

# **Crime and Unemployment in France<sup>\*</sup>**

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**Abstract:**

In this paper we examine the influence of unemployment on property crimes and on violent crimes in France for the period 1990 to 2000. This analysis is the first extensive study for this country. First, we construct a regional-level data set (for the 95 départements of metropolitan France) with measures of crimes as reported to the Ministry of Interior. To assess social conditions prevailing in the département in that year, we construct measures of the unemployment rate as well as other social, economic and demographic variables using multiple waves of the French Labor Survey. Second, we construct a city-level data source for all crimes reported to the Defense Ministry for year 2001. This city-level data source is matched to a wealth of city-level variables built from National Censuses, administrative and fiscal sources, and communal censuses. Third, we use a victimization survey conducted every year (starting in 1996) by the French statistical institute (INSEE). Since the city is also identified in the victimization data, we match each sampled individual with all available city-level characteristics.

Using these three data sources, we estimate a classic Becker type model in which unemployment is a measure of how potential criminals fare in the legitimate job market. First, our estimates show that **in the cross-section** dimension, crime and unemployment are positively associated. This holds both at the département and at the city-level. This result purely reflects an opposition between crime-free countryside and crime-prone cities. Second, we find that increases in youth unemployment induce increases in crime. Using an instrumentation strategy based on the politics of training programs, we show that this effect is causal for burglaries, thefts, and drug offences. To combat crime, it appears that all strategies designed to combat youth unemployment should be examined. Rewards for successes in education, higher pay for apprentices, reception of unemployment benefits are routes that must be considered.

**JEL classification:** J19, K42, J64, J65

**Keywords :** crime, youth unemployment

## 1. Introduction

In this paper we examine the influence of unemployment on property crimes as well as on violent crimes in France for the recent period (1990 to 2000). During this period, the unemployment rate first increased, then decreased. More precisely, between 1990 and 1997, labor market opportunities fell dramatically (the unemployment rate rose from 8.9 to 12.5 percent). After 1997 the French economy started to recover. The crime pattern for the same period is completely different from that observed for unemployment. Indeed, during the 1990s, property crime rates first increased from 1990 to 1993, and then declined slowly. During the same period, violent crime rates kept increasing. These divergent trends led former Prime Minister Lionel Jospin to confess – while running for the presidency, in March 2002 – « *J'ai péché un peu par naïveté. Je me suis dit (...) : si l'on fait reculer le chômage, on va faire reculer l'insécurité* » (*I was naive. I said to myself (...) : if we make unemployment decrease, we will make insecurity decrease*). This paper is the first extensive study of this controversial issue in France. Using a variety of data sets, we examine the effects of changes in unemployment on crime. In particular, we compare the effects of changes in unemployment rates of older workers with those of younger workers. In addition, we examine the impact of unemployment benefits on crime.

Most empirical research on the economics of crime aims at testing the Becker hypothesis that the propensity to commit crime depends on the comparison of the expected costs and benefits of legal and illegal activities (Becker, 1968, Ehrlich, 1996). Some researchers have focused on the costs side and evaluated the deterrent effects of apprehension and penalization (Ehrlich, 1973; Levitt, 1997; Imai and Krishna, 2001). Others have examined the relation between labor market and crime, concentrating on measures of the potential benefits of legal opportunities (see the literature reviews by Freeman, 1983, 1996, 1999). Among them, some have assessed the effect of wages on crime rates. Using aggregate data, Machin and Meghir (2000) for the UK and Gould, Weinberg and Mustard (2002) for the US show that decreases in unskilled workers wages lead to increases in crime. Grogger (1998) estimates a structural model using individual-level data, and suggests that falling wages may be an important determinant of rising youth crime. Some have tried to relate income inequality and crime (Kelly, 2000; Fajnzylber, Lederman and Loayza, 2002); these authors tend to show that more inequality is associated to higher crime rates.

On the contrary, the literature examining the links between crime and unemployment fails to reach any consensus. Most studies assume that unemployment is a measure of how potential criminals fare in the legitimate job market. From the theoretical point of view this hypothesis seems, at first glance, reasonable. Indeed, according to Becker's economic theory of crime, unemployed people are deprived of legal income resources (except for unemployment benefits), and, thus, are more likely to derive some income from illegal activities. But empirical findings based on aggregate data suggest that this relationship is not particularly strong. According to Chiricos' review (1987), most studies of this type find a positive relationship between unemployment and crime, but this effect is not always significant, and some even find a negative association. For example, using panel data for Germany, Entorf and Spengler (2000) confirm the ambiguous result for total unemployment, even if they suggest that youth unemployment is associated with a higher probability of committing crimes. Studies based on individual-level data (such as Witte and Tauchen, 1994 who use data from a cohort sample of young men) provide more convincing evidence that crime is linked to unemployment. Thornberry and Christenson (1984) investigate the causal structure between

unemployment and crime. According to their results, unemployment has significant instantaneous effects on crime and crime has significant but lagged effects on unemployment. Cantor and Land (1985) try to identify two distinct (and potentially counterbalancing) mechanisms, criminal opportunity and criminal motivation, through which unemployment may affect crime rates in the aggregate.

In this article, we estimate a classic Becker-type model and suggest some arguments explaining why most studies were not able to find a strong relation between crime and unemployment. To accomplish this task, we add several elements to the existing literature.

First, this paper is the first econometric analysis for France of this precise question (see however Roché, 2001, for an extensive descriptive study of youth criminals). We use both aggregate and individual-level data sets. We construct a unique Département-level data set (there are 95 départements in France) measuring crimes as reported to the Interior Ministry for the years 1990-2000. 17 crime categories are available: this allows us to separate property crimes (which are more likely to fit the Becker's model of the rational offender) and violent crimes, and to study precisely the temporal and geographic correlations between these categories. Our analysis is carried out at various levels of aggregation, since we also use a city-level data source for year 2001 as well as an individual-level survey, the French victimization surveys (for the period 1996 to 2002). These surveys nicely complement official crime statistics. They allow us to identify the victims, their propensity to report crime, as well as their local environment. By comparing results from these three data sets, we will be in position to test their robustness.

Second, we are able to measure extremely precisely the social environment prevailing in départements and cities. First, we construct a wealth of social, economic and demographic variables at the departments as well as at the city level. In particular, we use multiple waves of the French Labor Survey and, more interestingly, various administrative data sets such as national Censuses, administrative and fiscal sources, and communal Censuses. Then, these measures are matched to our crime statistics but also to our victimization survey at the city level, a unique feature. For instance, we believe that our very precise measures of urbanization (such as city size or population density), of social interaction (such as the part of people living in single-parent families), or of city income structure are relevant controls in order to study criminal behavior: for the United States, Glaeser and Scheinkman (1996), and Glaeser and Sacerdote (1999) found that social interactions mattered in their analysis of criminal behavior.

Third, as the effect of unemployment is often ambiguous, we divide the unemployed into various categories that should have different propensities to commit crime. Using our surveys as well as our administrative data sets, we directly measure youth unemployment as well as old-workers unemployment. We also measure the fraction of unemployed who do not receive unemployment benefits and unemployment duration. Of course, because today's crime may well generate tomorrow's unemployment – if companies move away from crime-prone zones – unemployment is likely to be endogenous in our crime regressions. Therefore, we use an instrumentation strategy based on the politics of training programs for the unemployed. Our instruments are the votes at the national legislative elections. Unemployment is a primary concern at such elections and strategies favored by the right and by the left differ, inducing a correlation between the voting behavior and unemployment. By contrast, insecurity was for most of the past a local issue. It only appeared very recently on the national stage, in 2002 when Le Pen made it to the second round of the presidential elections. And, indeed, our

results suggest that increases in youth unemployment may well **cause** increases in crimes, because education or work does not pay enough, in particular for the unskilled or un-educated youth.

The paper is organized as follows. Section 2 describes the general trends in crime rates and unemployment in France. In Section 3, we introduce the data, the basic model, and estimation methods. Results are reported and discussed in Section 4. Section 5 concludes.

## **2. Trends in Crime Rates and Unemployment**

The aggregate crime data used in this study are collected annually at the *département* level by the local Police and Gendarmerie authorities. There are 95 *départements* in France. For historical reasons, the body in charge of ensuring security differs between urban areas, which are “police zones”, and rural areas, which are “gendarmerie zones”. Policemen’ status is civilian but gendarmerie is a military corps. Both gendarmes and policemen have to record the number of reported crimes in their respective zones. Then, the Ministry of Interior collects the data in each zone for each *département* and publishes the total number of offences at the *département* level. So these data cover all the French population. We restrict attention to the so-called “*départements de France métropolitaine*”, excluding overseas territories, but including Corsica. Data are available for the years 1990-2000. Using *département*-level population data obtained from the French statistical institute (INSEE), we calculated crime rates, measured as offences per 100,000 people.

For a crime to be included in these administrative data, it must be first reported to the police or the gendarmerie, who must then file an official report of the event. Offences are reported for property crimes (armed or violent robberies, burglaries, car or motorbike thefts, thefts of objects from cars, shoplifting, pick-pocketing, receiving stolen goods), for violent crimes (homicides, voluntary wounds, blackmails, threats, sex offences, family offences) and some other crimes (drug offences, damage to vehicle, illegal weapon ownership, violence against police). In the case of violent crimes, one crime is counted for each victim, while for property crimes one crime is reported for each event regardless of the number of victims (except for pick-pocketing and shoplifting for which one crime is recorded for each victim). For the types of crimes we study, the classification remained unchanged since 1990.

Table 1 shows the levels and the geographical variability of crimes rates for each available type of offence in 1990 and 2000. Property crimes are the most numerous and vary a lot across *départments* (especially pick-pocketing and violent robberies). On the contrary violent crimes such as sex offences or family offences show little spatial variability.

Figures 1, 2 and 3 depict the trends in these crimes rates for the period 1990-2000. The differences between these trends justify our choice to break up crime into precise categories instead of studying one aggregate index. Property crimes such as car thefts, thefts of objects from cars, shoplifting or burglaries first increased from 1990 to 1993, and then declined slowly, in contrast to what is often written in the French press. For example, burglaries declined by 8% between 1990 and 2000. Only armed or violent robberies increased dramatically (by 74%) during the same period. They follow the same pattern as violent crimes: except for homicides, all types of violent crimes (including damages to vehicles, illegal weapon ownership and violence against police) increased during the last decade. Blackmails and threats tripled and the rate of voluntary wounds doubled. Even if they account

for little in the total reported crimes, these violent crimes are the most likely to influence the feeling of insecurity, as discussed in the media.

Little has been said about the spatial correlations of crimes rates. Table A.1 in Appendix A examines these correlations for 2000. All categories of crime are highly correlated. Départements where property crime rates are high also have very high violent crime rates. This suggests that our crime categories have some common determinants, as shown in section 4. Most correlations between growth rates for the period 1990-2000 are positive but some are not significant or even negative (Table A.2); a pattern potentially due to substitution between crimes (see Koskela and Virén (1997) for an occupational choice model of crime switching, and some empirical evidence).

These data are the most frequently cited measures of the extent of crime in France. They are also the most frequently criticized by the media as being contaminated by multiple biases. Indeed, their capacity to reflect real trends in crime rates depends on the reporting behavior of victims and the recording behavior of policemen and gendarmes.

Indeed, not all crimes are reported to the police and, unfortunately, administrative data only take into account reported crimes. Victimization surveys provide a better measure of the “true” number of crimes (reported or not to the police). Indeed, some studies show that different sources may exhibit different trends: for the US, Bogess and Bound (1993) found that administrative data from the Uniform Crime Report (UCR) suggested a mild increase in crime during the 1980s, while the National Crime Survey depicted lower criminal activity over this period. Therefore, we also use such a survey, conducted by the French Statistical Institute (INSEE). We use this survey for the years 1996 to 2002. Roughly 6,000 households and 11,000 individuals are interviewed every year. For each household, we have information on burglaries and car thefts. For each individual, the survey records information on thefts, personal attacks, as well as the feeling of insecurity. This survey also gives information on reporting of each incident to the police or the gendarmerie, and, if not reported, the reason for non-reporting the event.

By construction, crime rates measured with victimization surveys are significantly higher than their counterpart in administrative data. Over the period 1996-2002, 3.0 percent of French households were victims of a burglary; 13.5 percent had their car or something in their car stolen. During the years 1997-2002, 8.5 percent of individuals (more than 15 years old) were wounded, insulted or threatened whereas 4.8 percent were affected by pick pocketing.

