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Crime Patterns between Tradition and Change: A Territorial Analysis of the Italian Provinces

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Abstract Violent criminality associated with Mafia-type organizations has been crucial for the image of Italy's crime. This paper purpose is to verify whether the contemporary situation still matches that image and what has been the impact on crime of more recent factors, above all foreign immigration. Indeed, Italy has been characterized by a recent but tumultuous migratory flow, which has possibly posed difficulties for immigrants' integration. The territorial analysis, carried out on 103 Italian provinces, shows two discrete scenarios. When all the provinces are considered, serious offences such as intentional homicides, extortions, criminal conspiracies and robberies are still associated with a traditional scenario of socio-economic backwardness and poor social capital. However, when only the Central and Northern provinces are selected, a new, non-traditional form of criminality, associated with "modern" features, such as the presence of immigrants and their problems of integration, clearly emerges.

Keywords Immigration · Homicides · Criminal organizations · Social capital · Spatial analysis

1 Introduction and Main Theoretical Considerations

Italy's crime image has been moulded by the age-old presence of serious, often violent, crimes (firstly, homicides and extortions) revolving around local criminal organizations of the Mafia type and regarded as associated with familism, lack of trust—and therefore limited social capital—and underdevelopment (Hess 1973; Gambetta 1993; Paoli 2004). The importance of this typology has been emphasized by the fact that it has been

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considered the original form of *organised crime*, later exported to the US and other countries (Varese 2011). However, Italy is also well known for being a country with more marked regional differences than those found in the other Western countries. These marked differences—largely due to historical reasons—have attracted the attention of social scientists since many decades ago (e.g. Banfield 1958; Bell 1979; Putnam 1993). The analysis of these regional differences and of the Mezzogiorno's cultural features was instrumental in the development of sociological concepts like *amoral familism* and *social capital*, the latter in particular being a dominant focus of contemporary socio-political research (Coleman 1988; Putnam 1993, 2000; Fukuyama 1995). Moreover, the Mezzogiorno's socio-economic and cultural features suggest some parallelism with the Southern region of the US and its high violent crime rates (Baron and Straus 1988). In Italy, violent crimes and criminal organizations have been since centuries ago a characteristic of the more rural-agricultural Southern region; whereas the more developed and industrialized Northern region registered low violence level but higher property crime rates (Carbonaro 1954). We ask ourselves whether that traditional crime profile still survives in Italy and, in case of affirmative answer, how it coexists with social change.

To start with, even *traditional* organized crime is not necessarily what it used to be. Social scientists noticed changes over time in the Mafia-type organizations. In particular, these organizations movement from their habitual Southern turf to the Central and Northern provinces, at least to invest the return of their illicit activities; the capability of adapting to new political situations and to new market conditions (Catanzaro 1985; Shelley 1994); the shift from extortions and violence towards more entrepreneurial—though still illegal or semi-illegal—businesses (Arlacchi 1986; Paoli 2008), in particular that of "private protection" (Gambetta 1993); the decline in the social culture supporting these criminal organizations (Cayli 2013); and the foreign immigrants' tendency to replace natives in organized crime (Paoli 2008).

New social facts that emerged over the last decades are regarded as capable of changing nature and prevalence of traditional criminality. Hard drugs proliferation can be considered an indicator of anomie and of pressure to commit crimes: i.e. income-generating crimes to afford the costs of hard drugs; criminal conspiracies aimed at drug trafficking and control of the drug market; and homicides deriving from these illegal activities (among the massive literature on this subject, Goldstein 1985; Johnson et al. 1991; Bean 2002).

Among these new social facts, foreign immigration could have a prominent position. Studies in Europe's large scale immigration countries—Germany, Switzerland, France, Belgium and England—during the 1950's–1960's had found that immigrant crime rates were inferior or similar to native rates. In addition, most studies conducted in larger immigration countries outside Europe (Canada, the United States and Australia) have negated higher crime rates among the immigrant population (Yeager 1996; Rumbaut and Ewin 2007; Francis 2014). Since the early 1980's, however, several studies carried out in most of the West European countries have reached the conclusion that immigrants have been markedly over-represented in crime statistics (Tonry 1997a; Marshall 1997; Solivetti 2010). The link between immigration and the abovementioned drug trafficking and criminal conspiracies has been emphasized (Paoli and Reuter 2008). The immigration–crime link has fuelled the most heated debate in the European political arena. Even among social scientists positions have been far apart, although the major criminological theories expect immigrants to exhibit higher crime rates.

The *social disorganization theory*, originally a product of the Chicago School of Sociology, ascribed immigrant crime to the lack of cohesion and of social organization that—also due to immigrants' mobility—characterized the urban sections where new

immigrants tended to gather. This model has been used in various studies and different countries (Sampson and Groves 1989; Herzog 2009; Boggess and Hipp 2010). However, other studies contended that high crime levels could be found in areas characterized by residential stability, as well as by ethnic homogeneity and concentrated disadvantage (Sampson and Wilson 1995).

Several authors have followed Merton's seminal study on anomie and relative deprivation (1949). It suggested that lower classes are driven to crime because—though influenced by the universal goal of economic success—they have scarce access to the legitimate means leading to such success. Since immigrants—who averagely present lower education, lower wages and higher unemployment—are lacking in legitimate opportunities, they could be more prone to crime (Basdevant 1983; Killias 1989; von Hofer et al. 1997). Other authors have adopted the so called *economic model of crime* and, following the pioneering study of Becker (1968), suggested that crime is a rational choice whenever its benefit outweighs its cost. Costs and benefits, however, are relative, because one measures them against the legitimate opportunities available to him/her, and therefore—for reasons abovementioned—the average propensity to crime among the immigrants should be higher (Neumayer 2006; Vaillant and Dervaux 2008; Bell et al. 2010; Spenkuch 2014).

A corollary of both the previous theories is that immigrants from countries with socio-economic conditions and skills markedly lower than those of the host society would tend to malintegration and norm-breaking (Eisenstadt 1954; Calavita 2005; Stowell 2007; Bovenkerk and Fokkema 2015). There are however exceptions: the so called *Latino immigrant paradox* in the US, namely low-crime ethnic groups from poor countries (Sampson 2008; Vaughn et al. 2014), and South Asia's immigrants in Europe (Killias 1989; Tonry 1997b).

Apart from this, immigrants from socially and culturally distant societies could have serious problems of integration and *culture conflict* (Sellin 1938; Kühne 2002; Reich 2006); and immigrants coming in particular from societies with high levels of illegality and crime could have interiorized both of them (Gurr 1989; Karstedt 2001).

Moreover, in many countries, immigrant population is prevalently male and young. And since males in the so called *crime-prone years* make an over-proportional contribution to crime (Hirschi and Gottfredson 1983), demographic reasons could contribute to immigrant crime.

Whatever the reason for immigrant crime, almost all the investigations focused on the immigrant share among people arrested or jailed. Investigations dealing with the territorial relation between immigration and crime were few and mainly based on US data. These facts are regrettable, because territorial analyses could clarify not only whether immigrants' distribution coincides with crime distribution, but also whether there are territorial features having a greater influence on crime rates. Moreover, the results of the abovementioned investigations are far from being convergent. Reid et al. (2005), studying US urban data, found a significant immigration–crime link only with regard to robberies. Nielsen et al. (2005), using data on sections of two US urban areas, found that the immigration factor was of low significance. Comparable results had been reached by Butcher and Piehl (1998). In the US, again, Ousey and Kubrin found a negative relation between territorial variations of immigrants and crime rates (Ousey and Kubrin 2009); whereas Spenkuch (2014) found a positive association between foreign-born variations and property crime. In Europe, the results of Entorf and Spengler's study on Germany's Länder (2000) showed a correlation between immigration and only theft and overall crime rates. Aoki and Todo (2009) found a low correlation between immigrants and overall crime in France's departments, whereas Hooghe et al. (2011) found in Belgium's municipalities a

positive association between immigrants and thefts. Buonanno (2006), using Italian regional data, found a weak association between immigrants and crime against property. Cracolici and Uberti (2009), using Italian provincial data, by contrast, found a strong association between immigrants' distribution and both theft and fraud rates.

