

9 Organized Crime and Foreign Direct Investment: The Italian Case

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9.1 Introduction

In the geographical distribution of foreign direct investment (FDI) inflows into Italy, the eight less developed regions of the south (the Italian *Mezzogiorno*), receive a very modest share of FDI. For instance, in the period 2005 to 2007, these regions received less than 1 percent of total inflows; in Campania, the southern region with the best performance, FDI amounted to only 0.2 percent of all those inflows into Italy.

The low share of FDI in the southern regions is also evinced by the “geography” of multinational firms located in Italy. In 2006 the firms with foreign participation in these regions amounted to less than 5 percent of the Italian total. For the sake of comparison, in Lombardy alone there were ten times as many firms with foreign capital as in the entire area of the *Mezzogiorno*.

Despite this dismal performance, in southern Italy there are several factors that, at least potentially, could attract foreign investors. First, this area represents a major share of the domestic market: its population is of almost 21 million people, that is, 35 percent of the national total. Second, in the *Mezzogiorno* there is a considerable skilled workforce, and the labor cost is lower than the Italian average. Furthermore, in many southern regions there are extensive uncongested industrial areas able to offer business location benefits for investors (IPI 2005). Finally, firms that invest in the south—especially in the less developed regions—may benefit from a series of financial incentives provided by European and national programs.

However, against such potential benefits, southern Italy has several comparative disadvantages that negatively affect its attractiveness (Basile 2004). One of these disadvantages is the historically rooted presence of several criminal organizations of the Mafia type: *Camorra*, *Cosa*

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nostra, *'Ndrangheta*, and *Sacra Corona Unita*.¹ The incidence of these “Mafia” is particularly high in certain regions: notably Calabria, Campania, Sicily, and, to a lesser extent, Apulia. From an economic point of view, crime may be considered an additional risk (or cost) for business activities (Krkoska and Robeck 2006). Crime, especially if of the Mafia type, tends to damage business in various ways: racketeering, retailing market limitations, and forcing firms to take on suppliers of raw materials or being pressurized to employ workers, creating local monopolies and distortions to the markets (Gambetta 1996; Centorrino and Signorino 2003; Arlacchi 2007). All in all, the presence of crime can be considered as contributing to a somewhat unfavorable business climate, and as a disincentive for foreign and national investments.

Besides having been pointed out many times by scholars, economic operators, and politicians, the deterrent effect of crime on foreign investment has been amply confirmed in surveys conducted among national and foreign investors (Marini and Turato 2002; GPF-ISPO 2005). Additionally the detrimental effects of crime and regional economic development in Italy have been examined by sociologists and economists (Peri 2004; La Spina 2008; Centorrino and Ofria 2008; Daniele 2009). Yet surprisingly, little attention has been paid to estimating the effects on foreign investment. By using data for different kinds of crime, this study analyses the geography of organized crime in Italy and estimates its impact on the distribution of FDI inflows at the provincial level. The results show how the correlation between organized crime and FDI inflows into the Italian provinces is both negative and significant. The correlation results have proved to be robust even when an indicator for financial incentives for investments is included in the regressions.

The conclusions reached in this study suggest that the quality of the “local business environment” influences the location of foreign companies and also diminishes the effectiveness of financial incentives for investments. While our analysis shows that organized crime is indeed a disincentive for investment, certain levels of crime may be perceived as a signal of an unfavorable socioinstitutional system for foreign investors.

The chapter is organized as follows. Section 9.2 illustrates the regional distributions of FDI inflows in Italy and its determinants. Section 9.3 contains a brief review of the economic effects of crime. Section 9.4 describes the data and the results of the empirical analysis. Section 9.5 offers some conclusive remarks.

9.2 The Location of FDI in Italy

9.2.1 Regional Distribution

In all countries there are clear regional differences in the locations of multinational firms. In Spain, for example, Madrid and Cataluña are the main destinations of FDI; in France, Greece, and in the United Kingdom, it is also possible to find distinctive regional differences². In Italy FDI inflows are concentrated in a few regions only. As shown in table 9.1, which reports the share of FDI inflows into the twenty Italian regions, Lombardy receives the largest amount (69 percent), followed by Piedmont (13 percent) and Lazio (7 percent). The shares of the other regions are far less. Overall, the central-northern area receives almost all the FDI inflows into the country; consequently the share of the southern regions is residual, amounting to less than 1.0 percent of the national total. Equally high regional differences are encountered if we consider the ratio of FDI to GDP. In the period 2000 to 2006, net FDI inflows on average represented about 1.6 percent of GDP in the northwest, 0.6 in the central regions, and just 0.1 percent in those of the south.

At the provincial level the concentration of FDI is even greater. Table 9.2 reports the first and last ten provinces in the ranking of FDI inflows in the period 2004 to 2006. Notably the province of Milan absorbs over

Table 9.1

FDI inflows in the Italian regions in percentage of Italy, 2005 and 2006

Regions	2005	2006	Regions	2005	2006
Abruzzo	0.1	0.1	Piedmont	15.5	11.4
Apulia	0.1	0.2	Molise	0.1	0.0
Basilicata	0.2	0.2	Sardinia	0.0	0.1
Calabria	0.0	0.0	Sicily	0.0	0.0
Campania	0.3	0.2	Tuscany	3.6	1.9
Emilia Romagna	2.5	3.7	Trentino Alto Adige	0.2	0.5
Friuli	0.1	0.1	Umbria	1.0	0.8
Lazio	6.2	7.8	Valle d'Aosta	0.0	0.0
Liguria	0.5	0.7	Veneto	4.3	4.2
Lombardy	69.7	68.2	North central	99.2	99.3
Marche	0.1	0.0	Mezzogiorno	0.8	0.7

Source: Italian Exchange Office (UIC).