The reporting rate (Figure 4) depends on the type of crime. Less serious crimes have a lower probability of being reported to the police than more serious crimes. According to the survey, the types of events most likely to be reported to the police are burglaries and vehicle thefts. In 2002, 80 percent of burglary victimizations and 64 percent of car thefts (or thefts of objects in car) were brought to the attention of the police. Indeed these events affect the most valuable possessions of the victims who are required to report it to obtain compensation from their insurance company. By contrast, in 2002, 53 percent of personal larcenies, and 29 percent of voluntary wounds, insults, and threats were reported to the police.

Administrative data are easier to use if reporting rates do not change over time. According to Figure 4, these rates remained stable over the period 1996-2002. And the trends in victimization rates (Figures 5 et 6) seem to fit the trends in administrative crime rates, even though the categories in the two data sources are not exactly similar. According to the

victimization surveys, burglaries and car thefts declined by 30 percent between 1996 and 2002, while larcenies increased by 40 percent.

Finally, Figure 7 reports changes in the unemployment rates by age categories during the 1990s. A noticeable fact is the high youth unemployment rate in France, compared to similar countries. During the years 1994-1997 it hits a peak (virtually 30 percent of the 15-24 years old labor force was unemployed). After 1998 it declined (20 percent in 2002). Unemployment rates for other age categories follow the same general trend but are considerably lower. Trends in crime rates and in unemployment rates obviously differ. This apparent discrepancy led Prime Minister Jospin to confess his naivety. But, this should not stop us from analyzing our data.

### **3. Data Sets**

In this study we use three data sets using different measures of crime. First, we construct a regional-level data set (for the 95 départements of metropolitan France) with measures of crimes as reported to the Ministry of Interior. Second, we use individual-level data: the French Victimization Survey. These two data sets were described above. Third, the French Ministry of Defence provided us with an aggregate crime rate (restricted to burglaries, robberies, larcenies, and thefts) at the city-level. We cover 90 percent of the 36,000 French cities, belonging mostly to rural and semi-urban areas, where gendarmes are in charge of security.

We then match these three data sets with various socio-economic indicators. These indicators were constructed at the département level (to be matched to our panel), and at the city-level (to be matched to the city-level crime data and to victimization surveys. Indeed, these surveys include very precise geographical identification, since we know the location of every individual in the sample).

First, to assess social conditions prevailing in the département that year, we constructed social, economic and demographic variables using multiple waves of the French Labor Force data. In March of every year the French Statistical Institute (INSEE) conducts a Labor Force Survey (Enquête sur l'Emploi), interviewing roughly 130,000 people who are asked a set of standard questions that are repeated every year. In particular, we know for each individual his or her département of residence. We use the Labor Force Survey for the years 1990 to 2000; most variables of interest are available every year. So for each département and year, we construct averages of the following variables: fraction of foreigners coming from North Africa, fraction of other foreigners, an age structure vector (fraction of 15-24 years old, of 25 to 49, above 50), a family vector (fractions of men living alone, of people living in single-parent families), an education vector (fractions of high school graduates, of unskilled people) and a city structure vector (the share of persons living in rural areas, in cities with less than 20,000 inhabitants, in cities between 20,000 and 200,000 inhabitants, in cities with more than 200,000 inhabitants, in Paris and suburbs).

As unemployment is the core issue of our paper, we chose to measure it with very precise administrative data instead of using the Labor Force Survey. The French Public Employment Service provided us with département-level data sets with the number of unemployed by age categories, the share of unemployed above 25 years old not receiving unemployment benefits, and the number of those unemployed since more than one year.

We also use other administrative data sets available at the département-level. The number of policemen was obtained from INSEE, while the number of gendarmes was obtained from the Ministry of Defence. Last, the “Centre d’Etudes de la Vie Politique Française” (CEVIPOF) provided us with a database on all national elections to the Assemblée Nationale, France’s main legislative body. The CEVIPOF records the breakdown of votes by département for each of the major French political parties at each such election. From the right to the left of the political spectrum, these major political parties are: the “extreme right” (Front National), various small right-wing parties labelled as “various right”, the “Rassemblement Pour la République (RPR, and its other denominations in various elections years), the “Union pour la Démocratie Française” (UDF), the “Parti socialiste” (PS), other small left-wing parties labelled as “various left”, the “Parti Communiste” (PC), and other parties labelled as “extreme left”. Finally, the data also isolates the green party as an independent entity. In our empirical strategy, we group the two major right-wing political parties, UDF and RPR, because they formed a coalition during most of the elections.

Last, to assess socio-economic conditions prevailing in the cities, we use administrative sources. We calculated for each city an age structure vector and the fraction of foreigners, from the 1990 and 1999 national censuses. The French Public Employment Service provided us with the number of unemployed by age categories in 2000. We also used city-level fiscal sources to calculate the fraction of households with highest and lowest incomes in 1999. Finally information about local amenities in the city was obtained from the 1998 communal census.

## 4. Empirical Findings

### 4.1 Département-level Results: OLS analysis

Most of our results at the regional level of the département are based on variants of the following equation:

$$\ln(CR_{it}) = X_{it}\beta + \gamma U_{it} + \alpha_i + \delta_t + \varepsilon_{it} \quad (1)$$

where  $CR$  denotes the crime rate in département  $i$  at date  $t$ , where  $X$  denotes observed characteristics of the population, of the urban structure,  $U$  denotes the unemployment rate. Most of the time, we include time indicators and département fixed-effects. Finally, the last term of (1) is a statistical residual.

Table 2 presents the results for the basic specification. Each row shows results for a different crime. The first three columns present respectively the estimate for the unemployment



coefficient, the standard error of this coefficient, and the R-square of the regression without time and département indicators. The last three columns present the estimate for the unemployment coefficient, the standard error of this coefficient, and the R-square of the regression with time and département indicators. All regressions include socio-demographic controls: fraction of foreigners coming from North Africa, of other foreigners, fraction of people aged 15 to 24, 25 to 49, of men living alone, of individuals in single-parent families, of individuals without any diploma, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000 inhabitants, of those living in cities with more than 200,000 inhabitants, and finally those living in Paris and its suburbs. Département populations are used as weights.

First, considering the R-square column for the first set of regressions, two facts emerge. As predicted by the Becker's rational model of crime, property crime is better explained than violent crime or family crime (see Kelly, 2000 for a similar observation). Second, all R-squares are very large, even without the département or time indicators. A simple comparison with wage regressions, where R-squares are lower than 0.3 in the cross-section and, therefore, observed characteristics appear to be less important than unobserved ones in wage analysis, shows that observable characteristics of the regions matter for crime. Third, in the cross-section, unemployment is positively associated to crime. A deeper statistical examination of these results (not reported, but available from the authors) in association with the impact of other variables on crime demonstrates that these cross-section results are **entirely** governed by the opposition between rural and urban départements. Fourth, and in contrast to the third point, unemployment is, in general, negatively associated to crime in the panel dimension. This is most often true for property or, more generally, economic crimes (burglaries, most thefts, or drug offences). Fifth, violent crimes (homicides, threats, violence against police forces) appear to be positively associated to unemployment. Hence, **if** they are the driving force of the insecurity feeling, Jospin was not totally wrong after all.

The following Tables are mere variations on this theme. Table 3 has the same structure as Table 2 but contrasts unemployment by age categories. Focusing on the estimates with region fixed effects, we see that youth unemployment has a positive impact on most crimes whereas unemployment for the two other age categories have a negative impact on most crimes. This set of results is much more in agreement with the popular view of crime. Indeed, those categories of crime for which the coefficient on youth unemployment is negative or not significantly different from zero – car thefts, homicides, pick-pocketing, shoplifting, blackmail, rapes, family offences – are clearly not youth-specific in contrast to, say, drug offences, motorbikes thefts, or burglaries.

Table 4 goes a step further and tries to identify the effects of unemployment benefits on crime. The structure of the Table is the following. Each row presents the results of two regressions. First, to the unemployment structure by age, we add the fraction of workers above 25 who are unemployed and do not receive unemployment benefits (specification (1)). Second, to the unemployment structure by age, we add the fraction of workers above 25 who are long-term unemployed (specification (2)). For this second regression, we only report the coefficient on the long-term unemployed variable since all other coefficients are virtually identical to those reported for specification (1). Results show that, indeed, not receiving UI benefits appear to be positively associated to almost all economic crimes. These results stand in stark contrast to those of specification (2) since there is no association between crime and long-term unemployment.

Some institutional details are in order. First, most young workers are not eligible to unemployment benefits. Second, a non-negligible fraction of workers above 25 are not eligible to unemployment benefits, for instance because they did not work enough hours in the preceding year or because they were previously self-employed. Third, a large fraction of long-term unemployed receive UI benefits. In conclusion, the positive coefficients on youth unemployment and on non-reception of benefits for workers above 25 are the two faces of the same coin. Reception of benefits appears to decrease the incentives to commit economic crimes, conditional of course on unemployment.

Tables 5 and 6 test the robustness of these results by including a measure of the median wage and a measure of inequality (Q3/Q1 of the wage distribution) in the département (Table 5) and the number of policemen and of gendarmes (same role as police, mostly in rural areas, the gendarmes belong to the army in contrast to the police who is part of the Ministry of Interior). In addition to confirming the robustness of our previous results, estimates presented in Table 5 show that there is no relation between wages and economic crime (even though there are some evidence that sex offences tend to happen in poorer areas). Furthermore, there is no relation between wage inequality and economic crime.<sup>1</sup>

Results shown in Table 6 are once again similar to those presented in the previous Tables. The presence of police is negatively associated to robberies, burglaries, and thefts. By contrast, the effect of gendarmes is less clear-cut; a potential reflection of the rural nature of their tasks. A more complete analysis of the effects of police and gendarmes on crime can be found in Fougère, Kramarz, and Pouget (2003a).

#### **4.2 Département-level Results: Correlations across crimes**

A potential issue in our strategy is the following. We have examined crimes separately, one by one. Obviously, some crimes are related. For instance, in a violent burglary, wounds can also be inflicted to the victims. In addition, reporting strategies may vary. For instance, in quiet areas, shoplifting will be systematically reported to the police and registered whereas in more troubled places either shoplifting will not be systematically reported because it is too frequent, or even when the victim tries to report it to the authorities, the police might not have time to register the act. A first strategy to examine these problems is presented now. We compute the correlations between our various measures of crime across regions. This correlation Table, as well as those that follow, are given in the Appendix. Results of Tables A.1 and A.2 show that economic crimes are very highly correlated across the French departments. Just note though that shoplifting is much less correlated to the rest of economic crimes. Furthermore, family offences seem also to behave differently, a result that is not surprising given that factors that affect this type of crime are obviously not governed by Becker's model of rational crime. An examination of Table A.3 that presents correlations across growth rates for these same crimes confirms that economic crimes are very different from the rest. A relatively large fraction of these correlations are positive and significant in stark contrast with correlations between growth rates of other types of crimes. To understand the nature of the links between these various crimes, we decomposed each crime as described in equation (1). Then, we recuperate and estimate of  $\alpha_i$  for each crime. First, we correlate

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<sup>1</sup> In unreported results, inspired by Gould et al. (2002), we estimated similar regressions with the fraction of workers low-wages (among the young and the unskilled) as explanatory variables. None of these variables proved significantly different from zero.

these fixed effects across regions. Results are given in Table A.4. Most correlations are huge (and positive). Once again, shoplifting, family offences and sex offences stand in sharp contrast. Hence, the same unobserved fixed components explain the various crimes. The next stage is to understand the nature of these fixed components. Do they mostly pertain to observable characteristics of the département or to unobservables ? To examine this question, we first estimate the following equation:

$$\hat{\alpha}_i = x_i \delta + v_i$$

where the fixed effect for each crime is regressed on the same set of time-invariant variables (basically, the average of our variables from equation (1)). We do not report the R-square of these regressions but they are very large, between 0.6 and 0.9. Hence, observed factors explain a large fraction of the fixed effects. Then, we take the estimated  $v_i$ 's and correlate them across crimes. The results are given in Table A.5. Once again, correlations are virtually all significant, positive, and very large. Structural factors, some being associated to oppositions such as rural versus urban environments, explain the level of crime, irrespective of its type and nature.