Italy could represent an ideal case for examining in depth the territorial features associated with crime, as well as the immigration impact in a context of marked regional differences and traditional crime. Moreover, the migratory inflow in Italy has presented peculiar features compared with other Western countries. A country of emigration until the 1960's, Italy has been characterized by a recent but tumultuous migratory flow, which has possibly posed difficulties for immigrant integration. The 1995–2005 years were crucial for the development of this migratory flow, because the total foreign immigrant share in Italy soared in that period from 1.8 to 4.7 % of the resident population. This in spite of the country's high unemployment (averagely 10.3 %) and its poor score in economic freedom (Gwartney et al. 2013). The migratory flow included a substantial number of illegal immigrants—cyclically reabsorbed by ad hoc regularizations—whose condition is regarded as critical for crime control. Only few immigrants (13 % in 2000), were from Western Europe, and more than 60 % from non-Western, less developed countries. This—as mentioned above—could be relevant for malintegration and norm-breaking. Moreover, such a migratory flow has mainly concerned the Central and Northern regions, where development is definitely higher and where the adult immigrant share was, in the abovementioned period, 3.3 times that in Southern Italy. All this prompts a few questions. Has this migratory flow impacted on crime figures, at least in the Central and Northern provinces? Have immigrants superseded native Mafia-type criminal organizations? And is the immigration impact on crime larger in a country where immigration has been a new phenomenon and its growth feverish?

2 Layout of the Present Study

The present analysis has focused on the 103 Italian provinces (pre-2001 boundaries). Each territorial unit comprises on average 2900 sq. km and 550,000 people (2001). We chose a series of offences to represent crime. For reasons that will be clearer later, we avoided using groupings like "property crime" or "violent crime". Instead, we considered firstly some of the most serious offences, intentional homicide, rape, robbery, extortion, and criminal conspiracy (i.e. the offence of membership of an association to commit crime), followed by exploitation of prostitution, an offence often perpetrated by transnational criminal organizations and accompanied by violence against persons, then the most common offence, theft, and at last, overall crime, namely the total number of criminal offences, also known as *index of criminality*. All crime rates are averages from 1995 to 2005.

We used four control/explicative variables in all the regression models: male population aged 15–24 years, chief town population, per capita GDP, and male unemployment. Those variables were chosen for the following reasons. The male population aged 15–24 can be expedient to control for the *crime-prone years* and for the abovementioned demographic differences between immigrant and native populations. However, one must remember that male population aged 15–24 years is also intertwined with male unemployment ($r = 0.82$) and GDP per capita (-0.80). The degree of urbanization was (Levi 1880) and still is (van Dijk et al. 2007) the single best predictor of crime. Concurrently, in all the host countries

immigrants tend to concentrate in urban areas (OECD 2004). Therefore, the presence of urban areas could cause spurious correlations between crime and explicative variables. In terms of urbanization degree, additionally, Italian provinces encompass a broad spectrum, from quasi-rural conditions (chief town population ~20,000), to cities of more than 2,500,000 population. To measure the urbanization degree, we considered population per sq. km: this indicator however is distorted by the presence of provinces with extended mountain areas. The size of the chief town population, instead, is not affected by this feature; moreover, it captures the presence of big cities, particularly associated with high theft and robbery rates. Male unemployment in turn is regarded as particularly momentous by authors adopting the economic model of crime or the anomie approach. Male unemployment could be relevant in Italy also because its variance over the territory is huge and its maximum values are impressive (Appendix). This variable is closely correlated with per capita GDP (−0.83), which is a measure of absolute economic status. Therefore, any assumption about the contribution to a social fact made by high unemployment should also consider the contribution made by low GDP, and vice versa.

In addition to these controls, we used several explicative variables. Among them, an estimated income concentration index (Solivetti 2013), correlated with GDP (−0.65); then variables relating to the distribution of workers over the main economic sectors (Reid et al. 2005). Plus the share of professionals and entrepreneurs[1] among employed population (a proxy for affluence). In order to measure education, we used the percent of graduate population. We expected a higher educational level to be both a sign of commitment to positive social goals and a factor increasing the returns to legitimate work, as well as the costs of recurring to crime (Hirschi 1969; Gottfredson 1985; Machin et al. 2010). However, because Guerry (1833) had already discovered that—at least in macro-level analyses—the association between level of education and crime against both persons and property could be positive rather than negative, and since also recent empirical evidences of this association are not conclusive, we considered in addition the share of those who did not comply with compulsory education. This variable, apart from being an indicator of poor education, could constitute also an indicator of loose social fabric. The percentage of people separated or divorced could represent a further indicator of social malaise, and specifically of family disruption (Ousey and Kubrin 2009). In turn, infant mortality—a variable whose high values are usually associated with lower education—could be a proxy of wide-ranging backwardness. Next, we regarded deaths due to drug abuse as a reasonable proxy of hard drug prevalence. We took into consideration, as well, some variables meant to measure the level of social capital. Newspapers circulation, originally suggested as a measure of social capital by Putnam (1993), proved to be very highly correlated with chief town population (0.92) and instead uncorrelated with both education and offences such as criminal conspiracy and Mafia-type organizations,[2] which in turn should represent indirect indicators of, respectively, high and low levels of social capital. On the basis of these results, in lieu of newspapers circulation we used the circulation of the leading general interest magazines.[3] Magazines circulation proved to be uncorrelated with urbanization degree and instead highly correlated with education and the other abovementioned indirect indicators of social capital. The share of voters who took part in the 2001 referendum could be

[1] A census category: "professionals" are people in white-collar professional occupations; "entrepreneurs", people who organize and manage a company.

[2] The diffusion of Mafia-type criminal organizations was measured by the rate of people charged with membership of such organizations.

[3] These magazines are *Panorama*, *L'Espresso* and *Il Mondo*.

tantamount to a further measure of social capital (Putnam 1993). Share of voters and magazines circulation emerged as closely correlated.

Changes of residence (people moving into the province from any previous national or foreign locality) would measure the impact on crime of residential instability, and would indirectly check the tenets of the *social disorganization theory*. The correlation between residential instability and immigrant share is close (0.67), but not such as to hinder comparison between their effects. A high share of homes occupied by their owners could in some way reduce the adverse social impact of residential instability and high urbanization level. To avoid distortions due to the uneven distribution over the territory of holiday houses, however, we calculated owner-occupied homes as a share of only houses occupied by residents. In order to measure the important foreign immigration topic, we made use of various indicators: the adult foreign immigrant share on resident population (1995–2005), adult illegal immigrants (calculated on the 2002–2004 regularization), share of the adult male immigrants belonging to the six national groups with the highest impact on overall crime, which are all from non-Western countries,[4] and, last, underage immigrants (an indicator of radication). All these indicators are intercorrelated ($r = 0.41$–0.81). The direct indicators of immigrant presence (first, adult immigrants and adult illegal immigrants), however, are imprecise. Not all the illegal immigrants are captured by the variable bearing this name, which is based on regularizations. Not all the legal immigrants are residing where they were registered: a share of them moved back to their country of origin. An indirect indicator, i.e. migrant remittances to the country of origin, would capture the immigrants, both legal and illegal, actually residing in the host country. Though the use of remittances is not uniform among immigrants (Carling 2008), it seems reasonable to employ remittances as a measure of immigrant population (Passel 2007). We discovered that remittances are significantly correlated with both legal and illegal immigrants ($r = 0.43$ and 0.38): and the correlation is closer in the Central–Northern provinces (0.59 and 0.50). Therefore, we used all remittances, as a share of the province's GDP, as the main indicator of immigrant population. We assume that remittances do not directly cause crime; besides, crime rates should not affect remittances, because the revenues of income-generating crime would hardly be channelled through a certified procedure registering both the sender and the receiver. However, we cannot exclude a correlation between remittances and the disturbance of the endogenous variable. To check this, we introduced an instrument for the immigrant presence: the remittances sent by immigrants in 1994. Because new immigrants tend to follow in old immigrants' footsteps, these remittances are correlated with later immigration indicators (1995–2005). In particular, remittances of 1994 are significantly correlated with later legal and illegal immigrant indicators, though not with underage immigrants and high-crime national groups of immigrants. Concurrently, remittances of 1994 cannot directly cause crime of 1995–2005; and the latter cannot cause previous remittances. Ultimately, 1994 remittances—being also a lagged variable—would be particularly helpful to distinguish between correlation and causality.

