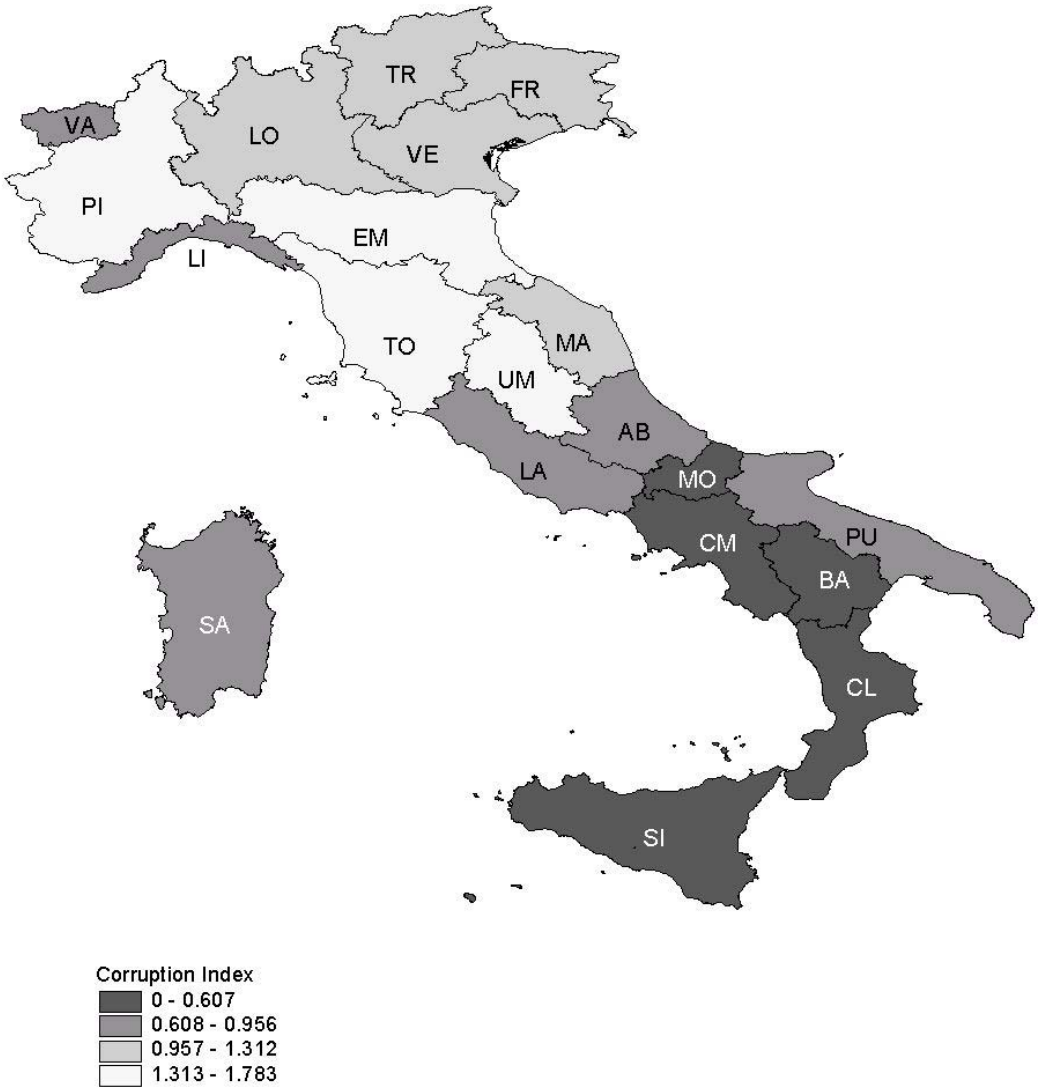
Figure 2. Public Investments, 1862-1999, geographic split-up (North, Center, South and Islands).