### 4.3 Département-level Results: a causal approach

Up to this point, we adopted a descriptive viewpoint. But, we obviously need to use a more causal approach. The basic problem is the following. Unemployment can be endogenous in a crime regression. Gould et al. (2002) presents the reason very clearly. If crime in a region induces firms to stop investing or even to start relocating their activities in less crime-prone regions, then unemployment and crime will be positively correlated because crime causes unemployment and not the reverse. The strategy that is usually applied, instrumental variables techniques, will also be applied in the following paragraphs. Gould et al. used the predicted industrial structure to instrument unemployment since those predictions, made at the beginning of the period, were obviously based on purely economic reasons with no room for crime considerations. Here, because we focus on youth unemployment (in relation to unemployment benefits), we use a strategy that takes account of market opportunities – as in Gould et al. – adapted to the French context.

Youth unemployment is the distinctive feature of French unemployment. By international standards, youth unemployment rate in France is huge (around 25%, depending on the year). It is quite likely – and anecdotal evidence largely confirms this intuition – that youth idleness has caused a surge in economic crime. To identify the causal effect of youth unemployment on crime, we need instruments. A good instrument should only be related to unemployment, in particular youth unemployment, not related to crime. The politics of youth employment programs allows us to devise the following instrumentation strategy. Education or training investments and policies (at the junior-high or high-school level as well as continuous training) are largely decentralized at the region or the département levels. Those who decide the education and training choices are generally elected at the local or the département elections. And, the left-wing type of programs differs from the right-wing types. In particular, youth employment programs that the right favors rely mostly on tax exemptions whereas the left uses training programs more extensively. So, political outcomes should be correlated with unemployment, through the effects of these various programs. Unfortunately, local elections are often affected by security questions. But the parliamentary elections (the so-called legislative elections) are much less determined by these issues, at least until 2002, the last presidential election. Indeed, the only party that makes criminality an issue at legislative elections is the National Front. And, the poor results of the National Front at the legislative

elections (in contrast to local elections) is a first proof that criminality does not determine voting choices if one **restricts** to such elections.<sup>2</sup>

Therefore, we use the fraction of votes for different parties at the various legislative elections (appropriately lagged and weighted) to instrument our measures of unemployment. Results of this instrumenting regression are presented in Table 7. All our measures of unemployment are well correlated to the instruments (see the F-statistics). Notice that the larger the fraction of left-wing voters in the previous legislative elections the lower unemployment is in the département. Table 8 presents the IV results. This Table has the same format as those previously discussed. Although not reported, Sargan tests of the validity of the instruments support their (statistical) quality. IV results confirm previous estimates. Youth unemployment appears to have a causal (positive) effect on some economic crimes, more precisely, burglaries, thefts, and drug offences and no effect on many other crimes, economic or violent.

Several points are in order. First, these estimates are imprecise. This is a frequent feature of IV estimates. Second, we did multiple robustness tests (not reported here, but available from the authors). We summarize now the robustness checks we performed. Our instruments are computed as fractions of voters for various parties among total voters. And, as we said earlier, the extreme-right obviously makes security an issue whenever it can. Notice also that the excluded group is the fraction voting for the UDF and RPR parties. So, we re-estimated the model a) by grouping extreme-right and extreme-left together (the protesting parties) b) by grouping the extreme-right with the UDF-RPR parties. Results were unchanged. Second, our fractions were computed with a denominator equal to the total of voters. Therefore, we re-estimated the three above models using denominators equal to the total of registered voters (including abstentions, in particular). Once again, results were unchanged.

To summarize these last results, we see that youth unemployment has a positive and robust causal effect on a limited number of property crimes – burglaries, thefts – and on drug offences but a zero impact on many other economic or violent crimes.

#### 4.4 City-level Results

Table 9 presents results from an equation similar to (1), estimated in the cross-section at the city-level, using city-level statistics as described in Section 3. The dependent variable is the aggregate crime rate (restricted to burglaries, robberies, larcenies, and thefts) in the city. There are more than 30,000 cities in France. We cover those that belong to rural and semi-urban areas, where gendarmes are in charge of security. Most of these results have the same flavor as those shown previously for the département-level analysis, in the cross-section dimension. In particular, when looking at the unemployment variables, youth unemployment has a negative impact on crime. These results in fact contrast small rural communes with larger semi-urban cities. An attempt to capture longitudinal effects is made in Table 10 where we include changes of key variables between the last two Censuses (1990 and 1999), in addition to the variables already present in Table 9. Virtually, nothing changes. Signs of the coefficients for the change variables are identical to those obtained for the level variables. One aspect though is worth noticing. In the French debate, it is sometimes argued that the poor are more subject to petty crime than the rich. The numbers presented here give evidence

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<sup>2</sup> Bertrand and Kramarz (2002) use these exact same instruments in their analysis of the impact of product market regulations on job creation. Levitt (1997) uses local political instruments to assess the impact of police on crime.

of the contrary: rich cities with high-income taxpayers face more burglaries and thefts. The robustness of these last results will be further tested in the following subsection by using individual-level data.

#### **4.5 Individual-level Results**

Table 11 presents purely individual results for two types of crimes (or misdemeanors): individual larceny and wounds, aggressions, and insults. Table 12 presents results for crimes that affect the surveyed household, and not only the individuals that are comprised in the household: burglaries and car thefts. The numbers reported here differ from those previously analyzed in that they measure victimization (collected in the French Victimization Survey, see Section 3; FVS, hereafter) as opposed to reported crime. Another paper from the same authors as the present one examines the reporting behavior of the victims (Fougère, Kramarz, and Pouget, 2003b). Variables that are included in these regressions pertain to the individual (or the household) as well as the city in which these individuals live. This is a unique feature of the FVS (in contrast for instance to the American NCVS). Since the endogenous variable is dichotomic, estimates were obtained by maximum likelihood using a probit specification. If we focus on the unemployment variable as measured in the city, results are exactly similar to those already presented, with no effect of unemployment insurance and signs on unemployment that are consistent with the cross-section results of the département-level and the city-level analyses. Now, examining other variables, we find a confirmation that the high-income families are those mostly affected by crime. Other individual factors, such as the sex or the age affect the probability of being a victim. However, these effects largely depend on other behavior such as going out at night or not, staying home, or working. Once again, a paper by the same three authors examines more carefully these issues and the role insecurity may play in the decisions to go out or to stay home (Fougère et al., 2003b). We defer discussion of these results to this paper for this reason.

## 5. Conclusion

Our results demonstrate that most of the variation in criminality is between regions. They also show that the main reason for this is the opposition between mostly rural regions and mostly urban départements. Are such results a sound basis for a public policy trying to reduce crime? One possibility is to follow Alphonse Allais who suggested 100 years ago to relocate cities in the countryside (“mettre les villes à la campagne”). Fortunately, there is also variation within departments. In particular, our IV results suggest potential public policies against crime. Fighting youth unemployment should indeed help decreasing property crimes and drug offences. However, some other economic or violent crimes appear to be unrelated to labor market conditions as measured by unemployment. We have also presented some mild evidence that those who do not receive unemployment benefits tend to commit more (property) crime. Indeed, the young unemployed tend to receive such benefits less often. To attract the young away from crime, there are multiple potential routes. Education is an obvious one. More specifically, education has to pay, either directly or indirectly. For the direct component, two ideas can be mentioned. First, apprentices receive – by law – miserable pay when doing their apprenticeship. Second, experiments in Mexico and Israel show that large bonuses targeted to the poor that are paid when the child succeeds at school seem to work (see for instance Angrist and Lavy, 2002). The indirect route is obviously longer investments in schooling with deferred compensations large enough to make the investment valuable. This is not an easy route in France where returns to a university education have decreased in the last 10 years (see Kramarz, Lemieux, Margolis, 2002).

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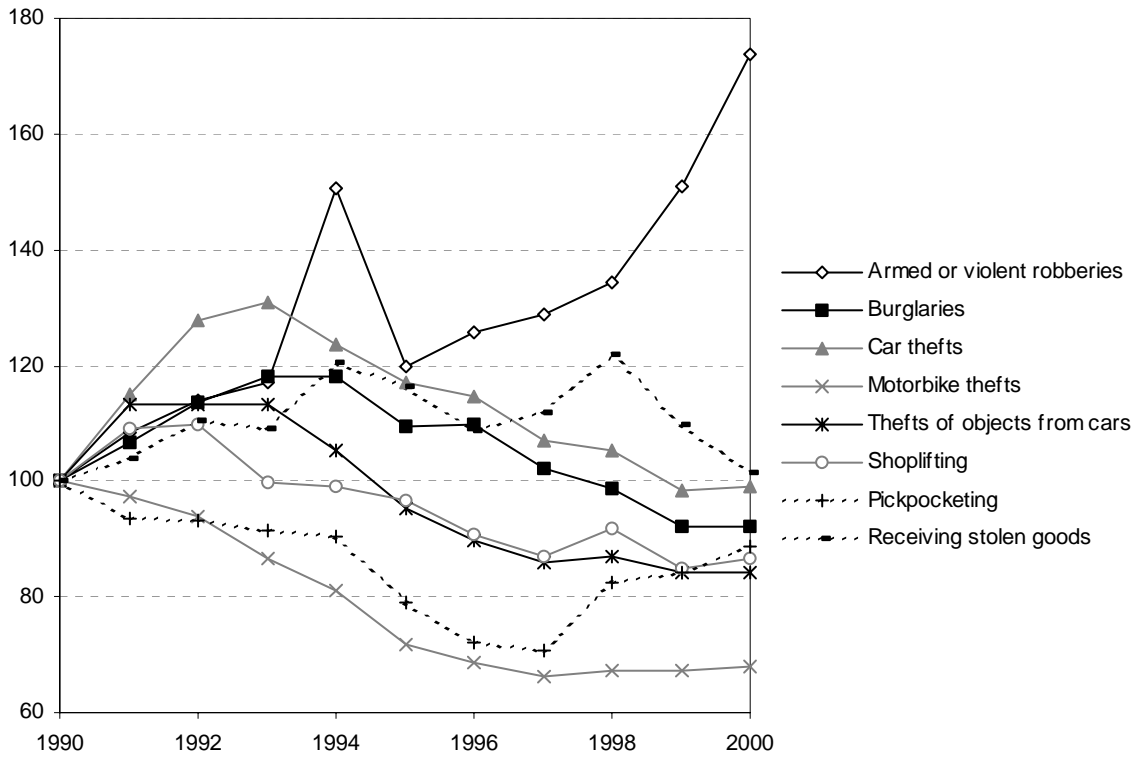
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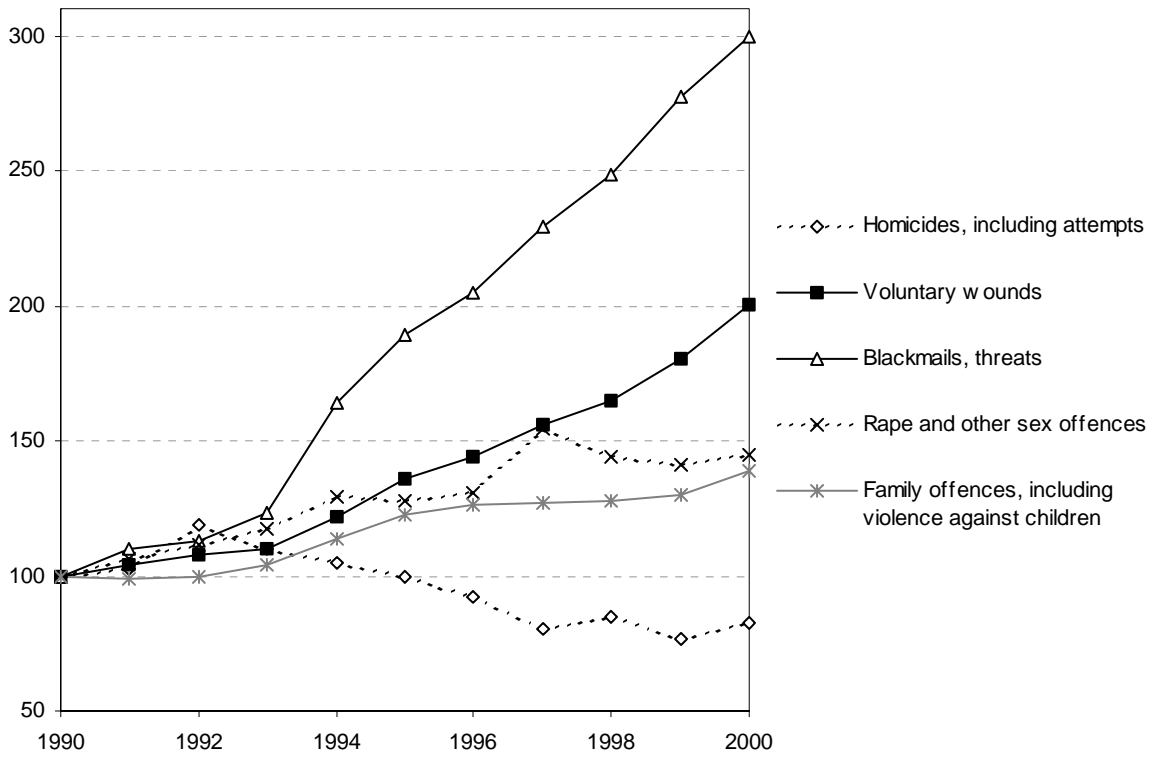
# Figures