The period covered by the analysis is 1995–2005, exceptions being represented mainly by census data (2001) and by variables relating to sporadic events such as referendums and regularizations of illegal immigrants. The potential relevance of these variables, however, dissuaded us from conducting a longitudinal analysis. Therefore, we made recourse to a cross-sectional analysis of the territorial units, by means of multiple linear regressions and

[4] The selection of these groups of immigrants was based on the number of people charged with criminal offences (abs. val.). The countries these groups have come from are Morocco, Albania, Romania, Senegal, former Yugoslavia and Tunisia.

spatial regression models. Each model contains the same control variables, plus the explicative variables generating the best statistical results.

3 Results

The descriptive statistics show (Appendix) that crime rates are often widely differentiated over the territory and in particular the high frequency of homicides, extortions and criminal conspiracies in some parts of the country is not something belonging only to the past. The statistical analysis in turn revealed a close linear association between the homicide distribution and male unemployment, compulsory education avoidance, Mafia-type organizations, male population aged 15–24 years, infant mortality, income maldistribution and "South". Moreover, homicides are negatively associated with per capita GDP, the share of people employed in the manufacturing sector, and social capital, as measured by magazines circulation and referendum voters. Also residential instability is negatively associated with homicides; and the same happens with drug abuse. In addition, homicides are negatively associated with all the main indicators of foreign immigration. The urbanization degree, in turn, is not statistically significant. The multiple regression models, incorporating all the controls and using conservative error estimations[5] (Table 1), show in particular the contribution to homicide rates made by the combination of male unemployment, compulsory education avoidance, income maldistribution and traditional criminal organizations. Therefore, homicide is rife where there is underdevelopment, unemployment, limited education and limited social capital. In such a picture, foreign immigrants are relatively few, because they are attracted by the richer, developed and often more urbanized areas: adult immigrants are correlated with per capita GDP ($r = 0.80$), unemployment (-0.66), chief town population (0.32) and also Mafia-type organizations (-0.48).

The homicide rate distribution reveals a marked positive spatial autocorrelation, as measured by the Moran's "I"[6] (Table 1). It means that provinces with high homicide rates are close to each other. Concurrently, the main predictors of homicide rates (unemployment, compulsory education avoidance, Mafia-type organizations, male population aged 15–24 years, infant mortality, income maldistribution, magazines circulation and referendum voters) all are characterized by a high spatial autocorrelation, with Moran's "I" z values from a minimum of 15 to a maximum of 26. Figure 1 better qualifies all this. Its "hot spots"[7] (Ord and Getis, 1995) graphically identify provinces that have high homicide rates—compared with the global average—and are at the same time surrounded by other provinces with high homicide rates. Figure 1 clearly shows that conspicuous hot spots substantially occur only in the Southern provinces. What is more, also compulsory education avoidance, Mafia-type organizations and male unemployment present hot spots only in the Southern provinces and largely overlapping with the homicide ones. One partial exception is represented by Sardinia, where Mafia-type organizations are notably absent.

[5] All the regression models used "robust" error estimations to control for errors heteroscedasticity, via the Huber-White sandwich estimator of variance.

[6] For the Moran's I—the measure of spatial autocorrelation developed by P. A. P. Moran—a proximity weights matrix, based on the inverse distance between the provinces centroids, was used. Software: Stata modules Spatwmat, Spatgsa by M. Pisati and Spwmatrix, Splagvar by P. W. Jeanty.

[7] For the hot spot analysis, a binary weights matrix, based on the provinces *queen* contiguity, was used. Software: Stata modules Spmat, by D. M. Drukker and Spmap, by M. Pisati.

Table 1 Multiple linear regression models: crime rates of all the Italian provinces, and variables relating to features of the abovementioned provinces; semi-logarithmic models, coefficients, "robust" errors estimation, and VIF[a]; Moran's "I"

Independent/control variables (abbr. labels)	Intentional homicide		Criminal conspiracy		Extortion		Robbery	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Population								
Male population aged 15–24 years	0.213	0.130	−0.212	0.115	−0.062	0.069	0.003	0.091
Chief town population	−0.099	0.073	0.190	0.075	0.131	0.062	0.525	0.062
Residential instability			−0.265	0.132				
Migrant remittances	1.397	1.069	−0.267	1.077	0.730	0.878	−0.245	1.099
Separated or divorced people	0.180	0.042						
Economics								
GDP per capita (€ ,000)	−0.041	0.027	0.021	0.032	−0.043	0.022	−0.009	0.022
Income concentration	3.060	1.419	−3.900	1.690			0.680	1.084
Owner-occupied homes								
Unemployed, males ≥15 year old	0.029	0.022	0.010	0.022	−0.007	0.019	−0.004	0.019
Social capital and culture								
Compulsory education avoidance	0.135	0.056	−0.070	0.049			0.149	0.043
Voters, 2001 referendum					−0.016	0.008		
Illegal and deviant context								
Deaths due to drug abuse							0.142	0.077
Mafia-type organizations	0.393	0.166	0.844	0.215	0.383	0.226		
"South" (dummy)			0.627	0.262	0.406	0.144		

Table 1 continued

Independent/control variables (abbr. labels)	Intentional homicide		Criminal conspiracy		Extortion		Robbery	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Constant	−1.537	1.153	0.462	1.077	2.319	0.674	−3.012	0.731
R^2	0.667		0.407		0.692		0.681	
VIF (ave. value)	4.98		4.56		4.66		3.51	
N	103		103		103		103	
Moran's "I" for non-log. dep. var. (z)	13.91		2.10		7.33		2.34	
Independent/control variables (abbr. labels)	Theft		Rape		Exploitation of prostitution		Overall crime	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Population								
Male population aged 15–24 years	0.031	0.061	0.042	0.062	−0.062	0.100	−0.058	0.043
Chief town population	0.259	0.033	0.067	0.031	0.131	0.098	0.146	0.062
Residential instability	0.151	0.059						
Migrant remittances	1.407	0.630	0.769	0.619	0.730	1.366	1.199	0.550
Underage immigrants							−0.015	0.007
Separated or divorced people	0.046	0.025	0.078	0.018			0.028	0.020
Economics								
GDP per capita (€ ,000)	−0.042	0.015	−0.009	0.013	−0.028	0.031	−0.011	0.013
Owner-occupied homes			0.015	0.007				
Unemployed, males ≥15 year old	−0.018	0.009	0.006	0.008	−0.031	0.025	−0.008	0.008
Professionals and entrepreneurs						0.080		
Social capital and culture								
Voters, 2001 referendum							−0.013	0.005