Note: Data refer to FDI gross flows IDE and do not include trade credits and transactions in the banking sector.

Table 9.2

Top and bottom provinces ranked for FDI inflows in the years 2004 to 2006, in percent

Rank	Provinces	FDI	Rank	Provinces	FDI
1	Milan	66.46	94	Foggia	0.001
2	Turin	9.25	95	Ragusa	0.001
3	Rome	6.33	96	Reggio Calabria	0.001
4	Florence	3.06	97	Gorizia	0.001
5	Verona	2.86	98	Agrigento	0.001
6	Bologna	2.63	99	Catanzaro	0.001
7	Cuneo	2.03	100	Caltanissetta	0.001
8	Terni	0.99	101	Enna	0.000
9	Alessandria	0.75	102	Vibo Valentia	0.000
10	Vicenza	0.56	103	Oristano	0.000

Source: Calculations on Italian Exchange Office data.

Table 9.3

Number, employees and sales of foreign-participated Italian firms

Years	Firms		Employees		Sales	
	North central	South	North central	South	North central	South
2001	6,359	329	850,698	62,136	315,290	18,611
2004	6,739	347	867,294	60,071	346,353	18,031
2006	6,776	318	811,144	46,895	378,597	15,481

Source: Elaborations of the Reprint data base, ICE—Milan Polytechnic.

Note: For the region where the firm is headquartered; data refer to January 1st in each of the years considered.

66 percent of total flows among all the Italian provinces. Moreover the data show that nine of the last ten places are held by provinces in the Mezzogiorno area.

The presence of foreign firms in the Italian regions may be examined more closely through data on the number of firms with foreign participation located in Italy (table 9.3). Overall, among the over 7,100 firms with foreign participation operating in Italy in 2006, only 318 had their headquarters in southern regions, creating only 3 percent of the total number of jobs generated by foreign enterprises located in Italy. The case of Lombardy is striking: the region hosts half of the all Italian firms with foreign capital, and generates over 45 percent of employment and sales of all such firms. As observed for FDI inflows, Lombardy is followed by Piedmont, Lazio, and Emilia.

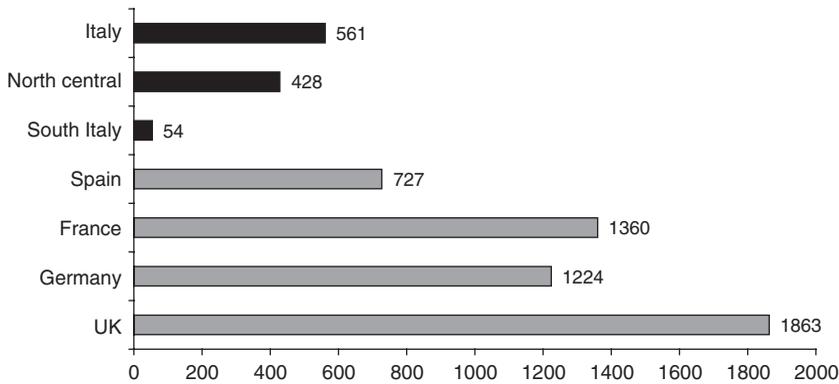


Figure 9.1
Number of “greenfield” investments, 2000 to 2007. Source: OCO Monitor.

Figure 9.1 reports the number of greenfield investments in the two Italian macro regions and in other European countries. First, it is easy to see how the attractiveness of Italy is relatively low in comparison with other European countries with analogous levels of development (Committeri 2004; Basile et al. 2009). Second, the number of investment projects located in the south is very low, less than 10 percent of the total. In addition these investments comprise, almost entirely, small-scale projects in low-skill sectors, such as tourism or retail trade.

Overall, these data confirm how the geography of foreign investment in Italy is characterized by profound regional differences and how the south is completely marginal with respect to the dynamics of the internationalization of Italian firms.

9.2.2 Determinants of FDI Inflows

The location choices of multinational firms are influenced by several factors. At the national level, empirical studies show how a large share of FDI involves countries with large market dimensions and geographical proximity; other factors, such as common borders and a common language, tend also to influence the investment flows (Barba Navaretti and Venables 2004). Studies referring to the European Union show how the location of foreign firms is guided mainly by the firms’ specific characteristics and, to a lesser extent, by observable national or regional factors. Broadly speaking, the determinants of FDI location can be classified in four groups: expected market demand, factor costs, the

presence of agglomeration economies, and public policies capable of influencing the firms' activities (Devereux and Griffith 2003; Crozet et al. 2004; Pelegrin and Bolancé 2008).

At the subnational level, the location decisions of foreign investors are influenced by several factors and regional-specific factors (Artige and Nicolini 2005; Alegría 2006; Devereux et al. 2007; Basile et al. 2009). For example, a study on the location factors conducted by the European Commission (2006), on a sample of approximately 100,000 foreign companies, showed how, in the context of the European Union, FDIs tend to locate in regions with:

- a large presence of previous foreign investors;
 - good infrastructure and accessibility;
 - a highly educated workforce and a high level of R&D expenditure;
- and
- the presence of agglomeration economies, determined by a large presence of competitors, clients, and suppliers within the firm's industry.