**Figure 1: Property Crimes Rates 1990-2000**  
(reference 1990 = 100)



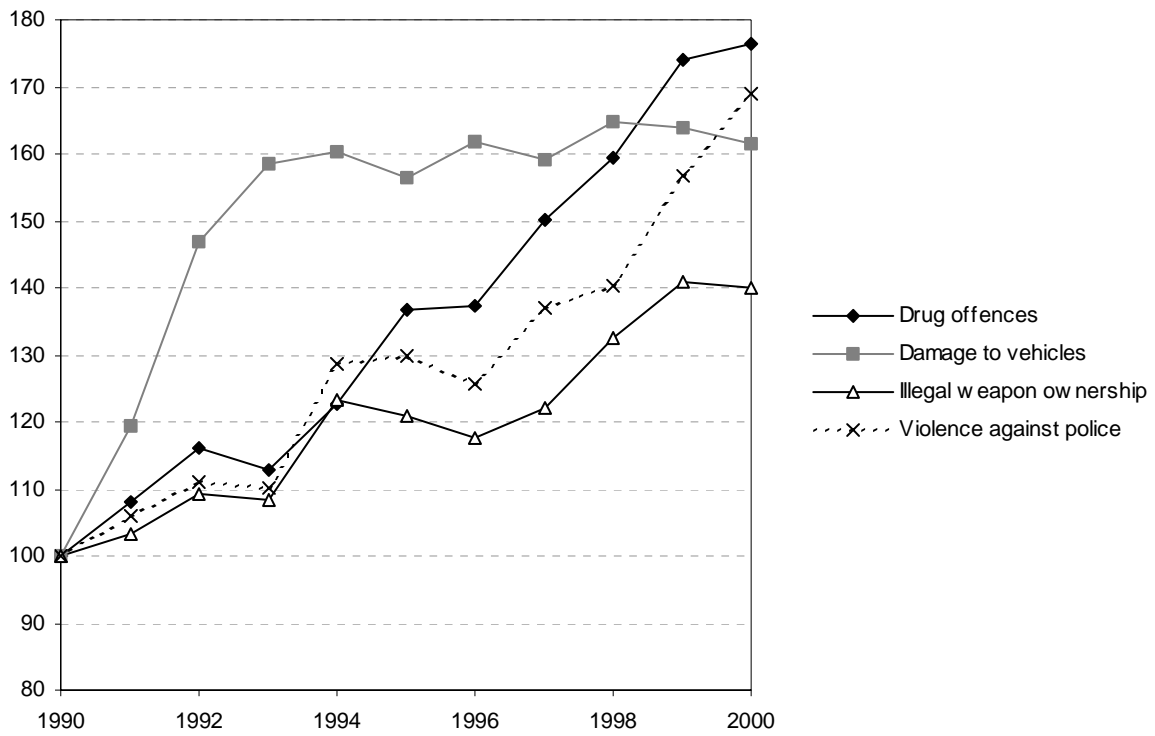
Source: Ministry of Interior

**Figure 2: Violent Crimes Rates 1990-2000**  
 (reference 1990 = 100)



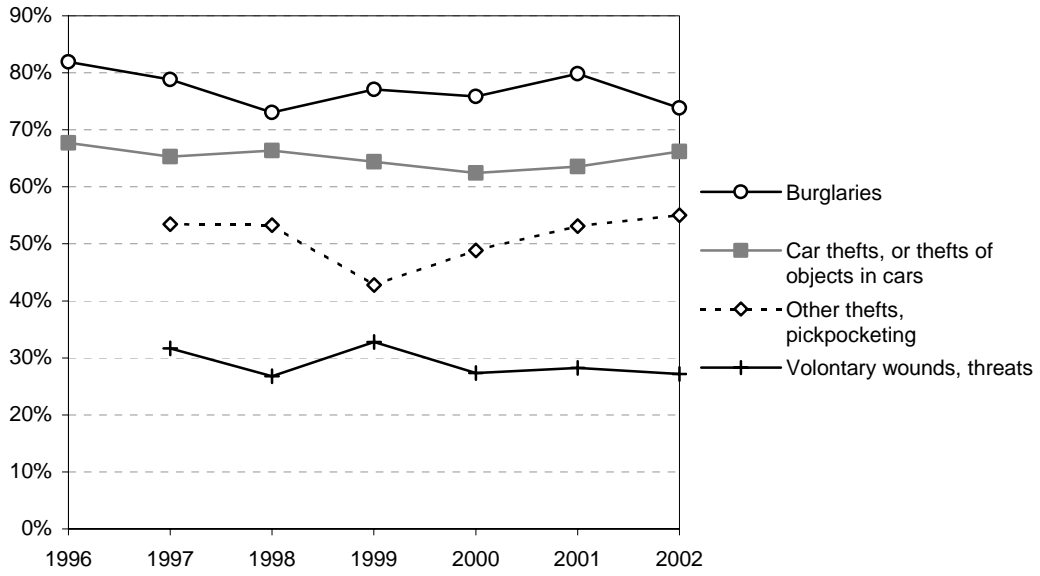
Source: Ministry of Interior

**Figure 3: Other Crimes Rates 1990-2000**  
 (reference 1990 = 100)



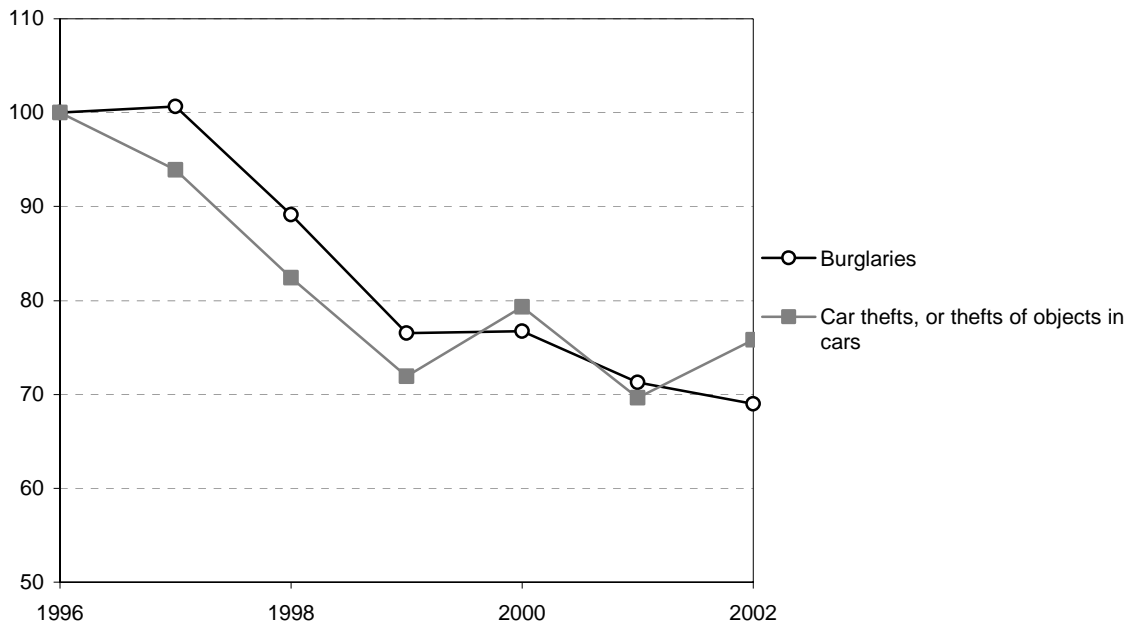
Source: Ministry of Interior

**Figure 4: Reporting Rate 1996-2002**



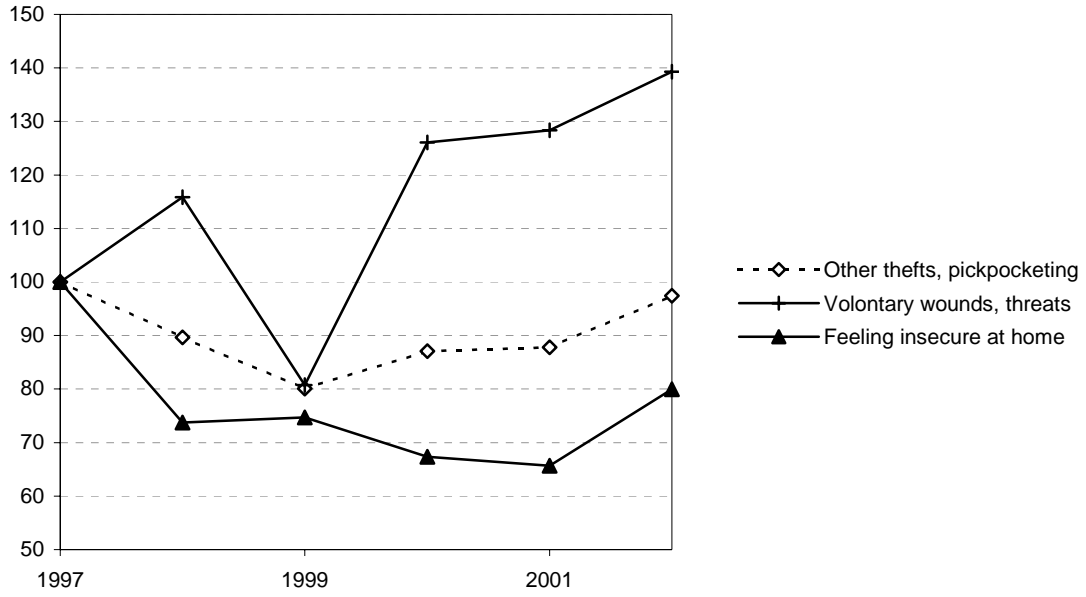
Source: victimization surveys, INSEE, 1997-2002

**Figure 5: Victimization Rate 1996-2002**  
(household level; reference 1996 = 100)



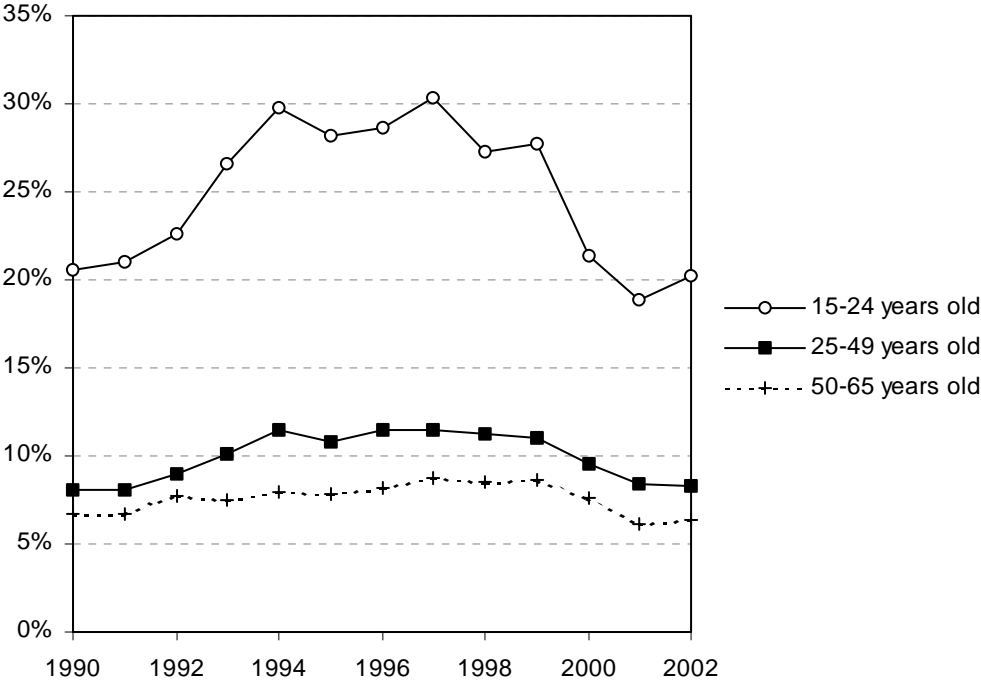
Source: victimization surveys, INSEE, 1996-2002

**Figure 6: Victimization Rate 1997-2002**  
(individual level, reference 1997 = 100)



Source: victimization surveys, INSEE, 1997-2002

**Figure 7: Unemployment Rates (by Age Categories) 1990-2002**



Source: Labor Force Surveys (Enquête Emploi), INSEE, 1990-2002.