Table 1 continued

Independent/control variables (abbr. labels)	Theft		Rape		Exploitation of prostitution		Overall crime	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Illegal and deviant context								
Deaths due to drug abuse	0.076	0.060				0.121	0.073	0.041
Constant	4.500	0.402	−0.689	0.797	−0.609	0.845	7.635	0.372
R^2	0.664		0.342		0.496		0.561	
VIF (ave. value)	4.52		4.41		3.75		4.79	
N	103		103		103		103	
Moran's "I" for non-log. dep. var. (z)	1.44		18.47		8.16		0.849	

[a] It calculates the variance inflation factors (VIFs) for the independent variables and looks for multicollinearity amongst them

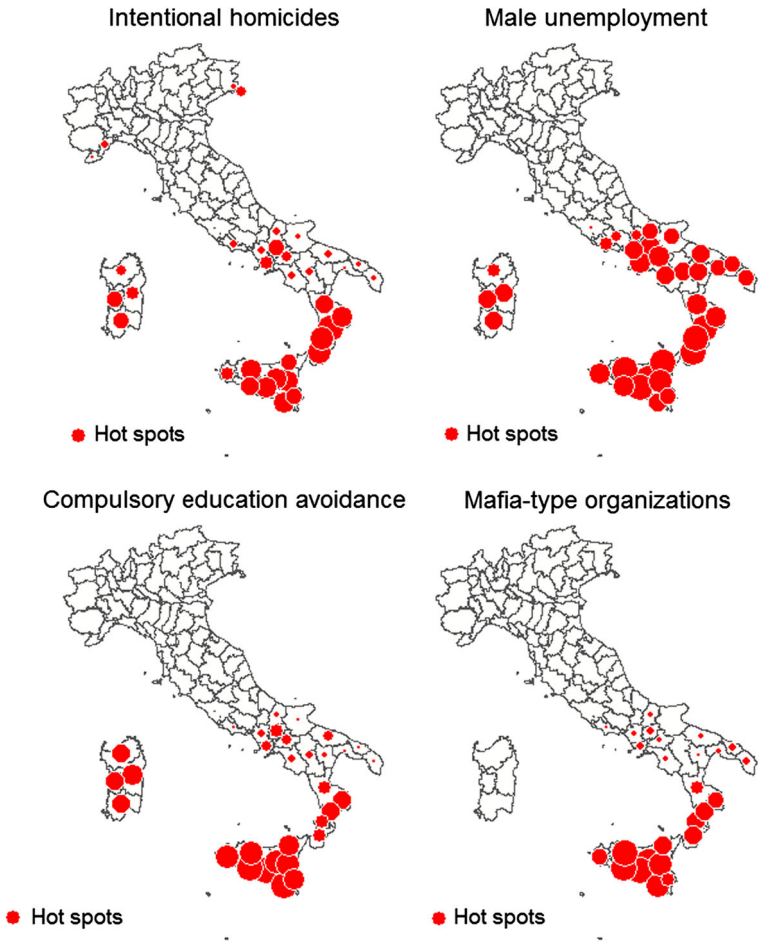

Fig. 1 Hot spots for the territorial distributions of intentional homicides, male unemployment, Mafia-type organizations and compulsory education avoidance, in all the provinces of Italy (Stata graphics)

Moreover, by using a spatial regression model, it was possible to discover that some of the homicide predictors are spatially correlated: i.e. the homicide rate in each province is affected not only by the independent variables values registered in that province but also by the values of the same variables in the surrounding provinces. In particular, the spatial regressions show that the values for compulsory education avoidance and Mafia-type organizations in the neighbour provinces significantly improve the model fit (Table 2).[8] All these results suggest criminal contagion at the territorial level.

Homicide is territorially correlated with other serious criminal offences, namely criminal conspiracy and extortion, and the correlation with the latter is close (0.67).

[8] The spatial regression models used a row-standardized weights matrix, based on the inverse distance between the provinces centroids. Software: Stata modules Spatwmat, Spatreg by M. Pisati, and Spmlreg by P. W. Jeanty. By using spatial data, one violates the ordinary least squares regression assumption that regressors are linearly independent. Therefore, we used maximum likelihood models, which leave out of consideration such assumption.

Table 2 Comparison between ordinary and spatial multiple regression models (OLS and ML): intentional homicide rates of all the Italian provinces, and two main variables relating to features of the abovementioned provinces; semi-logarithmic models, coefficients, "robust" errors estimation, rho and Akaike's information criterion

Independent/control variables (abbr. labels)	Intentional homicide (OLS)		Intentional homicide (ML)	
	Coeff.	R. S. E.	Coeff.	R. S. E.
Social capital and culture				
Compulsory education avoidance	0.100	0.025	0.061	0.025
Illegal and deviant context				
Mafia-type organizations	0.276	0.115	0.205	0.084
Constant	−0.478	0.257	−0.512	0.246
R^2 (pseudo-R^2)	0.400		(0.471)	
Rho			4.93	0.000
AIC	187.0		180.8	
N	103		103	

Criminal conspiracies and extortions are in turn correlated with "South" too. These offences show also a marked positive spatial autocorrelation: that for extortions is even higher than that shown by homicides. The backgrounds of these two criminal offences are very similar to that of homicide. Both offences are associated with limited development and socio-cultural decay. Mafia-type organizations seem to play a relevant role in the distribution of these offences. The same thing occurs with social capital indicators. In particular, the full regression models show that fewer referendum voters predict higher extortion rates (Table 1). In turn, the various foreign immigration indicators, as well as residential instability, all play a negative or non-significant role in the distribution of extortions and criminal conspiracies. Apart from these similarities in the distributions of homicides, extortions and criminal conspiracies, there is something else regarding the relationship between these offences. If we analyse together the regression models for intentional homicides and extortions by means of a SUR (*Seemingly Unrelated Regression*), we find that this technique yields a better conjoint estimation of the regressors (Table 3). Therefore, not only are homicides and extortions similarly distributed on the territory; but their regression models are intercorrelated via their residuals. This further confirms the relationship between these offences.

With regard to robbery, we found that this crime is correlated with some indicators of social malaise (Mafia-type organizations included) already characterizing the previous offences. However, robberies distribution is first of all distinguished by an extremely high association with urban areas. In a nutshell, high robbery rates are registered in deprived urban centres like Naples, Palermo, and Catania. The full regression model emphasizes, apart from urban areas, the contribution of compulsory education avoidance and drug abuse; remittances are correlated with robbery but they do not reach statistical significance in the full model (Table 1).

Also the theft distribution presents close correlations with the urbanization degree indicators. However, the similarities stop here. When we shift focus to theft, the correlations with "South" and Mafia-type organizations—positive for all the previous offences—become negative; whereas all the development and social capital indicators—from income to education, from magazines circulation to referendum voters—change their correlation

Table 3 SUR (Seemingly Unrelated Regression) models: homicides and extortions rates of all the Italian provinces, and variables relating to features of the abovementioned provinces; semi-logarithmic models, coefficients and "robust" errors estimation

Independent/control variables (abbr. labels)	Intentional homicide		Extortion	
	Coeff.	R. S. E.	Coeff.	R. S. E.
Population				
Male population aged 15–24 years	0.155	0.126	−0.064	0.073
Chief town population	−0.094	0.069	0.128	0.053
Migrant remittances	1.240	1.353	0.754	1.012
Separated or divorced people	0.158	0.037		
Economics				
GDP per capita (€ ,000)	−0.034	0.026	−0.043	0.021
Income concentration	3.258	1.467		
Unemployed, males ≥15 year old	0.032	0.025	−0.007	0.016
Social capital and culture				
Compulsory education avoidance	0.149	0.049		
Voters, 2001 referendum			−0.015	0.007
Illegal and deviant context				
Mafia-type organizations	0.360	0.219	0.382	0.153
South (dummy)			0.427	0.156
Constant	−1.324	1.067	2.305	0.652
"R^2"	0.666		0.692	
N	103		103	
Correlation of residuals	0.380			
Breusch–Pagan test of independence	$chi^2 = 14.835$		Prob. = 0.000	

signs from negative to positive. Theft is significantly correlated also with all the main indicators of immigration. Besides, theft is closely correlated with deaths due to drug abuse. The theft-unemployment relationship instead is negative. This is due to the already mentioned underlying link between income and employment. If we regress thefts controlling for income differences, unemployment becomes positively associated with thefts and both income and unemployment are significant. Therefore, income doesn't seem to affect the motivational factors for theft (greater income = lesser interest in stealing), but it seems to affect theft opportunities (greater income = more goods that can be stolen); whereas, controlling for income, unemployment affects theft motivations. In the full regression models, we find that thefts are significantly predicted by chief town population, residential instability and remittances (Table 1). Last, the territorial distribution of thefts shows a relatively low spatial autocorrelation when compared to the levels found for homicides, extortions and criminal conspiracies.