Studies on Italy suggest how the relative level of development, the labor costs, the efficiency of the bureaucratic system, and the quality of human capital significantly influence the regional location choices of foreign firms. The low competitiveness of the south is, in large part, explained by these variables, even if some factors (e.g., red tape) are common throughout Italy (Barba Navaretti et al. 2009).

Foreign investments can be a propulsive factor in regional development, contributing toward raising employment and income levels, transferring technologies, and producing spill-over effects that increase industrial productivity (Konings 2004; Devereux et al. 2007). For these reasons many countries, besides Italy, offer incentives or subsidies to foreign companies that invest in their less developed areas.

Empirical studies offer mixed evidence on the effects of financial incentives in attracting FDI. For example, a study of the Irish case shows that regional policies, despite promoting foreign business location in disadvantaged areas of the country, have acted almost "selectively" on firms with a low technological content (Barrios et al. 2003). In Italy, as in France, Spain, or the United Kingdom, research shows that financial incentives for investments (e.g., grants or easy-term loans), tax relief, and EU structural policies do not have a significant effect in attracting foreign investment in underdeveloped regions

(Mayer 2004; Devereux et al. 2007). Rather, a study conducted by Basile et al. (2009), using data for 5,509 foreign subsidiaries established in 50 European regions, found that structural and cohesion funds allocated by the European Union to laggard regions have contributed to attracting multinationals.

A recent strand of literature has been devoted to the investigation of how FDI is influenced by cross-country differences in the political, institutional, and legal systems. There are several reasons for which the quality of institutions may be important for FDI. The first reason is that—according to the studies on long-term growth determinants—efficient institutions improve productivity prospects and in turn attract investors. The second reason is that a poor institutional environment can bring about additional costs for firms, as may be the case with crime and corruption (Broadman and Recanatini 2000; Wei 2000). A further reason is that—due to high sunk costs—FDIs face high uncertainty, mostly stemming from government inefficiencies, graft, or the weak enforcement of property rights (Bénassy-Quéré et al. 2007).

Studies generally confirm that a “good” institutional environment is an important determinant of FDI inflows. This institutional environment includes ease of creating company startups, government efficiency, secure property rights, effective judicial systems, and low corruption levels (Globerman and Shapiro 2002; Habib and Zurawicki 2001). The World Bank (2001) has emphasized how the attraction of investments is greater in areas where the public institutions are perceived as being more credible by the community of investors. This means that governments are considered capable, and that they put into practice the policies undertaken, as well as ensuring predictable and consistent administrative and judicial practices, guaranteeing low levels of crime and corruption. Some case studies, such as those concerning Central American countries (United Nations 2007) and Russia (Broadman and Recanatini 2001), further indicate that violence and crime deter foreign investors.

From the international literature clear evidence emerges on how the quality of the institutional system and the business climate influence decisions regarding the location of foreign firms. These factors also appear relevant at a regional level where, as in the Italian case, notable differences exist in the quality of the local socioinstitutional environments.

9.3 Crime and the Economy

9.3.1 The Economic Effects of Crime

Crime inflicts considerable costs on society. There are costs of protection and prevention, costs sustained by victims as a consequence of crime, and costs relative to prosecuting and incarcerating those responsible for the crime. These costs are monetary disbursements sustained by private individuals and the community as a whole. Estimating these costs is a complex but useful operation, both for designing strategies to fight crime and for evaluating the effectiveness of the measures applied (Brand and Price 2000; Czabanski 2008).

Not always, however, does the social cost of crime correspond to a monetary disbursement. Since a high incidence of crime is detrimental to legal economic activities, it implies a loss in employment and investments, negatively affecting economic development (Peri 2004; Bonaccorsi di Patti 2009). For instance, in analyzing the relationship between crime and the enterprise sector in a range of countries with different levels of development, Krkoska and Robeck (2006) show how organized crime has a deterrent effect on businesses, particularly their entry and expansion, while the perception of crime results as a serious disincentive for foreign investors.

In the Italian case, the effects of organized crime on economic outcomes have been widely examined from sociological and historical points of view but far less from the economic point of view. Often economists have analyzed the determinants of criminality, rather than the effects that it produces on the economy (Marselli and Vannini 2003; Buonanno 2006).

Some studies have nevertheless shown how organized crime produces detrimental effects on economic growth and local institutional systems. For instance, Centorrino and Ofria (2008) demonstrate the negative effect of crime on the growth rate of labor productivity, in particular in the southern regions. Peri (2004), in examining the economic performance of the Italian provinces over the period 1951 to 1993, found a strong and negative correlation between the incidence of organized crime (measured as a high murder rate) and economic development. More recently Bonaccorsi di Patti (2009) has analyzed the relationship between the terms of bank loans and crime rates, using a survey of over 300,000 bank-firm relationships. The results are striking: where the crime rate is higher, borrowers pay higher interest rates and pledge more collateral than in low-crime areas; furthermore access to

bank credit is negatively influenced by crime. Since less credit implies lower investment, the economic growth of the less developed Italian regions is negatively affected.