Note: the data refer to three different sub-periods: 1862-1924, 1928-1952, and1954-1999. Data for the years 1925-1927 and 1951 are missing. Until 1952, the data include only investments by the central administration

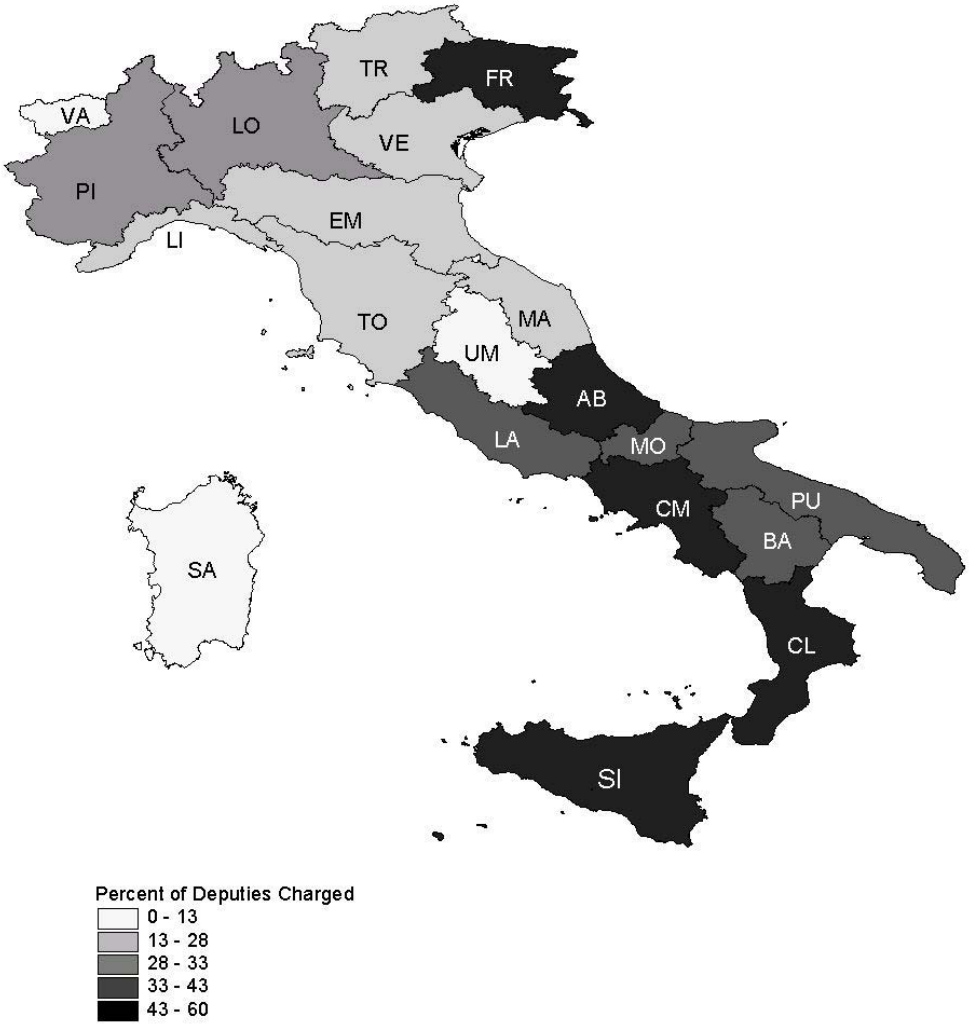
More information about data sources and definitions are in Picci, 2002.