Rape, in spite of being a crime against persons and therefore analogous to homicide, shows a territorial distribution similar to theft, namely a crime against property. Rapes are positively correlated with urban areas, income, education, magazines circulation, people separated or divorced, and the Central–Northern provinces. Moreover, rapes are correlated with drug abuse and remittances; whereas their correlation with Mafia-type organizations is non-significant. In the full regression models (Table 1), the contributions in particular of "separated or divorced people" and of owner-occupied homes emerge. All in all, rapes are

associated with a context of material wellbeing, urban areas and education, where also deviant behaviour (drug abuse) and marital anomie are rife.

The cases of exploitation of prostitution present a pattern of territorial distribution similar to that of rape. The exploitation of prostitution is correlated with the Central and Northern provinces, urban areas, a higher and better distributed income, higher education, the social capital indicators, professionals/entrepreneurs, limited juvenile population (which is equivalent to low birth rate), separations and divorces, and drug abuse; it is also significantly correlated with all the foreign immigration indicators, whereas the correlation with Mafia-type organizations is negative. This picture should not be surprising. The offence of exploitation implies the activity of prostitution (which is not itself a crime in Italy), and in turn prostitution needs clients, who on average are more numerous where economic wellbeing is profuse and the scope for non-conformist or deviant behaviour larger. The full regression models (Table 1) emphasize the contribution given by urban areas, population features, and illegal drug abuse, whereas the foreign immigration indicators lose their statistical significance.

The overall crime rate shows a distribution bearing a similarity to the theft distribution pattern. This result was predictable, because thefts represent approximately half of the total recorded crime. The full regression models confirm *inter alia* the relevance of urban areas, migrant remittances and drug abuse (Table 1).

At this point, it is opportune to check whether the results obtained from the analysis of all the provinces are at variance with the results relating to the sole provinces of Central and Northern Italy, where the immigrant share is much higher. Indeed, in the Central–Northern provinces the role of social capital in predicting crime is markedly smaller. When the main controls are included, magazines circulation and compulsory education avoidance are never significant; referendum voters are associated with lower overall crime (Table 4). Instead, other variables become definitely relevant in the Central–Northern provinces. The urbanization level is positively correlated with all the offences and even in the full regression models its contribution is particularly significant in the cases of robbery, theft, exploitation of prostitution, and overall crime. However, the share of owner-occupied homes seems to compensate for the adverse role played by urban areas, also when controlling for residential instability. Male population 15–24 year old becomes negatively correlated with all the crime rates and remains either negative or non-significant in the full regression models. Deaths due to drug abuse, when used as single regressor, significantly predict all the eight crime rates; when we control for urban areas, their contribution to crime rate prediction decreases, but it is still significant. However, in the full regression models, drug abuse statistical contribution to crime decreases to the benefit of the immigration significance.

When we move from all the provinces to the Central–Northern ones only, the migrant remittances indicator is correlated with all the eight offences. Even in the full regression models—and in spite of conservative error estimations, remittances are significantly predicting homicide, rape, theft, and overall crime (Table 4). The *illegal* immigration indicator is particularly correlated with theft and robbery and, in the robbery full model, it is a better predictor than remittances. In the case of theft, both remittances and illegal immigrants are associated with this offence not only directly but also indirectly, by means of their correlation with drug abuse: the latter, acting as mediator, enhances the immigration–theft link (Fig. 2). The six non-Western national groups with the highest impact on overall crime are particularly relevant for criminal conspiracy and exploitation of prostitution. The latter two offences are correlated, forming therefore, together with immigration, a criminal triangle. In turn, the underage immigrant share is negatively correlated with most crimes.

Table 4 Multiple linear regression models: crime rates of all provinces belonging to the regions of Central and Northern Italy, and variables relating to features of the abovementioned provinces; semi-logarithmic models, coefficients, "robust" errors estimation, and VIF; Moran's "I"

Independent/control variables (abbr. labels)	Intentional homicide		Criminal conspiracy		Extortion		Robbery	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Population								
Male population aged 15–24 years	0.064	0.185	−0.054	0.127	−0.101	0.087	0.012	0.101
Chief town population	0.047	0.111	0.079	0.133	0.071	0.067	0.377	0.102
Migrant remittances	2.947	1.282	−0.423	1.459	1.471	0.995	−0.633	1.053
Illegal immigrants							0.231	0.077
High-crime nat. groups of immigrants			0.547	0.195				
Separated or divorced people	0.212	0.051						
Economics								
GDP per capita (€ ,000)	−0.064	0.042	0.033	0.037	−0.032	0.024	−0.005	0.032
Income concentration							1.765	2.038
Unemployed, males ≥15 year old	−0.031	0.060	0.130	0.051	0.003	0.031	−0.003	0.043
Social capital and culture								
General interest magazines circulation	−0.034	0.025						
Voters, 2001 referendum					−0.013	0.009		
Illegal and deviant context								
Deaths due to drug abuse			0.088	0.095	0.073	0.065	0.181	0.085
Mafia-type organizations			−0.158	1.185	−0.047	0.784		
Constant	−0.245	1.563	−2.246	1.403	2.688	0.827		
R^2	0.382		0.235		0.245		0.676	
VIF (ave. val.)	2.81		2.02		2.14		2.27	
N	67		67		67		67	

Table 4 continued

Independent/control variables (abbr. labels)	Intentional homicide		Criminal conspiracy		Extortion		Robbery	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Moran's "I" for non-log. dep. var. (z)	1.49		1.22		2.22		0.05	
Independent/control variables (abbr. labels)	Theft		Rape		Exploitation of prostitution		Overall crime	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Population								
Male population aged 15–24 years	−0.157	0.081	−0.049	0.102	−0.062	0.121	−0.023	0.064
Chief town population	0.233	0.065	0.020	0.040	0.131	0.125	0.100	0.047
Migrant remittances	2.781	0.754	1.729	0.834	0.730	1.347	2.238	0.753
High-crime nat. groups of immigrants						0.218		
Underage immigrants	−0.049	0.015	−0.015	0.018			−0.038	0.011
Separated or divorced people			0.053	0.026				
Economics								
GDP per capita (€ ,000)	0.013	0.018	0.011	0.021	−0.027	0.042	−0.026	0.017
Income concentration	6.175	2.134				4.920		
Owner-occupied homes							−0.019	0.008
Unemployed, males ≥15 year old	−0.033	0.030	0.006	0.022	−0.025	0.061	−0.014	0.023
Social capital and culture								
Graduate population	−0.202	0.049			−0.187	0.110		
General interest magazines circulation			−0.010	0.008				
Voters, 2001 referendum					−0.021	0.010		
Illegal and deviant context								
Deaths due to drug abuse	0.152	0.062				0.124	0.071	0.059