## Tables

**Table 2: OLS Effects of Unemployment on Crime**

	No time or département fixed effects		Département and year fixed effects	
	Fraction of unemployed	Adjusted R2	Fraction of unemployed	Adjusted R2
Armed or violent robberies	12.22 (0.89)	0.83	-0.78 (1.22)	0.95
Burglaries	7.41 (0.60)	0.69	-1.76 (0.66)	0.94
Car thefts	14.80 (1.01)	0.69	-1.54 (0.94)	0.95
Motorbike thefts	3.56 (0.75)	0.50	-1.32 (0.73)	0.92
Thefts of objects from cars	6.42 (0.69)	0.65	-2.76 (0.86)	0.91
Shoplifting	-0.85 (0.93)	0.34	-0.52 (1.45)	0.73
Pickpocketing	7.79 (1.41)	0.75	-0.03 (1.40)	0.96
Receiving stolen goods	6.91 (0.84)	0.52	-2.37 (1.64)	0.70
Homicides, including attempts	4.25 (1.03)	0.42	2.90 (1.98)	0.64
Voluntary wounds	4.17 (0.80)	0.52	0.30 (0.95)	0.64
Blackmails, threats	3.70 (0.87)	0.36	2.92 (1.32)	0.75
Rape and other sex offences	5.66 (0.66)	0.32	-0.65 (1.09)	0.69
Family offences, including violence against children	3.56 (0.59)	0.44	-0.37 (0.73)	0.86
Drug offences	2.64 (1.12)	0.39	-3.48 (1.68)	0.77
Damage to vehicles	10.00 (0.88)	0.65	-2.76 (1.36)	0.86
Illegal weapon ownership	3.09 (0.93)	0.54	5.41 (1.54)	0.79
Violence against police	1.99 (0.67)	0.57	2.49 (0.95)	0.86

Each row presents the results of two regressions. The only reported coefficient is that of the unemployment variable. The first regression does not include time and département effects. The standard errors are between parentheses. Each observation is a département-year. 1,045 observations. The dependent variable is the logarithm of offenses rates (offenses per 100,000 people). Each regression also includes socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs). Département population is used as weight.

Sources: Ministry of Interior, ANPE, and INSEE (Labor Force Survey, 1990-2000).

**Table 3: OLS effects of Unemployment (by Age Categories) on Crime**

	No time or département fixed effects				Département and year fixed effects			
	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years old	Adjusted R2	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years old	Adjusted R2
Armed or violent robberies	-3.54 (1.02)	8.63 (1.12)	15.59 (3.76)	0.84 (3.76)	4.13 (1.11)	-5.27 (1.46)	2.16 (4.57)	0.95
Burglaries	-5.02 (0.66)	7.76 (0.73)	9.61 (2.45)	0.72 (2.45)	2.63 (0.59)	-1.88 (0.78)	-8.59 (2.46)	0.94
Car thefts	-7.68 (1.11)	13.59 (1.22)	19.76 (4.10)	0.69 (4.10)	1.05 (0.85)	0.41 (1.12)	-11.63 (3.53)	0.95
Motorbike thefts	-4.32 (0.83)	2.00 (0.91)	29.01 (3.07)	0.56 (3.07)	3.33 (0.65)	-1.83 (0.86)	-11.45 (2.69)	0.92
Thefts of objects from cars	-4.70 (0.77)	6.34 (0.85)	14.87 (2.87)	0.68 (2.87)	2.50 (0.78)	-2.96 (1.03)	-5.68 (3.23)	0.91
Shoplifting	4.98 (1.08)	-5.89 (1.19)	6.44 (4.01)	0.35 (4.01)	-0.55 (1.33)	0.91 (1.75)	-3.45 (5.51)	0.73
Pickpocketing	-8.49 (1.56)	5.57 (1.71)	50.94 (5.76)	0.78 (5.76)	1.15 (1.29)	-0.40 (1.69)	-3.72 (5.32)	0.96
Receiving stolen goods	-5.57 (0.97)	8.20 (1.06)	6.81 (3.58)	0.55 (3.58)	4.94 (1.49)	-7.38 (1.96)	5.13 (6.16)	0.70
Homicides, including attempts	-7.57 (1.16)	5.86 (1.27)	25.18 (4.28)	0.48 (4.28)	-1.76 (1.81)	1.61 (2.39)	7.86 (7.50)	0.64
Voluntary wounds	1.47 (0.94)	0.97 (1.03)	2.35 (3.48)	0.51 (3.48)	1.78 (0.86)	-2.57 (1.14)	3.52 (3.58)	0.89
Blackmails, threats	-2.13 (1.02)	5.24 (1.12)	-7.80 (3.76)	0.37 (3.76)	1.21 (1.21)	0.79 (1.60)	-2.55 (5.02)	0.75
Rape and other sex offences	1.87 (0.76)	3.71 (0.84)	-13.08 (2.83)	0.34 (2.83)	-1.39 (0.98)	4.74 (1.29)	-18.62 (4.07)	0.70
Family offences, incl. violence against children	-0.60 (0.69)	3.44 (0.76)	-3.60 (2.55)	0.45 (2.55)	-0.77 (0.67)	1.37 (0.88)	-4.00 (2.76)	0.86
Drug offences	-0.82 (1.30)	5.63 (1.43)	-22.73 (4.80)	0.41 (4.80)	6.64 (1.52)	-5.01 (2.00)	-17.08 (6.27)	0.78
Damage to vehicles	-1.04 (1.03)	7.72 (1.13)	-4.59 (3.82)	0.66 (3.82)	1.05 (1.25)	-1.48 (1.64)	-7.54 (5.16)	0.86
Illegal weapon ownership	-3.02 (1.09)	3.44 (1.19)	8.45 (4.02)	0.55 (4.02)	0.86 (1.41)	-1.53 (1.86)	17.68 (5.84)	0.79
Violence against police	-0.58 (0.78)	-0.21 (0.86)	13.60 (2.89)	0.58 (2.89)	-3.27 (0.85)	0.69 (1.12)	17.80 (3.53)	0.86

The standard errors are between parentheses. Each observation is a département-year. Observations are for the 95 French départements and for the years 1990-2000 (1,045 obs.). Dependent variables are the logarithms of offenses rates (offenses 100,000 people). Each regression also includes socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in Paris and suburbs). Département population is used as weight. Sources: Ministry of Interior, ANPE, and INSEE (Labor Force Survey, 1990-2000).

**Table 4: OLS effects of Unemployment and Unemployment Benefits on Crime**

	Specification (1)				Specification (2)	
	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years old	Fraction of unemp. above 25 not receiving UI	Fraction among unemp. above 25 with duration >1 yr	
Armed or violent robberies	4.05 (1.11)	-5.16 (1.46)	2.16 (4.57)	0.14 (0.11)	0.07 (0.10)	
Burglaries	2.55 (0.59)	-1.77 (0.78)	-8.59 (2.45)	0.14 (0.06)	-0.14 (0.05)	
Car thefts	0.99 (0.85)	0.49 (1.12)	-11.63 (3.53)	0.10 (0.08)	-0.15 (0.08)	
Motorbike thefts	3.31 (0.65)	-1.81 (0.86)	-11.45 (2.69)	0.03 (0.06)	-0.12 (0.06)	
Thefts of objects from cars	2.41 (0.78)	-2.83 (1.03)	-5.68 (3.23)	0.16 (0.08)	-0.20 (0.07)	
Shoplifting	-0.45 (1.33)	0.77 (1.76)	-3.46 (5.51)	-0.17 (0.13)	0.11 (0.12)	
Pickpocketing	1.05 (1.29)	-0.25 (1.69)	-3.71 (5.31)	0.18 (0.12)	-0.02 (0.11)	
Receiving stolen goods	5.03 (1.49)	-7.50 (1.97)	5.12 (6.16)	-0.16 (0.14)	0.18 (0.13)	
Homicides, including attempts	-2.02 (1.81)	1.99 (2.38)	7.88 (7.48)	0.47 (0.17)	0.30 (0.16)	
Voluntary wounds	1.81 (0.87)	-2.62 (1.14)	3.51 (3.58)	-0.06 (0.08)	0.10 (0.08)	
Blackmails, threats	1.35 (1.21)	0.59 (1.60)	-2.56 (5.01)	-0.25 (0.12)	0.10 (0.11)	
Rape and other sex offences	-1.48 (0.98)	4.87 (1.30)	-18.61 (4.06)	0.16 (0.09)	-0.13 (0.09)	
Family offences, incl. violence against children	-0.76 (0.67)	1.36 (0.88)	-4.00 (2.76)	-0.01 (0.06)	-0.04 (0.06)	
Drug offences	6.71 (1.52)	-5.12 (2.00)	-17.09 (6.27)	-0.13 (0.15)	-0.21 (0.13)	
Damage to vehicles	1.03 (1.25)	-1.44 (1.65)	-7.54 (5.16)	0.05 (0.12)	0.03 (0.11)	
Illegal weapon ownership	0.87 (1.41)	-1.53 (1.86)	17.68 (5.84)	-0.01 (0.14)	-0.04 (0.13)	
Violence against police	-3.22 (0.86)	0.63 (1.13)	17.80 (3.53)	-0.08 (0.08)	0.20 (0.08)	

The standard errors are between parentheses. Each observation is a département-year. Observations are for the 95 French départements and for the years 1990-2000 (1,045 obs.). Dependent variables are the logarithms of offenses rates (offenses /100,000 people). Each regression also includes year and département fixed effects, socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in Paris and suburbs), Département population is used as weight. Specification (1) includes the first four variables for each regression. Specification (2) is the same as (1) but replaces the fraction among unemployed above 25 not receiving UI with the fraction of those with unemployment duration greater than 1 year. Sources: Ministry of Interior, ANPE, and INSEE (Labor Force Survey, 1990-2000).

Table 5: OLS effects of Unemployment and Unemployment Benefits on Crime, Controlling for Wages and Inequalities

	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years old	Fraction among unemployed above 25 not receiving UI	Median Wage	Ratio of third and first quartiles of the wage distr.	Adjusted R <sup>2</sup>
Armed or violent robberies	4.18 (1.11)	-5.17 (1.47)	1.63 (4.58)	0.15 (0.11)	0.36 (0.26)	-0.18 (0.23)	0.95
Burglaries	2.61 (0.60)	-1.85 (0.79)	-8.71 (2.46)	0.14 (0.06)	0.08 (0.14)	-0.14 (0.12)	0.94
Car thefts	1.05 (0.86)	0.23 (1.13)	-11.38 (3.53)	0.10 (0.08)	-0.19 (0.20)	-0.29 (0.18)	0.95
Motorbike thefts	3.45 (0.65)	-1.87 (0.86)	-11.95 (2.70)	0.04 (0.06)	0.34 (0.15)	-0.23 (0.14)	0.92
Thefts of objects from cars	2.44 (0.78)	-2.82 (1.04)	-5.85 (3.24)	0.16 (0.08)	0.12 (0.18)	-0.03 (0.16)	0.91
Shoplifting	-0.48 (1.33)	0.17 (1.76)	-2.11 (5.49)	-0.20 (0.13)	-0.97 (0.31)	-0.43 (0.28)	0.73
Pickpocketing	1.11 (1.29)	-0.30 (1.71)	-3.86 (5.34)	0.19 (0.12)	0.10 (0.30)	-0.11 (0.27)	0.96
Receiving stolen goods	5.06 (1.50)	-7.43 (1.98)	4.83 (6.19)	-0.15 (0.14)	0.21 (0.35)	0.02 (0.31)	0.70
Homicides, including attempts	-2.03 (1.82)	2.04 (2.40)	7.84 (7.51)	0.47 (0.17)	0.03 (0.43)	0.06 (0.38)	0.64
Voluntary wounds	1.59 (0.87)	-2.55 (1.14)	4.43 (3.57)	-0.07 (0.08)	-0.62 (0.20)	0.34 (0.18)	0.89
Blackmails, threats	1.23 (1.22)	0.65 (1.61)	-2.12 (5.03)	-0.25 (0.12)	-0.29 (0.29)	0.21 (0.25)	0.75
Rape and other sex offences	-1.66 (0.99)	4.88 (1.30)	-17.78 (4.07)	0.15 (0.09)	-0.56 (0.23)	0.24 (0.20)	0.70
Family offences, including violence against children	-0.74 (0.67)	1.30 (0.89)	-3.95 (2.77)	-0.01 (0.06)	-0.04 (0.16)	-0.06 (0.14)	0.86
Drug offences	6.70 (1.53)	-5.20 (2.01)	-16.88 (6.30)	-0.14 (0.15)	-0.15 (0.36)	-0.05 (0.32)	0.78
Damage to vehicles	1.19 (1.25)	-1.42 (1.66)	-8.34 (5.17)	0.06 (0.12)	0.55 (0.29)	-0.19 (0.26)	0.86
Illegal weapon ownership	0.85 (1.42)	-1.88 (1.87)	18.47 (5.85)	-0.02 (0.14)	-0.57 (0.33)	-0.25 (0.29)	0.79
Violence against police	-3.30 (0.85)	0.36 (1.13)	18.70 (3.53)	-0.09 (0.08)	-0.64 (0.20)	-0.12 (0.18)	0.86

The standard errors are between parentheses. Each observation is a département-year. Observations are for the 95 French départements and for the years 1990-2000 (1,045 obs.). Dependent variables are the logarithms of offenses rates (offenses /100,000 people). Each regression also includes year and département fixed effects, socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs). Département population is used as weight. Sources: Ministry of Interior, ANPE, and INSEE (Labor Force Survey, 1990-2000).