There are many ways in which crime encroaches on the legal economy. The most obvious is the racket of extortion. Extortion activity is typical of the criminal organizations of the Mafia type. It has two main aims: to ensure a sufficiently steady income, generally directed at financing other illegal activities, and to permit the criminal clans to exercise a widespread control over the territory. Extortion—"pizzo" in the slang of the *mafiosi*—is a crime typical of the Italian Mafia. The reason is that "pizzo" is paid by businesses, for "protection" offered by the criminal families in a certain area (Catanzaro 1991). As pointed out by Gambetta (1996), "providing" protection to legitimate industries has been, for a long time, the *distinctive* activity of the Sicilian Mafia. The extortion racket, thus, allows the Mafia to take control of a territory.

Criminal organizations of the Mafia type also practice other forms of control over the local economy. Often the clans force legal firms to purchase raw materials from specific suppliers, to hire personnel that are linked to the same organizations, or to impose limitations on sales markets. The activity of extortion and the control over a part of the legal economy has been well documented in judiciary inquests and remains a subject of much research (La Spina and Lo Forte 2007; CPI 2008)³. Numerous inquests testify how organized crime manages to condition the activities even of large companies involved in programs of public works for the southern regions (Confesercenti 2007).

In general, crime increases the risks for (and the costs of) investment, and therefore has a depressive effect on the economy. In particular, crime discourages investment by raising the economic risks to companies, deriving from possible attacks, the destruction of property, and intimidation. Insurance against such risks implies financial expense, both in acquiescence (the payment of bribes, being obliged to purchase raw materials from firms with criminal connections) and in self-defense (private police and security measures).

A further negative effect on the economy derives from the operations of the same "entrepreneurs of crime." Through the use of violence or corruption to impose monopolies, the "criminal 'firms'" condition the functioning of the markets and local institutions, distorting the allocation of resources and capturing a part of public

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expenditure, including European funds for regional development (CPI 2008). The result is that the functional capabilities of local market and institutional systems are compromised and consequently the development of the economy (Centorrino and Signorino 1993; Zamagni 1993).

The notable economic and social costs imposed by the presence of organized crime in many areas of southern Italy that discourage both domestic and foreign investment are confirmed by surveys. One such survey, by Marini and Turato (2002) conducted on a panel of businessmen from the northeast of Italy involved in a process of internationalization, showed how almost all of those interviewed (93 percent) believed the presence of criminality to be the principal block to investment in the Mezzogiorno area. Another survey, conducted in eleven countries on behalf of the Italian Ministry of the Economy, showed how, in the perception of businessmen, the Mezzogiorno is a region seriously deficient in security (GPF-ISPO 2005)⁴. Such deterrents for foreign investors have been highlighted by economists for years. For example, Sylos Labini (1985) observed how the presence of organized crime in the south forces companies to choose to locate elsewhere, and discourages investment. Olson (1984) pointed out how, as a result of organized crime, southern Italy has accumulated, over time, a number of extra-governmental institutions that have eroded the economic opportunities and increased the risks for investment. For this reason Olson argued that whoever thinks of starting a new business in such an environment will confront a great many risks that could be avoided by starting the business in a less "risky" area.

Although rich with implications for research, the problems raised by Sylos-Labini and Olson over twenty years ago have received little attention in the economic literature. Only recently has some research on the determinants of FDI considered the crime rate among the explicative variables included in the regressions, showing how, in Italy, high crime rates tend to be negatively correlated with the regional attractiveness for foreign investors (Basile 2001; Daniele 2005).

Our analysis, however, differs from these studies both in method and in content. We used panel data for a disaggregated level of territory (103 provinces) and different estimate procedures. Furthermore we considered different kinds of crime, in particular some typical of the Mafia. As far as we are aware, our research constitutes the first attempt

explicitly aimed at estimating the impact of crime on FDI in the case of Italy.

9.3.2 Measuring Organized Crime

The Italian Penal Code defines organized crime, making a clear distinction between “criminal association” (article 416) and “Mafia type association” (article 416 bis), defining the latter as follows: “the association is of the Mafia type when its components use intimidation, subjection and, consequentially, silence (*omertà*), to commit crimes in order to directly or indirectly acquire the management or the control of businesses, concessions, authorizations, public contracts and public services, to obtain either unjust profits or advantages for themselves or others” Despite this clear definition, measurement of the actual extent of criminal organizations, in particular the Mafia, is very difficult: crime networks are in fact complex and an elusive phenomenon (Lampe 2004; Paoli 2004).

In this study, in order to estimate the incidence of criminal organizations, we refer to official data relative to different crimes that are *symptomatic* of the presence of the Mafia. Even if it is not always possible to disentangle crimes committed by the Mafia from crimes committed by *other* criminals, some offenses are not typical of organized crime: for example, theft, fraud, and sexual violence are not, in general, committed by the Mafia. From existing studies of the subject (La Spina and Lo Forte 2006) we have therefore constructed an index of organized crime based only on certain crimes: extortion, bomb attacks, arson, and criminal association.