Table 4 continued

Independent/control variables (abbr. labels)	Theft		Rape		Exploitation of prostitution		Overall crime	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Constant	6.166	0.709	1.699	1.063	−1.524	1.301	9.812	0.800
R^2	0.670		0.421		0.441		0.632	
VIF (ave. value)	3.35		3.05		3.16		2.30	
N	67		67		67		67	
Moran's "I" for non-log. dep. var. (z)	0.65		4.78		1.99		0.85	

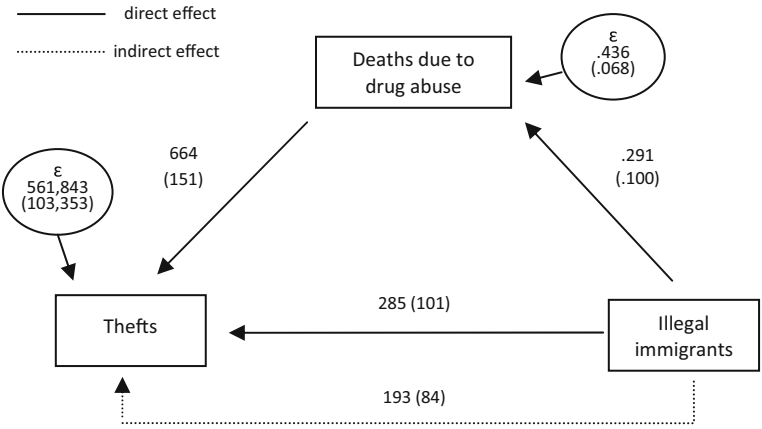

Fig. 2 *Direct* and *indirect* effects between adult illegal immigrants, deaths due to drug abuse, and thefts. Mediation model, structural equation. Estimation method: maximum likelihood. Coefficients and ("robust" errors). All the provinces belonging to the regions of Central and Northern Italy (Stata graphics)

The relevance of foreign immigration is detrimental to the relevance of traditional criminal organizations. The statistical contribution made by Mafia-type organizations to the most serious crimes, like homicides, extortions and criminal conspiracies, seems to evaporate in the Central–Northern provinces. In particular, with regard to criminal conspiracy, its very close correlation with Mafia-type organizations disappears, whereas foreign immigration becomes its main predictor (Table 4).

For both thefts and robberies, male unemployment ceases to have any significant impact when immigrant share (and urbanization degree) are included in the model. The same occurs for homicides.

The case of robberies can epitomize the differences between the two territorial contexts. Moving from all the provinces to the Central and Northern ones only, robberies are still associated with urban areas; but their territorial association with economic, social and educational backwardness (typical of some disadvantaged large cities of the Mezzogiorno, such as Naples) disappears. In the Central–Northern provinces, robberies are associated, apart from urbanization degree, with both remittances and illegal immigrants and with drug abuse (Fig. 3).

Since immigration plays a key role with regard to crime, especially in the Northern-Central provinces, the immigration indicators endogeneity could be a relevant problem. To check this, we ran a two-stage model for the indicator summarizing crime, i.e. "overall crime", using remittances of 1994 as an instrument for remittances of 1995–2005. The LIML[9] model (Table 5) shows that the instrument coefficients are close to those of the instrumented indicator in the OLS model (Table 4: overall crime);[10] endogeneity test statistics are non-significant, so we cannot reject the null of exogeneity and we can continue to treat remittances of 1995–2005 as exogenous. We obtain analogous results using 1994 remittances as an instrument for later illegal immigrants, though the coefficients are less close (Table 5), whereas in the case of the legal immigrant indicator the results (not

[9] The Limited Information Maximum Likelihood model estimation is robust even with relatively weak instruments and small samples and therefore is better than the 2SLS and GMM estimations.

[10] And, controlling for remittances 1995–2005, the instrument doesn't affect Y (exclusion restriction).

shown) hint at some endogeneity. For this reason, we did not use the latter indicator in the regression models. Since remittances are not correlated with high-crime national groups of immigrants (used e.g. in the OSL model for criminal conspiracy), we had to resort to a different instrument: i.e. a lagged variable (1994) concerning the same groups. On the basis of the results of the two-stage model (not shown), we cannot reject the null of exogeneity, though the margins are narrow. All this seems to support the value of the OLS models and in particular the choice of remittances as the main immigration indicator. Moreover, the significant results obtained by using lagged variables, such as 1994 remittances, suggest that the immigration–crime link is causal and unidirectional, not just the effect of spurious synchronic associations or reciprocal influences.

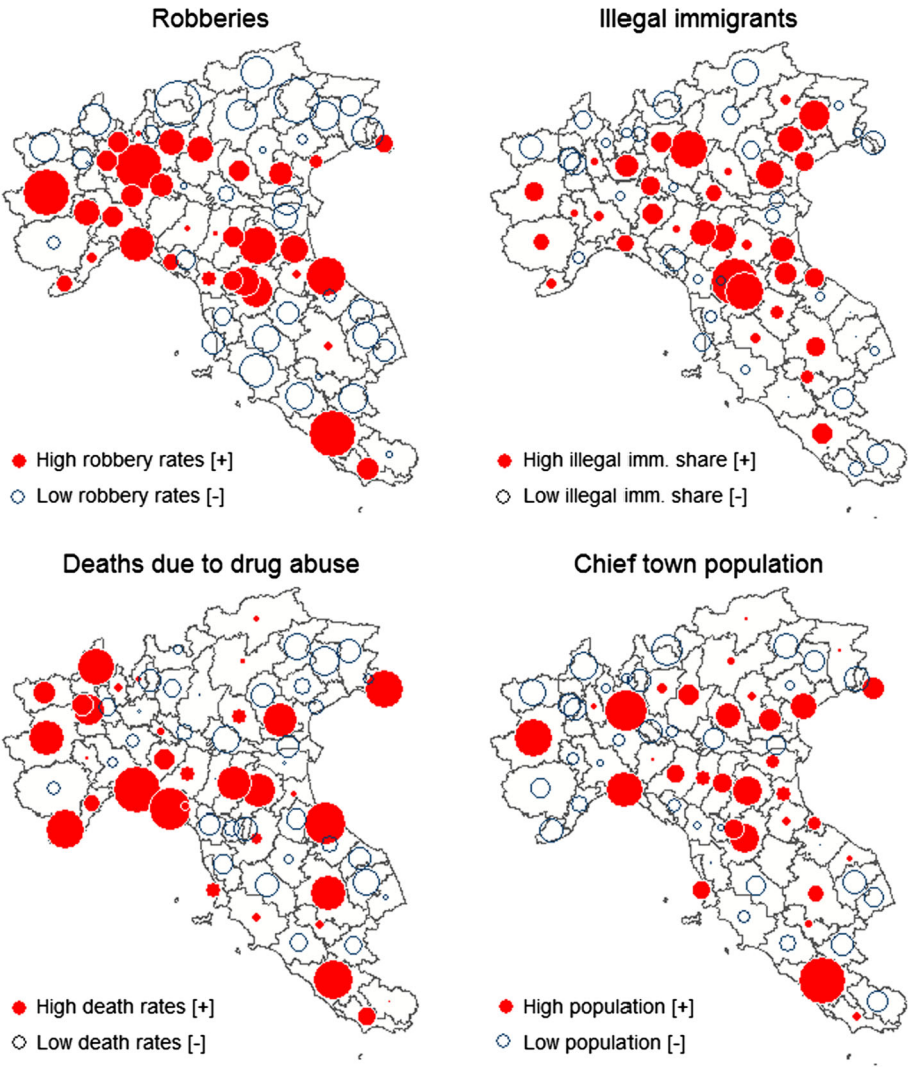

Fig. 3 Deviations from the median for the territorial distributions of robberies, illegal immigrants, deaths due to drug abuse and chief town population, in the Central and Northern provinces of Italy (Stata graphics)