Table 6: OLS effects of Unemployment and Unemployment Benefits on Crime, Controlling for Deterrence

	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years old	Fraction of unemployed among 25 not receiving UI	Total Police Employment (in logs)	Total Gendarmes Employment (in logs)	Adjusted R2
Armed or violent robberies	4.68 (1.12)	-5.78 (1.46)	2.35 (4.62)	0.12 (0.11)	-0.14 (0.08)	-0.64 (0.21)	0.95
Burglaries	2.17 (0.60)	-1.71 (0.78)	-6.87 (2.47)	0.15 (0.06)	-0.12 (0.05)	0.41 (0.11)	0.94
Car thefts	0.80 (0.86)	0.15 (1.12)	-8.64 (3.55)	0.10 (0.08)	-0.30 (0.07)	0.23 (0.16)	0.95
Motorbike thefts	3.33 (0.66)	-2.17 (0.86)	-9.51 (2.72)	0.03 (0.06)	-0.22 (0.05)	0.00 (0.12)	0.93
Thefts of objects from cars	2.68 (0.79)	-3.11 (1.03)	-5.57 (3.28)	0.15 (0.08)	-0.06 (0.06)	-0.28 (0.15)	0.91
Shoplifting	0.76 (1.34)	0.13 (1.74)	-6.38 (5.53)	-0.20 (0.13)	0.09 (0.10)	-1.28 (0.25)	0.74
Pickpocketing	0.75 (1.31)	0.06 (1.71)	-3.87 (5.41)	0.19 (0.12)	0.08 (0.10)	0.30 (0.24)	0.96
Receiving stolen goods	5.12 (1.52)	-7.59 (1.98)	5.17 (6.28)	-0.16 (0.14)	-0.02 (0.12)	-0.09 (0.28)	0.70
Homicides, including attempts	-0.85 (1.83)	1.57 (2.38)	3.91 (7.56)	0.44 (0.17)	0.22 (0.14)	-1.25 (0.34)	0.65
Voluntary wounds	1.83 (0.88)	-2.55 (1.15)	3.03 (3.65)	-0.06 (0.08)	0.05 (0.07)	-0.02 (0.16)	0.89
Blackmails, threats	1.86 (1.23)	0.22 (1.61)	-3.18 (5.09)	-0.26 (0.12)	-0.03 (0.09)	-0.53 (0.23)	0.75
Rape and other sex offences	-1.14 (1.00)	4.79 (1.30)	-20.01 (4.13)	0.15 (0.09)	0.09 (0.08)	-0.37 (0.18)	0.70
Family offences, including violence against children	-0.90 (0.68)	1.34 (0.88)	-3.09 (2.81)	-0.01 (0.06)	-0.07 (0.05)	0.16 (0.13)	0.86
Drug offences	5.43 (1.52)	-3.99 (1.98)	-16.61 (6.29)	-0.10 (0.14)	0.19 (0.12)	1.33 (0.28)	0.78
Damage to vehicles	0.84 (1.27)	-1.50 (1.66)	-6.18 (5.26)	0.05 (0.12)	-0.12 (0.10)	0.21 (0.24)	0.86
Illegal weapon ownership	2.39 (1.41)	-2.11 (1.84)	12.69 (5.83)	-0.04 (0.13)	0.26 (0.11)	-1.63 (0.26)	0.80
Violence against police	-2.42 (0.85)	0.53 (1.11)	13.96 (3.52)	-0.09 (0.08)	0.27 (0.06)	-0.87 (0.16)	0.87

The standard errors are between parentheses. Each observation is a département-year. Observations are for the 95 French départements and for the years 1990-2000 (1,045 obs.). Dependent variables are the logarithms of offenses rates (offenses 100,000 people). Each regression also includes year and département fixed effects, socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs). Département population is used as weight. Sources: Ministry of Interior, ANPE, and INSEE (Labor Force Survey, 1990-2000).

**Table 7: Instrumenting Regressions**

	Dependent Variable:		
	Fraction of unemployed among 15-24 years old	Fraction of unemployed among 25-49 years old	Fraction of unemployed among more than 50 years
Fraction Extreme-Left (Except for PC)	-0.093 (0.038)	-0.149 (0.032)	-0.015 (0.009)
Fraction PC	-0.094 (0.026)	-0.155 (0.022)	-0.015 (0.006)
Fraction PS	-0.090 (0.019)	-0.059 (0.016)	0.005 (0.005)
Fraction Various Left	-0.101 (0.022)	-0.070 (0.018)	0.003 (0.005)
Fraction Green Party	-0.044 (0.021)	-0.053 (0.017)	0.006 (0.005)
Fraction Various Right	0.012 (0.011)	-0.021 (0.009)	-0.006 (0.003)
Fraction Extreme-Right	0.064 (0.023)	-0.038 (0.019)	0.011 (0.006)
Adj. R2	0.94	0.95	0.94
F	8.71	8.26	3.37

The standard errors are between parentheses. Each observation is a département-year. Observations are for the 95 French départements and for the years 1990-2000 (1,045 obs.). Dependent variables are fraction of unemployed among 15-24, 25-49 or more than 50 years old. We construct the political variables as follows: fraction for each party is the mean fraction of votes going to this party for years t-1 and t-2. Each regression also includes socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs), fraction among unemployed above 25 not receiving UI, and time and département effects. Département population is used as weight. Sources: Ministry of Interior, ANPE, INSEE (Labor Force Survey, 1990-2000), and CEVIPOF election files.

**Table 9: City-level Regression of Crime Rates (2002)  
on Socio-Economic Factors (1999)**

	Est.	StdErr
Intercept	0.0063	(0.0006)
Fraction Low Income	-0.0058	(0.0026)
Fraction High Income	0.0659	(0.0019)
Fraction Foreigners in 1999	0.0826	(0.0024)
Fraction 15-19 in 1999	-0.0396	(0.0032)
Fraction Unemployed among 15-24 in 1999	-0.0382	(0.0029)
Fraction Unemployed among 25-59 in 1999	0.1666	(0.0032)
Fraction Unemployed not receiving UI	-0.0079	(0.0006)
City Size < 200	-0.0031	(0.0004)
City Size 200-500	-0.0023	(0.0003)
City Size 1,500-5,000	0.0046	(0.0002)
City Size 5,000-10,000	0.0099	(0.0003)
City Size > 10,000	0.0144	(0.0003)
Adj. R2	0.32	

The standard errors are between parentheses. Each observation is a city in the "gendarmierie zone" (32,226 obs). Dependent variable is an aggregate crime rate (for robberies, burglaries, larcenies and thefts) calculated as the ratio of offenses per capita. City population is used as weight. Sources: Defense Ministry, 1990 and 1999 Censuses, and other local administrative sources.

**Table 10: City-level Regression of Crime Rates (2002)  
on Socio-Economic Factors (1990 and 1999)**

	Est.	StdErr
Intercept	0.0090	(0.0007)
Fraction Low Income	-0.0062	(0.0026)
Fraction High Income	0.0680	(0.0019)
Fraction Foreigners in 1990	0.0795	(0.0025)
Change in Fraction Foreigners in 1990-1999	0.0473	(0.0059)
Fraction 15-19 in 1990	-0.0580	(0.0035)
Change in Fraction 15-19 1990-1999	-0.0240	(0.0039)
Fraction Unemployed among 15-24 in 1990	-0.0530	(0.0040)
Change in Fraction Unemployed among 15-24 1990-1999	-0.0318	(0.0030)
Fraction Unemployed among 25-59 in 1990	0.1908	(0.0046)
Change in Fraction Unemployed among 25-59 1990-1999	0.1412	(0.0041)
Fraction Unemployed not receiving UI 1999	-0.0076	(0.0006)
City Size < 200	-0.0033	(0.0004)
City Size 200-500	-0.0024	(0.0003)
City Size 1,500-5,000	0.0046	(0.0002)
City Size 5,000-10,000	0.0099	(0.0003)
City Size > 10,000	0.0143	(0.0003)
Adj. R2	0.33	

The standard errors are between parentheses. Each observation is a city in the "gendarmierie zone" (32,226 obs). Dependent variable is an aggregate crime rate (for robberies, burglaries, larcenies and thefts) calculated as the ratio of offenses per capita. City population is used as weight. Sources: Defense Ministry, 1990 and 1999 Censuses, and other local administrative sources.



**Table 11: Probit Estimates of the Determinants of Victimization  
(Individual-level Survey)**

	Individual Larceny		Voluntary wounds, threats, insults	
	Est.	Std. err	Est.	Std. Err
Intercept	-1.939	(0.082)	-1.946	(0.076)
Woman	-0.085	(0.018)	-0.063	(0.017)
Age 15-29	0.083	(0.029)	0.151	(0.025)
Age 45-59	0.025	(0.026)	-0.085	(0.023)
Age above 60	0.056	(0.047)	-0.364	(0.048)
Foreigner	-0.012	(0.036)	-0.241	(0.037)
Single	0.189	(0.021)	0.154	(0.019)
Unemployed	0.010	(0.038)	0.036	(0.033)
Student	0.299	(0.033)	0.032	(0.030)
Retired	-0.230	(0.048)	-0.123	(0.048)
Non-Working	-0.119	(0.037)	-0.106	(0.033)
Household Income: 2nd quartile	0.049	(0.026)	-0.062	(0.024)
Household Income: 3rd quartile	0.107	(0.026)	-0.038	(0.024)
Household Income: 4th quartile	0.157	(0.027)	0.046	(0.025)
Rural area	-0.076	(0.031)	-0.045	(0.028)
City, size less than 100,000	0.024	(0.034)	0.088	(0.030)
City, size more than 100,000	0.087	(0.030)	0.052	(0.027)
Paris	0.059	(0.039)	0.029	(0.037)
Isolated House	-0.086	(0.026)	-0.155	(0.025)
Apartment Building	0.043	(0.027)	0.153	(0.025)
Project Housing	-0.001	(0.032)	0.187	(0.029)
Mixed Housing	-0.016	(0.033)	0.085	(0.031)
Fraction 15-19 in City	0.259	(0.397)	2.078	(0.365)
Fraction Foreigners in City	0.558	(0.244)	0.609	(0.226)
Fraction Unemployed among 15-24	-2.469	(0.423)	-0.181	(0.380)
Fraction Unemployed among 25-59	2.780	(0.410)	0.146	(0.379)
Fraction Unemployed not receiving UI	0.037	(0.112)	0.010	(0.102)

Number of observations: 65,380 individuals (age more than 15). Source: Victimization Survey, INSEE (1997-2002), 1999 Census, and other local administrative sources. Year indicators are also included.