Extortion represents a crime typical of the Mafia organizations. As judiciary inquests testify, all Mafia families exercise their power over a territory through the racket of extortion. However, official data notably underreport the number of cases of extortion committed, particularly in the southern regions. Whenever extortion is imposed by the *mafiosi*, only a small fraction of those victimized will dare to denounce the crime. Estimates and inquiries suggest that the spread of the extortion is much greater than noted in official data. According to some estimates, the “racket of kick-backs” would affect 70 percent of Sicilian businessmen, 50 percent of those in Calabria, 40 percent of those in Campania, and 30 percent of those in Apulia, for a total of over 120,000 businessmen in these four regions (Confesercenti 2007). Even if these estimates were considered prudently, in some regions the cost of

extortion would be notable. In the case of Sicily, extortion has been estimated as representing a cost equal to 1.3 percent of the regional GDP (Asmundo and Lisciandra 2008).

Since the number of complaints significantly underreport the effective extent of the extortion racket, our analysis considers other crimes that are symptomatic indicators of the activities of organized crime. These are bomb attacks and arson, which are carried out to threaten and intimidate the economic operators or politicians and which, because of their characteristics, cannot be concealed by the victims, as often happens in cases of extortion. In particular, bomb attacks and arson are often used to compel reluctant businessmen to pay extortion. Finally, we considered the crime of criminal association as covered by the articles 416 and 416-bis of the Italian Penal Code. This crime is measured by the number of people denounced to the Judicial Authorities.

In summary, the incidence of organized crime is given by the sum of these four crimes (extortion, bomb attacks, arson, criminal association) per 10,000 inhabitants. In the period 2001 to 2005 these crimes represented approximately 1 percent of the cumulate total of crimes denounced in Italy.

As figure 9.2 shows, in the south the number of crimes for every 10,000 inhabitants is far higher than in the rest of the country.

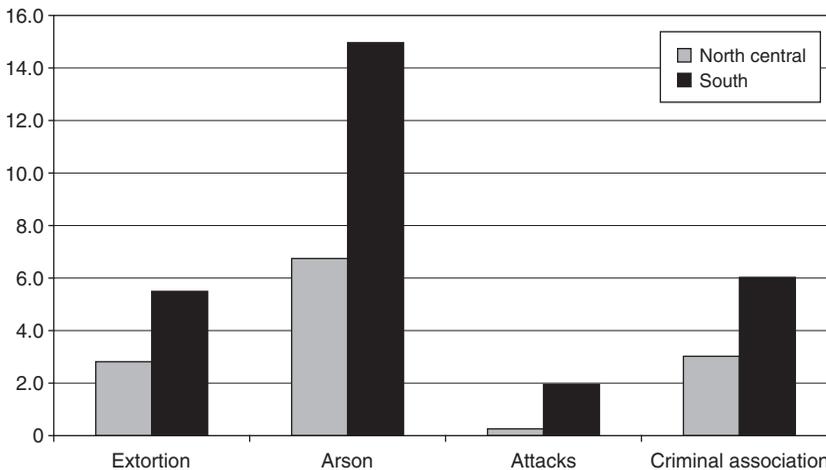


Figure 9.2

Crime rates per 10,000 inhabitants, 2000 to 2005. Data refer to crimes denounced to judicial authorities. Source: Calculations on ISTAT data.

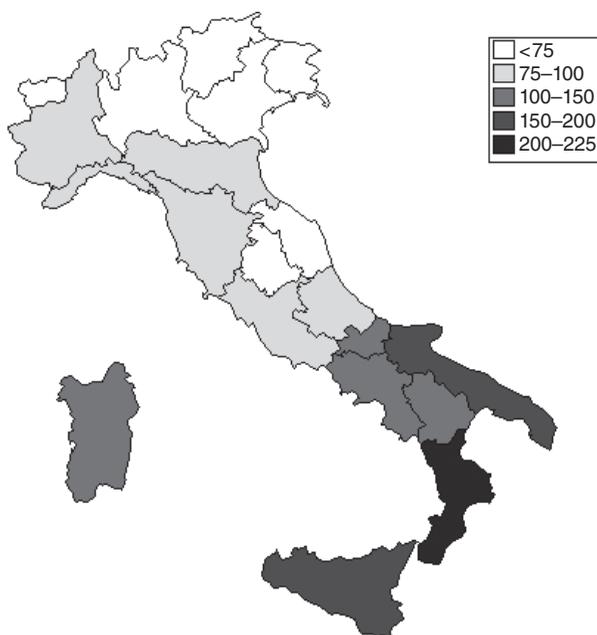


Figure 9.3

Organized crime index, 2001 to 2005. Cumulative values per 10,000 inhabitants (Italy = 100). Source: Elaborated from ISTAT data, "Territorial information system on justice."

Significant differences further exist in the incidence of crime within the Mezzogiorno area. The crime figures are extremely high in Calabria, Campania, Sicily, and Apulia, or rather in those regions where the Mafia organizations, *Cosa nostra*, *'Ndrangheta*, *Camorra*, and the *Sacra Corona Unita*, are historically rooted (Paoli 2004).

The "geography of crime" resulting from the index of organized crime we calculated is illustrated in figure 9.3. Besides indicating the existence of significant differences between the north and south, the criminal geography seems to adhere fairly faithfully to the "map" of the Mafia families that emerged from judicial enquiries, and from reports compiled by the institutions that deal with criminal phenomena (CPI 2008). On the basis of this index, in the following paragraph we will examine the impact of crime on FDI, and seek to verify whether, as the entrepreneurs interviewed in the surveys and numerous economic analysts and politicians claimed, crime is an effective block to potential foreign investors.