Table 5 Two-stage LIML models: crime rates of all provinces belonging to the regions of Central and Northern Italy, and variables relating to features of the abovementioned provinces; semi-logarithmic models, coefficients, "robust" errors estimation, and VIF; F values and test of endogeneity

Independent/control variables (abbr. labels)	Overall crime (migr. remittances 1995–2005 = migr. remittances 1994)				Overall crime (illegal immigrants 2002–2004 = migr. remittances 1994)			
	First-stage		Second-stage		First-stage		Second-stage	
	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.	Coeff.	R. S. E.
Population								
Male population aged 15–24 years	0.001	0.008	−0.022	0.060	−0.184	0.143	0.034	0.061
Chief town population	0.019	0.008	0.091	0.050	0.340	0.099	0.041	0.068
Migrant remittances 1995–2005			2.605	0.854				
Migrant remittances 1994	1.778	0.279			15.641	6.117		
Illegal immigrants							0.296	0.127
Underage immigrants	0.001	0.001	−0.039	0.011	0.089	0.030	−0.061	0.015
Economics								
GDP per capita (€ ,000)	0.001	0.002	−0.027	0.016	−0.028	0.035	−0.018	0.016
Owner-occupied homes	−0.001	0.001	−0.019	0.007	0.047	0.022	−0.035	0.009
Unemployed, males ≥15 year old	0.006	0.004	−0.018	0.023	−0.052	0.050	0.014	0.021
Illegal and deviant context								
Deaths due to drug abuse	−0.005	0.005	0.074	0.057	0.070	0.099	0.041	0.048
Constant	−0.203	0.119	9.986	0.743	−6.305	2.111	11.326	1.149
Centred R^2	0.711		0.630		0.511		0.604	
VIF (ave. val.)	2.17				2.17			
N	67		67		67		67	
Robust F (p.)	40.727	(0.000)			6.538	(0.013)		
Tests of endogeneity (H_0: var. is exog.):								
Robust score chi^2 (p.)			0.280	(0.597)			1.643	(0.200)

Last, a fact characterizing the Central and Northern provinces is that the spatial autocorrelation level is low for substantially all the crimes (Table 4). Concurrently, the main predictors of crime present a low, non-significant spatial autocorrelation level. The Moran's "I" z values for adult immigrants, remittances and deaths due to drug abuse fall in the range between 0.7 and 1.5; the z value for chief town population is negative.

4 Discussion

The territorial distribution of crime emerging from the Italian provinces can be summarized by two discrete pictures. A first set of crimes—intentional homicide, extortion, criminal conspiracy and, to a lesser degree, robbery—are associated with economic and

educational backwardness, male unemployment and limited social capital, as well as with the presence of Mafia-type organizations. Against the often uncritically received drug-crime link, the results show also a negative association between drug abuse and both homicides and extortions. Besides, contrary to the expectations of old and new theories of *social disorganization* focusing on the harmful effects of population mobility, homicides, extortions, criminal conspiracies and Mafia-type organizations are all negatively associated with both residential instability and foreign immigration. This suggests that such criminal facts can be generated by a static background rather than by a dynamic one; by a criminogenic localism rather than by imported sources of conflict. In other words, they can be generated by a context in which the negative effects of *backwardness* are not compensated by *gemeinschaft* bonds—as many would expect—but rather exacerbated by inadequate *social capital*.

By contrast, a second set of crimes, namely theft and overall crime as well as rape and exploitation of prostitution, more widespread in the Central–Northern provinces, are associated with a background of material wellbeing (with the attendant availability of costly illegal drugs), education and, generally speaking, of development. In particular, higher wealth levels seem to increase theft opportunities, whereas the inclination to steal seems to be encouraged by relatively higher unemployment.

If we exclude the Southern provinces and analyse only the Central–Northern ones, a different picture emerges. The regression models indicate that the associations between the level of social capital and the various crimes are modest. Instead, other factors seem to assume in these provinces a relevant role. One of them is certainly the degree of urbanization. Also illegal drug abuse—which can be regarded as a "modern" social phenomenon—is positively associated with crime rates. Moreover, foreign immigration emerges as a superior predictor of the frequency of most crimes. The results for the Central and Northern provinces show that, among the most serious or most common crimes taken into account, only extortions are *not* significantly associated with immigration. A high share of illegal immigrants—i.e. of those immigrants averagely in worse socio-economic conditions—plays a particularly significant role in predicting theft and robbery. This fact, and the negative association between crime rates and underage immigrants, evoke the possibility that a better integration of the immigrants in the host society could contain crime rates.

However, with regard to unemployment—a variable usually considered as a measure of material opportunities and legitimate means—the present research results are ambivalent. When the analysis takes into account all the provinces, male unemployment predicts—at the single regression level—homicides, extortions, and criminal conspiracies. It predicts also thefts, when controlling for income. When the analysis focuses on the Central–Northern provinces, where the immigrant presence is conspicuous, the significance of male unemployment disappears, once the immigrant share is included in the model. This doesn't seem to corroborate the hypothesis of a link between legitimate opportunities and crime, which is dear to the *economic model of crime* and the *relative deprivation* model. One could argue that the present results *indirectly* confirm these models, because, though unemployment is non-significant, foreign immigrants are ultimately on average in worse economic conditions than national citizens. However, one should inevitably admit that even so the crime determinant would not be "lower economic conditions" as rather "immigrants' lower economic conditions". With regard to non-material aspects, the present results do not support *culture conflict* as the key crime factor. Foreign immigration is associated also with prosaic offences—theft, robbery, criminal conspiracy—that seem far away from any culture conflict. However, the fact that all the high-crime national groups

come from countries socially and culturally distant and with averagely poor legality records suggest that also these aspects could promote crime.

In the Central and Northern provinces, the associations between the most serious crimes and Mafia-type organizations are non-significant. Therefore, the much-feared penetration of such organizations into these provinces has not been accompanied by crimes associated with them in the Southern provinces. The present data cannot tell us whether this result is due to these organizations lack of radication in a context far from their breeding ground, or to the more entrepreneurial role they play in the Central–Northern provinces. A role advising against criminal actions capable of drawing attention to the investment and recycling activities they run there. Anyway, the concurrent association, in these provinces, between immigration and most of the offences suggests that immigrant crime developed in lieu of traditional, native criminality. Moreover, the relationship between immigration, criminal conspiracy, illegal drug diffusion and exploitation of prostitution seems of particular relevance to organized crime. The hypothesis that a new criminality has reduced the space available for the old one cannot be excluded.

The proliferation of thefts, rapes and exploitation of prostitution in the Central–Northern provinces, where the presence of Mafia-type organizations is marginal, and, concurrently, the scarcity of these offences in the Southern provinces, where these organizations seem to be still rampant, prompt a question. Do such criminal organizations exert a control on common offences and immigrant crime, and even on immorality and deviance? Are ultimately extortions only the price of protection and homicides the regrettable consequence of competition between protectors, as some "Godfather" would boast? The present analysis has shown that the high frequency of some crimes is better predicted by aspects other than the lack of Mafia-type organizations. Thefts are better predicted by the amount of goods that can be stolen; exploitation of the prostitution, by urban areas and wealth; even immigrant flows are better predicted by affluence and job opportunities than by the absence of traditional criminal organizations. Robberies provide the acid test of all this. Any control exerted by Mafia-type organizations should begin by curbing this grievous street crime. On the contrary, the highest robbery frequencies are recorded in provinces—Naples, Palermo, and Catania—characterized by a proliferation of traditional criminal organizations. These organizations role in "protecting" the community seems to be just one of the myths revolving around them.