Figure 3. Regional Map of Corruption Index, 1997



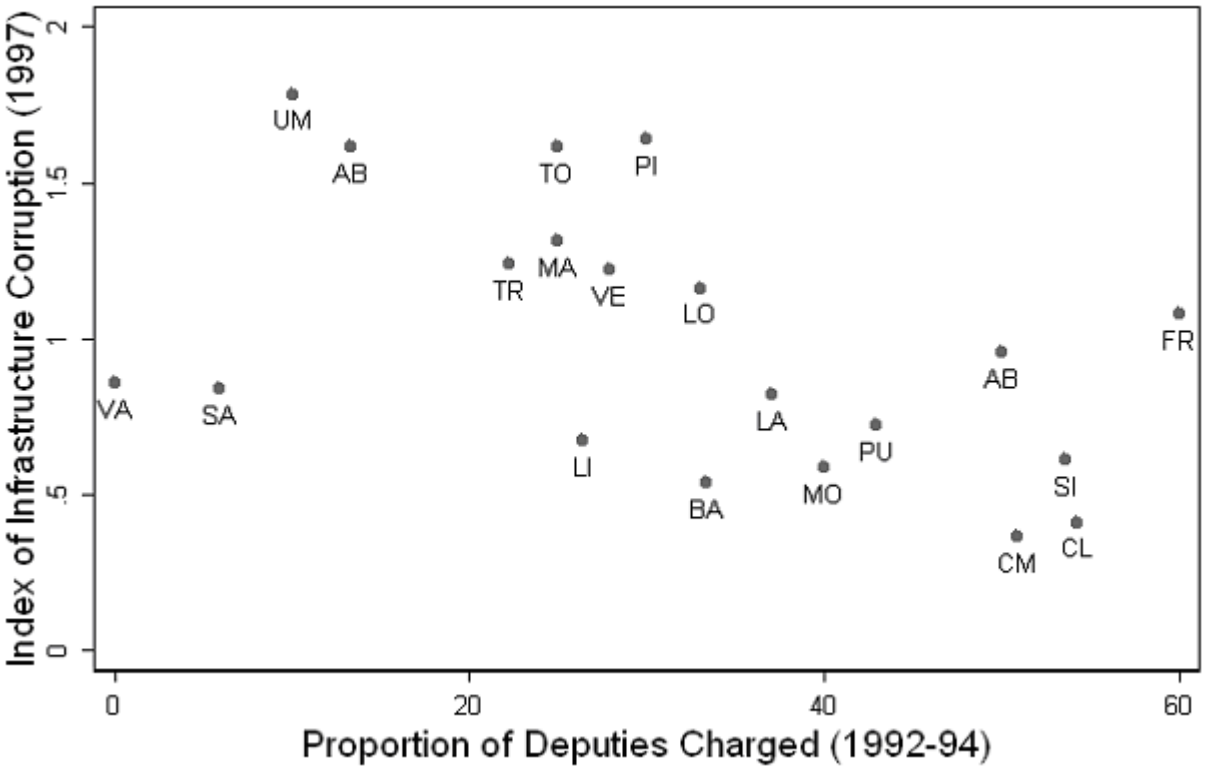
Source: Golden and Picci (2005)

Figure 4. Regional Map of Proportion of Deputies Charged with Malfeasance, XI Legislature



Source: Golden (2004)

Figure 5. Scatterplot of Deputies Charged and Corruption Index, by region



Source: Golden (2004), Golden and Picci (2005).

Note: For regional abbreviations, see Table A1.

Appendix

Table A1. Regional Abbreviations Used in Tables and Figures

AB	Abruzzi
BA	Basilicata
CL	Calabria
CM	Campania
EM	Emilia-Romagna
FR	Friuli-Venezia Giulia
LA	Lazio
LI	Liguria
LO	Lombardy
MA	Marche
MO	Molise
PI	Piedmont
PU	Puglia
SA	Sardinia
SI	Sicily
TO	Tuscany
TR	Trentino-Alto Adige
UM	Umbria
VA	Valle d'Aosta
VE	Veneto

[1] Prepared for publication in the *Handbook of Economic Corruption*, ed. Susan Rose-Ackerman (Edward Elgar Publisher, forthcoming)

[2]See http://www.transparency.org/cpi/2002/bpi2002.en.html (last consulted on August 29, 2005). Respondants in emerging economies were asked "which are the sectors in your country of residence where senior public officials would be very likely, quite likely or unlikely to accept or extort bribes." On a scale of 0 to 10, with 0 worst, public works/construction scored 1.3, just below arms and defense with 1.9. No sector was above 6 (See also Galtung 2003: 268).