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9.4 The Empirical Analysis

9.4.1 Data Description

To examine the effect of organized crime on FDI inflows, we use data for 103 Italian provinces for the period 2002 to 2006, estimating different specifications as

$$FDI_{i,t} = \alpha + \beta_1 X_{i,t-1} + \beta_2 Crime_{i,t-1} + w_{it}, \quad (9.1)$$

where i represents province, t time and $w_{i,t} = e_i + u_{i,t}$ is the error term. The dependent variable is the log of FDI inflow in the provinces, $X_{i,t-1}$ is a set of lagged control variables, while $Crime$ is a measure of the incidence of crime.

The data on FDI inflow into the Italian provinces is gathered by UIC (the Italian Exchange Office) in order to compile a balance of payments. In conformity with international definitions, the FDI establish a long-term interest between a company headquartered abroad and one headquartered in Italy.⁵ Because of the way that the data are collected, the information on FDIs has some limitations; the most important is the fact that when investment flows transit via one or more intermediaries, the methods of reception (immediate beneficiary) do not permit control over the final geographical destination (Mariotti and Mutinelli 2005). For these reasons, great care must be taken when making a comparison between data on FDI flows and data on the number of multinational companies. Notwithstanding the limitations, the regional distribution of foreign firms that results from data on FDIs, and data based on the number of plants, present many similarities; furthermore empirical research on FDI determinants, conducted using the two data sources, generally leads to analogous results. The FDI data have the advantage of provincial disaggregation and of a wide temporal coverage, permitting comparison to analogous data furnished by international institutions. Furthermore these data are used both in empirical analyses on the determinants of FDI (Bronzini 2004) and in descriptive research to quantify Italy's attractiveness to investors.

The incidence of organized crime is measured by the index described in the previous section, calculated as the sum of extortions, bomb attacks, arsons, and criminal associations per 10,000 inhabitants. Other kinds of crimes have been considered as control variables: the number of crimes against property (with the exception of that included in the "organized crime index") and thefts and robberies per 10,000 inhabitants. All data on crime was collected by the Italian National

Institute of Statistics (Istat) in the “Informative System on Italian Justice.”

On the basis of studies on FDI determinants, the control variables included in the regression are related both to the dimension and to the economic structure of the provinces. Market size, one of the main determinants of FDI, is proxied by the log of the resident population (*Population*) in each province, and by the share of provincial GDP of that of the region (*Size*). Considering the profound regional development imbalances that characterize Italy, the GDP per capita (in log) is included among the regressors. We also included a measure of the degree of openness of the provincial economy, given by the share of exports on GDP (*Export*), and a proxy of R&D activities, given by the number of patents presented to the European Patent Office (*Patents*). Furthermore some variables related to the economic and productive structure have also been considered. These were the share of medium and large firms (with more than 50 employees) of the total number of firms (*Big firms*), and the number of firms in nonagricultural sectors per 1,000 people (*Firms*). Since the location of companies also tends to be influenced by an area’s accessibility, we considered an index of total infrastructural endowment (*Infrastructure*). We then inserted, among the regressors, a proxy of the financial incentives to companies conceded under the Law 488/92 (*Incentives*) which, in the period under examination, was the principal instrument of incentives for investment in Italy. This variable was considered in order to evaluate whether financial incentives and subsidies, conceded particularly to companies investing in southern Italy, also influenced the location of foreign companies in areas where disincentives related to the social and institutional context exist. Table A9.1 in the appendix describes the data and their sources.

9.4.2 Estimation Results

To choose the most appropriate estimator, we first tested for the presence of heteroskedasticity, running a basic specification of equation (9.1) with GDP per capita, population and crime index as control variables. The standard assumption of homoskedasticity disturbances can in fact be too restrictive when, as in this case, the cross-sectional units present different sizes and, consequently, different variations (Baltagi 2008). Table 9.4 reports the results of the diagnostic for panel data—*F* statistic, Breusch–Pagan’s test, and Hausman’s test—that suggest that the fixed effect model is not adequate for the nature of the data. Based

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Table 9.4
Diagnostic for the basic model

Test	Results
White	LM = 40.48 – p -value = $P(\text{chi}^2(9) > 40.48) = 0.000$
Wald ^a	$\text{chi}^2 103 8049.87$ – p -value = 0
Joint significance F	$F(102.4) = 4.40$ – p -value 0.000
Breusch-Pagan ^b	LM = 160.7; p -value = $P(\text{chi}^2(1) > 160.7) = 0.000$
Hausman test ^c	$H = 5.34$ p -value = $P(\text{chi}^2(3) > 5.34) = 0.14$

Note: FDI is regressed on GDP per capita, population and organized crime index.

a. Based on FGLS residuals.

b. A low p -value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effect alternative;

c. A low p -value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model.

on this, in our analysis we used a groupwise weighted least square (WLS) estimator for panel data, a specific case of feasible GLS estimators. The FGLS estimator is consistent under the basic random effects assumptions; consequently it is generally used when dealing with simple forms of autocorrelation or groupwise heteroskedasticity (Wooldridge 2002, pp. 257–64) and appears appropriate to our data.