**Table 12: Probit Estimates of the Determinants of Victimization  
(Household-level Survey)**

	Burglary		Car theft or theft of objects from car	
	Est.	Std. err	Est.	Std. Err
Intercept	-2.173	(0.136)	-1.854	(0.094)
Household Head Age 15-29	-0.099	(0.061)	0.309	(0.034)
Household Head Age 45-59	0.041	(0.038)	0.015	(0.025)
Household Head Age above 60	0.153	(0.063)	-0.272	(0.049)
Household with 1 individual	0.028	(0.038)	-0.047	(0.030)
Household with 3 and more individuals	0.016	(0.039)	0.130	(0.026)
Household Head Unemployed	-0.011	(0.056)	-0.001	(0.040)
Household Head Student	-0.075	(0.138)	-0.105	(0.092)
Household Head Retired	-0.244	(0.065)	-0.148	(0.050)
Household Head Non-Working	-0.054	(0.081)	-0.026	(0.071)
Household Income: 2nd quartile	-0.041	(0.044)	0.039	(0.032)
Household Income: 3rd quartile	-0.020	(0.044)	0.172	(0.031)
Household Income: 4th quartile	0.112	(0.044)	0.224	(0.032)
Rural area	-0.076	(0.053)	-0.100	(0.034)
City, size less than 100,000	0.145	(0.056)	0.053	(0.037)
City, size more than 100,000	0.230	(0.050)	0.134	(0.033)
Paris	0.301	(0.066)	0.129	(0.044)
Isolated House	-0.013	(0.041)	-0.106	(0.029)
Apartment Building	-0.259	(0.047)	0.140	(0.031)
Project Housing	-0.280	(0.054)	0.090	(0.036)
Mixed Housing	-0.098	(0.052)	0.064	(0.037)
Fraction 15-19 in City	1.513	(0.654)	2.689	(0.452)
Fraction Foreigners in City	0.370	(0.403)	0.722	(0.276)
Fraction Unemployed among 15-24	-2.234	(0.697)	-2.001	(0.471)
Fraction Unemployed among 25-59	3.273	(0.679)	3.127	(0.463)
Fraction Unemployed not receiving UI	-0.116	(0.185)	0.110	(0.124)

Number of observations: 34,305 households (for burglaries), 28,465 households owning a car (for car thefts). Source: Victimization Survey, INSEE (1997-2002), 1999 Census, and other local administrative sources. Year indicators are also included.

## Appendix A: Additional Empirical Results

Table A.1: Geographic cross-correlations among crimes rates (2000)

	Property Crimes										Violent Crimes					Other Crimes			
	Armed or violent robberies	Burglaries	Car thefts	Motorbike thefts	Thefts of objects from cars	Shoplifting	Pickpocketing	Receiving stolen goods	Homicides, including attempts	Voluntary wounds	Blackmails, threats	Rape and other sex offences	Family offenses	Drug offenses	Damage to vehicles	Illegal weapon ownership	Violence against police		
Armed or violent robberies	1	0.74**	0.36**	0.54**	0.58**	0.51**	0.90**	0.79**	0.48**	0.63**	0.60**	0.61**	-0.2	0.36**	0.72**	0.70**	0.84**		
Burglaries	0.74**	1	0.66**	0.75**	0.80**	0.30**	0.78**	0.70**	0.31**	0.36**	0.51**	0.45**	0.07	0.17	0.40**	0.39**	0.54**		
Car thefts	0.36**	0.66**	1	0.44**	0.82**	0.05	0.28**	0.56**	0.47**	0.37**	0.49**	0.18	0.40**	0.15**	0.36**	0.38**	0.37**		
Motorbike thefts	0.54**	0.75**	0.44**	1	0.70**	0.14	0.55**	0.51**	0.22*	0.21*	0.39**	0.29**	0.15	0.08	0.35**	0.24*	0.30**		
Thefts of objects from cars	0.58**	0.80**	0.82**	0.70**	1	0.26*	0.44**	0.71**	0.51**	0.53**	0.61**	0.32**	0.33**	0.33**	0.48**	0.54**	0.54**		
Shoplifting	0.51**	0.30**	0.05	0.14	0.26*	1	0.38**	0.44**	0.21*	0.55**	0.47**	0.45**	0.06	0.48**	0.50**	0.62**	0.66**		
Pickpocketing	0.90**	0.78**	0.28**	0.55**	0.44**	0.38**	1	0.64**	0.29**	0.34**	0.45**	0.51**	-0.23*	0.17	0.49**	0.42**	0.64**		
Receiving stolen goods	0.79**	0.70**	0.56**	0.51**	0.71**	0.44**	0.64**	1	0.60**	0.63**	0.63**	0.54**	0.14	0.48**	0.73**	0.79**	0.75**		
Homicides, including attempts	0.48**	0.31**	0.47**	0.22*	0.51**	0.21*	0.29**	0.60**	1	0.59**	0.48**	0.16	0.19	0.32**	0.54**	0.67**	0.58**		
Voluntary wounds	0.63**	0.36**	0.37**	0.21*	0.53**	0.55**	0.34**	0.63**	0.59**	1	0.76**	0.52**	0.21*	0.52**	0.72**	0.82**	0.78**		
Blackmails, threats	0.60**	0.51**	0.49**	0.39**	0.61**	0.47**	0.45**	0.63**	0.48**	0.76**	1	0.51**	0.35**	0.52**	0.62**	0.71**	0.70**		
Rape and other sex offences	0.61**	0.45**	0.18	0.29**	0.32**	0.45**	0.51**	0.54**	0.16	0.52**	0.51**	1	0	0.54**	0.68**	0.50**	0.60**		
Family offenses	-0.2	0.07	0.40**	0.15	0.33**	0.06	-0.23*	0.14	0.19	0.21*	0.35**	0	1	0.20*	0.04	0.13	0.02		
Drug offenses	0.36**	0.17	0.15	0.08	0.33**	0.48**	0.17	0.48**	0.32**	0.52**	0.52**	0.54**	0.20*	1	0.57**	0.63**	0.55**		
Damage to vehicles	0.72**	0.40**	0.36**	0.35**	0.48**	0.50**	0.49**	0.73**	0.54**	0.72**	0.62**	0.68**	0.04	0.57**	1	0.80**	0.74**		
Illegal weapon ownership	0.70**	0.39**	0.38**	0.24*	0.54**	0.62**	0.42**	0.79**	0.67**	0.82**	0.71**	0.50**	0.13	0.63**	0.80**	1	0.85**		
Violence against police	0.84**	0.54**	0.37**	0.30**	0.54**	0.66**	0.64**	0.75**	0.58**	0.78**	0.70**	0.60**	0.02	0.55**	0.74**	0.85**	1		

Source: Ministry of Interior

Crimes rates are offenses per 100,000 people. The département population means were used as weights (there are 95 départements in France)

\*\* = significant at the 1% level

\* = significant at the 5% level

Table A.2: Geographic and temporal cross-correlations among crimes rates (1990-2000)

	Property Crimes										Violent Crimes					Other Crimes			
	Armed or violent robberies	Burglaries	Car thefts	Motorbike thefts	Thefts of objects from cars	Shoplifting	Pickpocketing	Receiving stolen goods	Homicides, including attempts	Voluntary wounds	Blackmails, threats	Rape and other sex offences	Family offenses	Drug offenses	Damage to vehicles	Illegal weapon ownership	Violence against police		
Armed or violent robberies	1	0.84**	0.80**	0.60**	0.81**	0.41**	0.85**	0.69**	0.57**	0.68**	0.43**	0.47**	0.05	0.55**	0.81**	0.68**	0.67**		
Burglaries	0.84**	1	0.86**	0.72**	0.88**	0.35**	0.86**	0.69**	0.62**	0.47**	0.26**	0.33**	-0.04	0.41**	0.68**	0.58**	0.50**		
Car thefts	0.80**	0.86**	1	0.66**	0.87**	0.22**	0.73**	0.65**	0.64**	0.44**	0.28**	0.25**	0.16**	0.34**	0.65**	0.55**	0.42**		
Motorbike thefts	0.60**	0.72**	0.66**	1	0.76**	0.25**	0.61**	0.50**	0.50**	0.21**	0.05	0.07**	0.02	0.13**	0.45**	0.29**	0.20**		
Thefts of objects from cars	0.81**	0.88**	0.87**	0.76**	1	0.34**	0.81**	0.68**	0.66**	0.42**	0.24**	0.22**	0.09**	0.39**	0.64**	0.59**	0.45**		
Shoplifting	0.41**	0.35**	0.22**	0.25**	0.34**	1	0.41**	0.30**	0.17**	0.34**	0.11**	0.36**	-0.02	0.30**	0.40**	0.34**	0.39**		
Pickpocketing	0.85**	0.86**	0.73**	0.61**	0.81**	0.41**	1	0.66**	0.58**	0.49**	0.27**	0.31**	-	0.48**	0.64**	0.64**	0.57**		
Receiving stolen goods	0.69**	0.69**	0.65**	0.50**	0.68**	0.30**	0.66**	1	0.56**	0.52**	0.38**	0.30**	0.15	0.49**	0.58**	0.66**	0.59**		
Homicides, including attempts	0.57**	0.62**	0.64**	0.50**	0.66**	0.17**	0.58**	0.56**	1	0.37**	0.26**	0.14**	0.04	0.25**	0.47**	0.57**	0.49**		
Voluntary wounds	0.68**	0.47**	0.44**	0.21**	0.42**	0.34**	0.49**	0.52**	0.37**	1	0.69**	0.61**	0.28**	0.65**	0.67**	0.63**	0.77**		
Blackmails, threats	0.43**	0.26**	0.28**	0.05	0.24**	0.11**	0.27**	0.38**	0.26**	0.69**	1	0.45**	0.49**	0.54**	0.41**	0.56**	0.62**		
Rape and other sex offences	0.47**	0.33**	0.25**	0.07**	0.22**	0.36**	0.31**	0.30**	0.14**	0.61**	0.45**	1	0.16**	0.49**	0.53**	0.36**	0.52**		
Family offences	0.05	-0.04	0.16**	0.02	0.09**	-0.02	-0.11**	0.15**	0.04	0.28**	0.49**	0.16**	1	0.25**	0.11**	0.18**	0.13**		
Drug offences	0.55**	0.41**	0.34**	0.13**	0.39**	0.30**	0.48**	0.49**	0.25**	0.65**	0.54**	0.49**	0.25**	1	0.53**	0.61**	0.58**		
Damage to vehicles	0.81**	0.68**	0.65**	0.45**	0.64**	0.40**	0.64**	0.58**	0.47**	0.67**	0.41**	0.53**	0.11**	0.53**	1	0.58**	0.63**		
Illegal weapon ownership	0.68**	0.58**	0.55**	0.29**	0.59**	0.34**	0.64**	0.66**	0.57**	0.63**	0.56**	0.36**	0.18**	0.61**	0.58**	1	0.76**		
Violence against police	0.67**	0.50**	0.42**	0.20**	0.45**	0.39**	0.57**	0.59**	0.49**	0.77**	0.62**	0.52**	0.13**	0.58**	0.63**	0.76**	1		

Source: Ministry of Interior. 1,045 observations.