[3] Comparable data are not available for the years preceding 1890.

[4] Lazio (the region housing Rome) joined Italy in 1870.

[5] For a general account, see Fenoaltea (1985).

[6] See Picci (2002), Table 4.

[7] See Picci (2002), Figure 6.

[8] The Veneto become part of Italy after the 1866 war with Austria (the so-called "Third War of Independence"); Lazio (and Rome) joined in 1870; and Trento, Bolzano, Trieste and Istria joined Italy after World War I.

[9] See Picci (2002), Figure 5.

[10] See Picci (2002), Figures 7 and 8.

[11] In Golden and Picci (2005), we refer to these as "space-serving" and "people-serving," respectively.

[12] We lack the control data on costs of construction to compute a similar index for 1987, despite the availability of the physical measures for that year.

[13] Liguria and Val d'Aosta are both characterized by a mountainous territory that presumably adversely affects the cost of public works.

[14] The Italian constitution was modified in November 1993, following the barrage of charges stemming from the Clean Hands operation, so that subsequently a majority vote was required to prevent the judiciary from pursuing their investigations. Until then, a majority vote of those present was required to lift immunity. The change had the effect of substantially reducing the number of requests made.

[15] We code as opinion crimes charges that list articles from the Italian penal code numbers 269, 272, 278, 286, 290, 303, 385, 340, 341, 342, 403, 405, 595, and 596, as well as anything related to fascist activities. We are grateful to Davide Petrini for this classification. In the present analysis, we ignore multiple charges against the same representative. For descriptive analysis, see Chang and Golden 2004b.

[16] To aggregate the data from Italy's 32 electoral districts into its 20 regions, we had to assign whole electoral districts to regions. District 11, encompassing the provinces of Belluno, Gorizia and Udine, was assigned to Verona even though Belluno is actually part of the Veneto, and district 18 was assigned to the Marche, although one province actually falls in Lazio.

[17] The document numbers are attached to the immunity requests made by the Ministry of Justice to Parliament. Data collected by Golden, available in Golden (2004).

[18] Significant modifications included Decree n. 827 of 23 May 1924, Decree n. 1063 of 16 July 1962, and Law n. 14, 2 February 1973. See Mariani and Mastromarino (2000), pp. 80ff.

[19] See for example what Merloni (who later, when Minister for Public Works, gave his name to a series of laws reforming the sector) recalls of the period, in Merloni (2001).

[20] The Law of 1994, called the "Merloni Law" after its main author, was followed by two additional pieces of legislation, Law n. 216, 1996, known as "Merloni bis," and Law n. 415, 18 November 1998, or "Merloni ter"). In addition, a set of "technical rules" (Regolamento tecnico, Decree of the President of the Italian Republic, 21 December 1999, n. 554) completed the new legislative framework. In 2002, yet another law (Law of 1 August 2002, n. 166), somewhat inappropriately called "Merloni quarter," modified Law n. 109 of 1994. Constitutional Law 18 October 2001, n. 3, gave sweeping constitutional powers to regions in matters related to public works.

[21] An example is provided by the doubling of the number of lanes in the highly congested portion of the *Autostrada del Sole* between Bologna and Florence. First discussed in 1970 and planned in the following years, works are only now under way.

[22] Information drawn from the organization's web site (http://www.autoritalavoripubblici.it/) (visited May 3, 2005), and confirmed by a telephone interview (May 3, 2005) with an official working on the project.

[23] The interventions of the judiciary represented a sort of ex-post monitoring or, to put it differently, a closing of the door well after the horse had exited the barn.