Table 9.5 reports the results of estimations. The model has a high explicative power. The results confirm how the provincial distribution of FDI inflows is primarily influenced by the level of development and by the dimension of the local market, as measured by resident population. Nevertheless, the number of firms, the proxy of R&D activities (*patents*), and the share of large firms result among the determinants of FDI. In all specifications the organized crime index is significant, and negatively correlated with FDI. Furthermore it is possible to observe how financial incentives to investment do not seem to influence the distribution of FDI, probably because such incentives are granted in greater measure to those firms that invest in the less developed areas of the country, and therefore this variable also tends to reflect some regional characteristics. To analyze the effects of crime more in depth, we have considered other specifications that included the incidence of theft and robberies and the rate of crimes against property (*Property crime*) as control variables. Table 9.6 reports the results of estimations. There is a negative, but not significant, correlation between these crimes and FDI, while the other explanatory variables maintain their significance and coefficient signs. This is not a surprising result: research

Table 9.5
Organized crime and FDI inflows

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-72.37** (-35.74)	-62.00** (-22.18)	-61.71** (-19.67)	-61.65** (-19.57)	-62.75** (-19.26)	-61.54** (-17.88)
Organized crime	-0.039** (-2.39)	-0.046** (-2.71)	-0.046** (-2.69)	-0.047** (-2.69)	-0.047** (-2.75)	-0.042** (-2.41)
GDP pc	5.831** (29.87)	4.918** (19.12)	4.901** (18.20)	4.902** (18.17)	5.029** (17.56)	4.954** (15.38)
Population	1.952** (33.97)	1.757** (24.55)	1.745** (18.94)	1.741** (18.81)	1.757** (18.86)	1.706** (16.67)
Big firms		0.463* (1.95)	0.4845* (1.95)	0.457 (1.32)	0.359 (1.01)	0.552 (1.52)
Firms		0.0082** (3.08)	0.0082** (3.07)	0.0081** (3.00)	0.0064** (2.13)	0.0068** (2.26)
Patents		0.0029** (4.85)	0.0029** (4.80)	0.0029** (4.76)	0.0030** (4.89)	0.0031** (4.85)
Size			0.0006 (0.21)	0.0008 (0.26)	0.0003 (0.11)	0.0011 (0.34)
Export				0.052 (0.11)	0.053 (0.11)	-0.102 (-0.22)
Infrastructure					-0.001 (-1.29)	-0.001 (-1.09)
Incentives						0.0001 (0.103)
<i>N</i>	515	515	515	515	515	492
<i>R</i> ² adjusted	0.86	0.87	0.87	0.87	0.87	0.88
ln <i>L</i>	-728.3	-724.6	-724.3	-724.3	-723.8	-690.5

Method: Groupwise WLS; *t*-statistics in parentheses. * indicates significance at the 10 percent level; ** indicates significance at the 5 percent level

Table 9.6
Crimes and FDI inflows

	(1)	(2)	(3)
Constant	-67.67** (-24.37)	-66.50** (-24.81)	-64.88** (-22.66)
GDP pc	5.369** (19.77)	5.189** (19.29)	5.033** (17.68)
Population	1.856** (24.82)	1.891** (20.91)	1.856** (24.42)
Big firms	0.4386* (1.72)	0.5667** (2.36)	0.7801** (2.86)
Firms	0.0089** (3.09)	0.0088** (3.04)	0.0115** (3.65)
Patents	0.0026** (4.50)	0.0024** (4.02)	0.0023** (3.73)
Infrastructure	-0.0011 (-1.06)	-0.0010 (-0.97)	-0.0011 (-0.99)
Theft	-0.0007 (-1.57)		
Robberies		-0.0091 (-1.23)	
Property crime			-0.0002 (-0.70)
<i>n</i>	515	515	442
<i>R</i> ² adjusted	0.87	0.87	0.87
ln <i>L</i>	-725.5	-726.8	-622.3

Method: Groupwise WLS; *t*-statistics in parentheses. *indicates significance at the 10 percent level; **indicates significance at the 5 percent level

shows that the incidence of crime (excluding *Mafia* type) is generally higher in those areas with greater economic activity (Cracolici and Uberti 2009). In our analysis this suggests that not all crimes, only some crimes linked to the presence of a *Mafia* type organization, tend to discourage potential investors.

9.5 Conclusion

Organized crime affects the legal economy in various ways: through extortion, by direct or indirect control of business, or simply by increasing the risks and the costs of business. This chapter studies the effects

of organized crime on foreign investment, focusing on the case of Italy. The case of Italy is interesting for diverse reasons. First, in Italy there is a historical presence of organized crime of the Mafia type, rooted particularly in the southern regions. Second, Italy is characterized by profound regional disparities, and the presence of the Mafia is unanimously considered one of the main constraints to economic development in the less developed areas. Third, the south of Italy receives a very low share of FDI inflows.

Our analysis shows how, *coeteris paribus*, a higher presence of crime, especially of the Mafia type, significantly reduces foreign investment inflows. Such a correlation is significant, even when the regressions include a proxy of the financial incentives granted to firms that invest in the less developed areas. This result suggests that the presence of crime, a strong disincentive related to the socioeconomic environment, tends to reduce the effectiveness of development policies. Our analysis does not indicate the presence of crime as the main or the sole reason for the low attractiveness of the southern regions. FDI inflows are, of course, influenced by different economic and institutional determinants. The presence of the Mafia can be, however, considered a specific “comparative disadvantage” of the less developed regions.