Crimes rates are offenses per 100,000 people. The département population means were used as weights (there are 95 départements in France)

\*\* = significant at the 1% level

\* = significant at the 5% level

Table A.3: Geographic cross-correlations among growth rates of crime rates (1990-2000)

	Property Crimes										Violent Crimes						Other Crimes			
	Armed or violent robberies	Burglaries	Car thefts	Motorbike thefts	Thefts of objects from cars	Shoplifting	Pickpocketing	Receiving stolen goods	Homicides, including attempts	Voluntary wounds	Blackmails, threats	Rape and other sex offences	Family offenses	Drug offenses	Damage to vehicles	Illegal weapon ownership	Violence against police			
Armed or violent robberies	1	0.17	0.26*	0.19*	0.40**	0.08	0.19	0.20*	0.2	0.21*	0.08	-0.08	0.03	-0.07	0.22*	0.32**	0.15			
Burglaries	0.17	1	0.60**	0.52**	0.68**	0.03	0.37**	0	0.17	0.01	-0.31**	0.1	-0.17	0.23*	0.42**	-0.28**	-0.53**			
Car thefts	0.26*	0.60**	1	0.26*	0.68**	0.17	0.37**	0.15	0.12	0.19	-0.21*	0.05	-0.1	0.17	0.24*	0.02	-0.26*			
Motorbike thefts	0.19	0.52**	0.26*	1	0.35**	-0.18	0.14	-0.05	0.03	-0.17	-0.20*	-0.1	-0.12	0.01	0.19	-0.29**	-0.31**			
Thefts of objects from cars	0.40**	0.68**	0.68**	0.35**	1	0.17	0.39**	0.09	0.30**	0.16	-0.16	0.13	-0.15	0.26	0.33	0.04	-0.23*			
Shoplifting	0.08	0.03	0.17	-0.18	0.17	1	0.06	0.25*	0.13	0.12	0.06	0.04	0.16	0.1	-0.11	0.30**	0.25			
Pickpocketing	0.19	0.37**	0.37**	0.14	0.39**	0.06	1	0.12	0.12	0.04	-0.15	0.06	0.05	0.17	0.11	0.02	-0.13			
Receiving stolen goods	0.20*	0	0.15	-0.05	0.09	0.25*	0.12	1	0.03	0.08	-0.04	-0.04	0.2	0.03	-0.02	0.19	0.19			
Homicides, including attempts	0.2	0.17	0.12	0.03	0.30**	0.13	0.12	0.03	1	0.04	-0.05	0.17	-0.02	0	0.02	0.2	0.09			
Voluntary wounds	0.21*	0.01	0.19	-0.17	0.16	0.12	0.04	0.08	0.04	1	0.25*	0.13	0.27*	0.10*	0.1	0.24*	0.16			
Blackmails, threats	0.08	-0.31**	-0.21*	-0.20*	-0.16	0.06	-0.15	0.09	-0.05	0.25*	1	-0.08	0.2	-0.21**	-0.01	0.50**	0.54**			
Rape and other sex offences	-0.08	0.1	0.05	-0.1	0.13	0.04	0.06	-0.04	0.17	0.13	-0.08	1	0.09	0.34	0.01	0.07	0			
Family offences	0.03	-0.17	-0.1	-0.12	-0.15	0.16	0.05	0.2	-0.02	0.27**	0.2	0.09	1	-0.04	-0.14	0.02	0.26**			
Drug offences	-0.07	0.23*	0.17	0.01	0.26**	0.1	0.17	0.03	0	0.1	-0.21*	0.34**	-0.04	1	0.01	-0.07	-0.26**			
Damage to vehicles	0.22*	0.42**	0.24*	0.19	0.33**	-0.11	0.11	-0.02	0.02	0.1	-0.01	0.01	-0.14	0.01	1	-0.1	-0.23*			
Illegal weapon ownership	0.32**	-0.28**	0.02	-0.29**	0.04	0.30**	0.02	0.19	0.2	0.24*	0.50**	0.07	0.02	-0.07	-0.1	1	0.58**			
Violence against police	0.15	-0.53**	-0.26*	-0.31**	-0.23*	0.25*	-0.13	0.19	0.09	0.16	0.54**	0	0.26**	-0.26**	-0.23**	0.58**	1			

Source: Ministry of Interior, 1045 observations.

Crimes rates are offenses per 100,000 people. The département population means were used as weights (there are 95 départements in France)

\*\* = significant at the 1% level

\* = significant at the 5% level

Table A.4: Geographic cross-correlations among fixed effects

	Property Crimes										Violent Crimes					Other Crimes			
	Armed or violent robberies	Burglaries	Car thefts	Motorbike thefts	Thefts of objects from cars	Shoplifting	Pickpocketing	Receiving stolen goods	Homicides, including attempts	Voluntary wounds	Blackmails, threats	Rape and other sex offenses	Family offenses	Drug offenses	Damage to vehicles	Illegal weapon ownership	Violence against police		
Armed or violent robberies	1	0.93**	0.89**	0.88**	0.88**	-0.36**	0.91**	0.85**	0.54**	0.38**	-0.41**	0.04	-	0.22*	0.20*	-0.03	0.1		
Burglaries	0.89**	1	0.90**	0.90**	0.91**	-0.32**	0.92**	0.88**	0.58**	0.31**	-0.32**	0.05	-	0.26**	0.27**	0.04	0.11		
Car thefts	0.89**	0.90**	1	0.80**	0.89**	-0.37**	0.80**	0.83**	0.70**	0.38**	-0.27**	0.02	-	0.19	0.29**	0.04	0.09		
Motorbike thefts	0.88**	0.90**	0.80**	1	0.85**	-0.37**	0.81**	0.83**	0.51**	0.31**	-0.32**	-0.04	-	0.18	0.23*	-0.09	0		
Thefts of objects from cars	0.88**	0.91**	0.89**	0.85**	1	-0.17	0.85**	0.89**	0.70**	0.39**	-0.13	0.02	-	0.27**	0.45**	0.26*	0.29**		
Shoplifting	-0.36**	-0.32**	-0.37**	-0.37**	-0.17	1	-0.32**	-0.24*	-0.05	0.23*	0.67**	0.50**	0.72**	0.26*	0.56**	0.65**	0.59**		
Pickpocketing	0.91**	0.92**	0.80**	0.81**	0.85**	-0.32**	1	0.82**	0.49**	0.26*	-0.39**	-0.04	-	0.26*	0.14	0.03	0.11		
Receiving stolen goods	0.85**	0.88**	0.83**	0.83**	0.89**	-0.24*	0.82**	1	0.72**	0.45**	-0.12	0.03	-	0.40**	0.36**	0.23*	0.28**		
Homicides, including attempts	0.54**	0.58**	0.70**	0.51**	0.70**	-0.05	0.49**	0.72**	1	0.58**	0.30**	0.09	0.1	0.36**	0.54**	0.48**	0.45**		
Voluntary wounds	0.38**	0.31**	0.38**	0.31**	0.39**	0.23*	0.26*	0.45**	0.58**	1	0.39**	0.50**	0.18	0.49**	0.44**	0.40**	0.57**		
Blackmails, threats	-0.41**	-0.32**	-0.27**	-0.32**	-0.13	0.67**	-0.39**	-0.12	0.30**	0.39**	1	0.26**	0.85**	0.37**	0.52**	0.72**	0.60**		
Rape and other sex offenses	0.04	0.05	0.02	-0.04	0.02	0.50**	-0.04	0.03	0.09*	0.50**	0.26**	1	0.30**	0.40**	0.44**	0.25*	0.40**		
Family offences	-0.57**	-0.51**	-0.39**	-0.49**	-0.27**	0.72**	-0.61**	-0.33**	0.1	0.18	0.85**	0.30**	1	0.2	0.53**	0.62**	0.44**		
Drug offences	0.22*	0.26*	0.19	0.18	0.27**	0.26*	0.26*	0.40**	0.36**	0.49**	0.37**	0.40**	0.2	1	0.36**	0.46**	0.32**		
Damage to vehicles	0.20*	0.27**	0.29**	0.23*	0.45**	0.56**	0.14	0.36**	0.54**	0.44**	0.52**	0.44**	0.53**	0.36**	1	0.66**	0.61**		
Illegal weapon ownership	-0.03	0.04	0.04	-0.09	0.26*	0.65**	0.03	0.23*	0.48**	0.40**	0.72**	0.25*	0.62**	0.46**	0.66**	1	0.78**		
Violence against police	0.1	0.11	0.09	0	0.29**	0.59**	0.11	0.28*	0.45**	0.57**	0.60**	0.40**	0.44	0.32**	0.61**	0.78**	1		

Source: Ministry of Interior

Crimes rates are offenses per 100,000 people. The département population means were used as weights (there are 95 départements in France)

\*\* = significant at the 1% level

\* = significant at the 5% level

Département fixed effects were obtained as follows. We regressed logarithms of offences rates (offences 100,000 people) on year and département fixed effects, socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of unemployed among 15-24 yrs old, of unemployed among 25-49 yrs old, of unemployed among more than 50 yrs old, of unemployed not receiving UI among unemployed above 25, of men living alone, of people in single-parent families, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs).

Table A.5: Geographic cross-correlations among residuals (after regressions of fixed effects on means)

	Property Crimes						Violent Crimes						Other Crimes				
	robberies	Burglaries	Car thefts	thefts	objects from	Shoplifting	ng	stolen goods	including	wounds	threats	other sex	offenses	Drug offenses	vehicles	weapon	against
Armed or violent robberies	1	0.70**	0.57**	0.48**	0.58**	0.32**	0.48**	0.39**	0.36**	0.41**	0.40**	0.41**	0.13	0.09	0.50**	0.33**	0.29**
Burglaries	0.70**	1	0.70**	0.43**	0.72**	0.20*	0.61**	0.43**	0.41**	0.32**	0.22*	0.45**	0.11	0.09	0.39**	0.29**	0.24*
Car thefts	0.57**	0.70**	1	0.26**	0.63**	-0.14	0.33**	0.26**	0.48**	0.16	0.09	0.12	0.07	-0.05	0.27**	0.16	0.08
Motorbike thefts	0.48**	0.43**	0.26**	1	0.53**	0.21*	0.18	0.19	0.13	0.29**	0.19	0.29**	0.13	0.02	0.31**	0.03	-0.07
Thefts of objects from cars	0.58**	0.72**	0.63**	0.53**	1	0.05	0.48**	0.47**	0.50**	0.34**	0.36	0.41**	0.34**	0.28**	0.42**	0.41**	0.22*
Shoplifting	0.32**	0.20*	-0.14	0.21*	0.05	1	0.24*	0.23*	0.1	0.44**	0.34**	0.51**	0.11	0.18	0.35**	0.22*	0.41**
Pickpocketing	0.48**	0.61**	0.33**	0.18	0.48**	0.24*	1	0.43**	0.28**	0.21*	0.25**	0.22*	0.04	0.21*	0.30**	0.34**	0.23*
Receiving stolen goods	0.39**	0.43**	0.26**	0.19	0.47**	0.23*	0.43**	1	0.47**	0.37**	0.44*	0.43**	0.30**	0.32*	0.30**	0.60**	0.55**
Homicides, including attempts	0.36**	0.41**	0.48**	0.13	0.50**	0.1	0.28**	0.47**	1	0.52**	0.52**	0.41**	0.43**	0.24*	0.41**	0.52**	0.49**
Voluntary wounds	0.41**	0.32**	0.16	0.29**	0.34**	0.44**	0.21*	0.37**	0.52**	1	0.67**	0.69**	0.42**	0.35**	0.44**	0.43**	0.63**
Blackmails, threats	0.40**	0.22*	0.09	0.19	0.36**	0.34**	0.25*	0.44**	0.52**	0.67**	1**	0.56**	0.61**	0.45**	0.33**	0.61**	0.70**
Rape and other sex offences	0.41**	0.45**	0.12	0.29**	0.41**	0.51**	0.22*	0.43**	0.41**	0.69**	0.56	1	0.37**	0.34**	0.48**	0.30**	0.56**
Family offences	0.13	0.11	0.07	0.13	0.34**	0.11	0.04	0.30**	0.43**	0.42**	0.61**	0.37**	1	0.38**	0.16	0.50**	0.42**
Drug offences	0.09	0.09	-0.05	0.02	0.28**	0.18	0.21*	0.32**	0.24*	0.35**	0.45**	0.34**	0.38**	1	0.17	0.42**	0.34**
Damage to vehicles	0.50**	0.39**	0.27**	0.31**	0.42**	0.35**	0.30**	0.30**	0.41**	0.44**	0.33**	0.48**	0.16	0.17	1	0.26*	0.37**
Illegal weapon ownership	0.33**	0.29**	0.16	0.03	0.41**	0.22*	0.34**	0.60**	0.52**	0.43**	0.61**	0.30**	0.50**	0.42**	0.26*	1	0.65**
Violence against police	0.29**	0.24*	0.08	-0.07	0.22*	0.41**	0.23*	0.55**	0.49**	0.63**	0.70**	0.56**	0.42**	0.34**	0.37**	0.65**	1

Source: Ministry of Interior

Crimes rates are offenses per 100,000 people. The département population means were used as weights (there are 95 départements in France)

\*\* = significant at the 1% level

\* = significant at the 5% level

Residuals were obtained as follows. We first regressed logarithms of offences rates (offences 100,000 people) on year and département fixed effects, socio-demographic controls (fraction of foreigners coming from North Africa, of other foreigners, fraction of 15-24, of 25-49, of unemployed among 15-24 yrs old, of unemployed among 25-49 yrs old, of unemployed among more than 50 yrs old, of unemployed not receiving UI among unemployed above 25, of men living alone, of people in single-parent families, of unskilled people, of high school graduates, of those living in rural areas, of those living in cities between 20,000 and 200,000, in cities above 200,000, in Paris and suburbs. We then regressed département fixed effects on the averages