Last, the territorial distribution patterns of the various crimes are different. Especially homicides, extortions and criminal conspiracies—particularly frequent in the Southern provinces—reveal a constellation-type distribution, where a high crime territorial unit is surrounded by other units with similar crime rates: which advocates the presence of the same causes in the entire "constellation". In line with this, the main predictors for these crimes reveal a marked spatial autocorrelation, reproducing the abovementioned constellation-type configuration. In other words, these predictors are common to all the provinces of a wide area, while there is also evidence of direct criminal contagion. Moreover, the "constellations" for homicides, extortions, and criminal conspiracies (as well as that for Mafia-type organizations) tend to overlap each other, suggesting the existence of common factors behind all these offences. In the Central and Northern provinces instead, the distributions of the various crimes are characterized by a low level of spatial autocorrelation: namely, by a situation in which a province's crime rates are independent from those of the surrounding provinces. Also the main crime predictors present a low level of spatial autocorrelation. All this suggests lack of direct criminal contagion at the territorial level. In the Central–Northern provinces, crime rates are associated with features belonging to the local context, to a specific and limited territory. Therefore, the two criminal scenarios

present opposing features regarding, first, the type of crime predictors (unemployment, lack of both education and social capital versus immigrant population and urban areas) and, second, the relationship of such predictors with the territory (diffusion versus localization).

In conclusion, this territorial analysis of crime has been expedient to make emerge aspects that analyses based on territorially aggregate data would not detect. First, the territorial distributions of several main crimes are different. Therefore, the recourse to widely used groupings, like "property crime" and "violent crime", would be misleading. For instance, homicides and rapes—belonging to the group "violent crime"—show completely different distributions, along with different backgrounds. This implies that any explanation meant for this group as a whole would be spurious, as would be, a fortiori, any single explanation for all the crime. In the Southern provinces there are still territorial "constellations" of crime having to do not with the anomic malaise born out of immigration, cultural change and social transformations, as rather with widespread customary cultural traits and underdevelopment. Another set of crimes, however, seems to be associated with a non-traditional, more localised background, characterized by high urbanization degree, hard drug abuse, and foreign immigration. When the analysis is carried out on all the provinces, the two scenarios overlap each other and generate blurred results. However, by focusing on the Central and Northern provinces it is possible to distinguish between the two scenarios and to detect the emerging of a criminality that has little in common with that usually regarded as traditional.

The emerging of this new criminality and particularly its association with the immigrant inflow show that the Italian case is at variance with the situation of both the West European countries in the 1950's–1960's and the US, Canada, Australia and other countries where the rise in immigration has been less tumultuous, illegal immigration less massive, immigrant origin often less exotic, and socio-economic opportunities for immigrants better than in contemporary Italy. In particular, this research results exclude the possibility of applying universally, to the whole immigrant population, the *immigrant paradox* discovered in the US, namely the combination of lower socio-economic conditions and low crime rates. Concurrently, the fact that immigration emerged as associated not only with *instrumental* crimes—e.g. thefts—but also with *expressive* crimes, such as rapes, hints at crime factors that can hardly be reduced to mere lack of material opportunities.

Appendix

See Table 6.

Table 6 Dependent and independent variables used in the analysis: descriptive statistics

Variables	All the provinces (N = 103)				Central and Northern provinces (N = 67)			
	Mean	Std. dev.	Min	Max	Mean	Std. dev.	Min	Max
Crime								
Intentional homicide (per 100K pop.) ln	0.63	0.76	−0.80	2.37	0.32	0.58	−0.80	1.96
Rape (per 100K pop.) ln	1.85	0.25	1.28	2.55	1.87	0.26	1.28	2.55
Exploitation of prostitution (per 100K pop.) ln	0.58	0.73	−1.77	2.33	0.84	0.59	−0.78	2.18
Theft (per 100K pop.) ln	7.65	0.37	6.84	8.74	7.74	0.37	7.00	8.74
Robbery (per 100K pop.) ln	3.67	0.66	2.17	6.04	3.60	0.57	2.17	5.05
Extortion (per 100K pop.) ln	2.38	0.60	1.19	4.03	2.05	0.33	1.19	2.56
Criminal conspiracy (per 100K pop.) ln	0.22	0.61	−1.61	1.48	0.04	0.58	−1.61	1.39
Overall crime (per 100K pop.) ln	8.34	0.27	7.79	9.25	8.36	0.30	7.79	9.25
Population								
Male population aged 15–24 years on total m. and f. pop. (%)	6.00	0.94	4.33	8.19	5.42	0.51	4.33	6.91
Chief town population ln	11.47	0.86	9.96	14.75	11.50	0.87	9.98	14.75
Population per sq. km.	245	332	37	2635	256	276	37	1903
Residential instability, changes of residence internal or from abroad, on res. pop. (%)	2.42	0.74	1.05	3.93	2.83	0.53	1.57	3.93
Migrant remittances on province's GDP (%)	0.054	0.038	0.017	0.319	0.057	0.044	0.018	0.319
Adult immigrants on resident pop. (%)	2.01	1.15	0.34	5.47	2.62	0.93	1.19	5.47
Adult illegal immigrants on resident pop. (%)	1.22	0.76	0.10	4.10	1.56	0.64	0.50	4.10
High-crime nat. groups of imm., males on resident pop (%)	0.67	0.41	0.09	2.11	0.87	0.32	0.38	2.11
Underage immigrants on total resident immigrants (%)	20.2	3.30	12.5	28.0	21.4	2.82	14.3	26.1
Separated or divorced people on married pop. (%)	6.13	2.54	1.95	14.72	7.50	2.00	3.82	14.72
Infant mortality, m. and f. (per 1K born alive)	4.54	1.37	1.80	9.50	3.90	0.98	1.80	6.60

Table 6 continued

Variables	All the provinces (N = 103)				Central and Northern provinces (N = 67)			
	Mean	Std. dev.	Min	Max	Mean	Std. dev.	Min	Max
Economics								
GDP per capita (€ ,000)	17.362	4.337	9.953	28.086	20.090	2.509	15.134	28.086
Income concentration (proxy Gini)	0.29	0.05	0.21	0.46	0.26	0.03	0.21	0.32
Owner-occupied homes on only houses occupied by residents (%)	73.4	4.28	55.5	85.2	73.1	3.71	65.7	78.8
Unemployed, males ≥15-year old on same age total labour forces (%)	6.85	5.92	0.60	23.00	3.26	1.67	0.60	8.73
Employed, manufacturing sector, on total employed pop. (%)	23.1	9.34	9.20	43.5	27.2	8.59	9.20	43.5
Professionals and entrepreneurs on total employed pop. (%)	5.56	1.19	3.95	11.01	6.00	1.21	4.38	11.01
Social capital and culture								
Graduate population on ≥6 year old pop. (%)	6.84	1.27	4.57	12.25	6.99	1.41	4.90	12.25
Compulsory education avoidance, people aged 15–24 years on same age pop. (%)	2.93	1.35	1.23	7.65	2.30	0.49	1.23	3.70
General-interest magazines sales (3 mags per 1K pop.)	17.3	5.55	6.71	29.0	20.1	3.92	10.4	29.0
Voters, 2001 referendum, on registered electors (%)	33.9	8.56	16.1	53.3	38.8	6.04	25.7	53.3
Illegal and deviant context								
Deaths due to drug abuse (per 100K pop.)	1.51	0.70	0.40	3.71	1.74	0.67	0.78	3.71
Mafia-type organizations (per 100K pop.) ln	0.21	0.35	0.00	2.00	0.04	0.06	0.00	0.23

Data underlying the variables were drawn from Istat (Italy's Institute of Statistics) databases, with the exception of migrant remittances data, drawn from Italy's Central Bank, and magazines sales data, drawn from Federazione Italiana Editori Giornali (FIEG)

All the dependent variables (crime rates) were logarithmized. Among the explicative/control variables, chief town population and Mafia-type organizations were logarithmized due to their particularly skewed distribution. Since Mafia-type organizations ≥0, then x = ln(Mafia-type organizations +1)

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