Our results are consistent with some surveys that contain the opinions of potential foreign investors about opportunities for investing in southern Italy. Said surveys indicate in fact how the presence of organized crime is perceived by businessmen as a powerful block to investments in the Mezzogiorno. It is possible to observe how, in some areas, crime is only one aspect—certainly the most evident and dramatic—of a social and institutional context characterized by other forms of illegality that include corruption and, even more widespread, the violation of regulations necessary for the good functioning of the market (La Spina and Lo Forte 2006).

Our analysis does not exclude that a high incidence of crime, other than discouraging investment, can also be perceived as a signal of a socioinstitutional system unfavorable for business activities. This “signal effect” can be particularly important to potential foreign investors, who are generally less informed in respect to national investors. The magnitude of the effect of crime on firms’ location decisions is probably amplified by investors’ perceptions about the business climate quality in regions with a comparatively higher incidence of crime.

Although our analysis refers specifically to Italy, it is related to the international literature that indicates how institutional quality matters for firms’ location decisions, and consequently for economic

performances (Bénassy-Quéré et al. 2007). Our analysis is also related to the literature on the social costs of crime, in particular with those works that analyze the effects of crime on the legal economy and the enterprise sectors (Krkoska and Robeck 2006; Bonaccorsi di Patti 2009).

Policy implications are consequential. In the case of Italy, better security conditions (and the improvement of local socioeconomic contexts) would increase regional attractiveness to FDI, and probably the effectiveness of policies aimed at promoting regional development.

Appendix

Table A9.1
Description of variables and sources

Variables	Description	Sources
FDI	Average FDI inflow in the provinces in the period 2004 to 2006 (in logarithms). Data refer to the investment flows and do not include commercial credits and banking sector transactions.	Italian Exchange Office (UIC)
Population	Resident population in each Italian province (in logarithms). Proxy of the size of the local market.	Elaborated from ISTAT Census data.
GDPpc	GDP per capita (in logarithms). Proxy of the level of development.	Elaborated from ISTAT data.
Size	Provincial GDP on the GDP of Italy. Proxy of the size of the local market.	Elaborated from ISTAT data.
Incentives	Variable of proxy of the financial incentives granted to firms, given to the investment projects granted under the Law 488/92. Data refer to the projects for creating new production plants in the industrial sector (excluding "special industry" calls for proposals)	Ministry for Economic Development—Ipi-Print databank
Firms	Number of firms in nonagricultural sectors, per 1,000 inhabitants	Elaborated from ISTAT data.
Export	Total export on GDP	Elaborated from ISTAT data.
Patents	Number of European patents presented to the European Patent Office (EPO)	European Patent Office—Unioncamere
Big firm	Share of firms with more than 50 employees out of the total number of firms	Elaborated from ISTAT data.
Infrastructures	Synthetic index of infrastructure endowment (excluding ports) in percentage terms compared nationwide.	G. Tagliacarne Institute

Table A9.1
(continued)

Variables	Description	Sources
Extortion	Number of crimes of extortion denounced per 10,000 inhabitants.	Elaborated from ISTAT data, "Territorial Informative System on Justice" (online databank).
Association	Number of crimes of criminal association denounced, including 'mafia' association, per 10,000 inhabitants.	Idem
Attacks	Number of (bomb) attacks, per 10,000 inhabitants.	Idem
Arson	Number of cases of arson, per 10,000 inhabitants.	Idem
Theft	Number of thefts, per 10,000 inhabitants	Idem
Robberies	Number of robberies, per 10,000 inhabitants	
Organized crime	Sum of extortion, attacks, arson, association (as defined above), per 10,000 inhabitants.	Idem
Property crime	Total number of crime against property (with the exception of that included in the "organized crime index")	Idem

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Notes

1. The term Mafia comprises different criminal organization: *camorra* is the name of Campania-based organized crime, *Cosa nostra* of Sicilian-based crime families, *Ndrangheta* of Calabria-based crime families, and *Sacra Corona Unita* of the Apulia-based crime families.
2. For the French case, see Mayer (2004); for Spain, see Hermosilla and Ortega (2003); for Britain, see Devereux et al. (2007); and for Greece, see Kokkinou and Psycharis (2004).
3. According to the data contained within the Annual Report of the Parliamentary Commission of Inquest on criminal organizations (2008), in the area of the judicial district of

Catanzaro, in Calabria, companies that resist the pressures from organized crime are practically nonexistent; furthermore the report carries the denouncements made by the representative of a large Tour Operator, Parmatour, who declared that tourist resort villages in Calabria were systematically subject to extortion.

4. The issue of security and its importance for internal and external investments in the Mezzogiorno has long been part of the political and economic debate in Italy. Recently a series of events has made this issue one of the most urgent for development in southern Italy. The Federation of Anti-racket and Anti-usury Associations (FAI) has proposed the establishment of a "security tutor" for foreign firms interested in investing in the Mezzogiorno (FAI, *Anti-racket tutoring, Experimental three-year project*, Naples, December 12, 2007). One of the motivations behind the project was a declaration made by the President of the Italian Council of Ministers, on November 17, 2006: in effect, that organized crime represents a significant deterrent for foreign firms interested in investing in southern Italian regions. The Governor of the Bank of Italy Mario Draghi (Draghi 2011) also highlighted the social and economic effects of criminal infiltration in many economic sectors.

5. By definition, a direct investment enterprise is an incorporated enterprise in which a foreign investor owns 10 percent or more of the ordinary shares or voting power for an incorporated enterprise, or an unincorporated enterprise in which a foreign investor has equivalent ownership (IMF 2000).

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