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CRIME IN A CHANGING SOCIETY: EVIDENCE FROM ROMANIA

Simona ILIE¹

Abstract

The study examines five sub-periods to analyze the characteristics of criminality in the decades following the fall of communism. It considers literature-identified risks associated with criminal activity (low level of employment, high-income inequalities), and significant changes of various nature during this time (accession to the EU, financial, political, or migrant crisis, the COVID pandemic). By using official statistics on crime and the socio-economic context, the study finds an overall decline in criminality and relative stability in recent years. However, the dynamics vary across different types of crime. Violent crime was on the decline, as was theft after 2000, while drug use and car accidents were on the rise. Other types of crime, such as economic and organized crime, showed inconsistent trends. This shift in criminal behavior highlights the thesis of the continuous transformation of crime and underscores its dependence on context, having relevant implications for social sciences.

Keywords: criminality, social change, inequality, socio-economic crises, criminal justice.

Introduction

The idea of criminality as a risk of changing society has its roots in pioneering sociological works resulting from rapid, far-reaching social changes, either of positive or negative direction (Durkheim, 1897).

Romania's evolution as a 21st-century capitalist society consists of profound transformations, in which the de-structuring of an authoritarian social and economic organization, which had lasted for half a century, gave way to democratic and entrepreneurial freedom in the development of people and communities. In addition, the transition to the market economy implied deep institutional reforms and the anchoring of Romania in a new system of international relations. Like

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other former communist countries (Gruszczyńska, 2004), Romania experienced a sharp increase in crime in the first decade of its transition, followed by a general downward trend similar to the one in the world (Tonry, 2016; Levitt, 2004).

In the search for the risk factors of criminality, different criminal forms are distinctly addressed in the literature. Papers that aim to validate criminological theories from the perspective of the socio-economic context refer to only a few criminal forms, the most frequently encountered being murder, violent attack on the person, rape, robbery (subsumed under violent crimes on the person), respectively different forms of theft, burglary (subsumed under crimes against property). Even works with a more general perspective on criminality (Tufail *et al.*, 2023; Nilsson, 2020; Blau & Blau, 1982) discuss its dynamics through the lens of these two categories. White-collar (economic) crimes, including cyber ones, as well as criminality which, by its nature, often crosses national borders (e.g., human trafficking, money laundering), are the subject of separate works, often in the monitoring of international organizations. Among the identified risk factors for criminality, one can find the standard of living, socio-economic inequalities, their derivatives or constituents, level of trust, migration, or a few demographic characteristics. However, studies are not unanimous about the impact of these factors on crime.

The present study traces the evolution of criminality in Romania over three decades of adjustments to the socio-economic and political context. To describe it, five sub-periods have been briefly defined as follows: economic restructuring and crisis (1990-2000), pre-accession economic growth (2001-2007/8), financial and political crisis (2009-2012/3), economic recovery and migration pressure (2013/4-2019), health and energy crisis (2020 onwards). With this grouping in mind, the dynamics of some of the risk factors identified in the literature are highlighted.

Unlike focused studies on criminality, the present one considers a more extensive and diverse range of offenses. Based on a descriptive approach, it observes the different responses of criminality to the context of the respective sub-period. Synthesizing these observations, the study presents the correlation of various offenses with relevant socio-economic indicators operationalizing the latter. It signals the differences resulting from the choice of alternative indicators for the same crime risk. Also, in a distinctive approach, the paper observes the dynamics of crime indicators in different stages of the justice process, which allows for reflection on their role in estimating the size and dynamics of the phenomenon (see methodological annex). Despite its limits, the study provides a sound basis for future studies aiming to identify the relationship between criminality and the socio-economic context and their most suitable estimators.

Theoretical milestones of delinquency

Durkheim (1897) pointed out that in a context of profound social changes, the dynamics of aspirations and objectives of individuals can take unexpected directions, making unclear how they can be achieved through the widely accepted means pre-existing the change. In turn, the palette of means used to attain old or new goals can change so that deviation from the rules can be inevitable in a state of confusion or anomie. Merton (1938) saw the social structure as restricting or even eliminating the possibility of achieving the goals/aspirations of some of the individuals. While the goals/values are intensively promoted and widely appropriated, the generally accepted means to achieve them are inaccessible to all social classes. The thesis of the impossibility of attaining goals due to personal contexts (including class) is also found in the Marxist theory of the conflict between social classes, where class membership (especially the proletariat and its subdivision, the segment of the unskilled or those with sporadic jobs) blocks upward mobility (Bonger, 1916).

Although the argument tended to identify it as such, Merton, like Guerry a century earlier (Friendly, 2007), saw it necessary to temper the conclusion that poverty *per se* is a trigger for crime. Guerry observed that the level of education (defined by the degree of illiteracy at that time) varied inversely with the crime rate and that criminality, albeit different by region (as it targeted the person or the property), was more frequent near urban agglomerations. Merton argued that the poor individual must value the cultural norms of the majority (aspirations, goals), which he cannot achieve with the means he can access, to create the context that generates criminality. Implicitly, we would say that the state of poverty can generate its own goals and desires and a different set of accepted means to achieve the first ones, a thesis that did not take long to appear.

Grounded on Durkheim's and Merton's arguments, the theory of institutional anomie (Cochran & Bjerregaard, 2012; Messner *et al.*, 2008) sees the set of rules, that result from the functioning of social institutions and not the social structure, as the generating mechanism of delinquency. In a social frame in which the system of norms gives economic objectives supremacy over non-economic ones (family, education, and the social/political environment), such as the American society, the action of individuals will be guided by an economic type of thinking, eroding the power non-economic norms (institutions). The idea of devaluation of norms (values) is also present in the theory of social control, which sees criminality as the result of the weakening of social relations: the extent to which individuals feel part of the group (society) determines the attachment to others, the assumption of the standard mode of action as well as the motivation to follow the rules or not (Costello & Laub, 2020; Hirshi, 2014/1986). In conditions of extreme anomie, the internalized barriers against deviation from the rules (including the violent ones) weaken.

Between Durkheim and Merton, the theory of environment as a determinant of criminality was explicitly formulated (Burgess, 1924 apud Wortley & Townsley, 2016; Shaw & McKay, 1942). The fundamental postulate of this theory is that crime depends on the characteristics, and implicitly on the opportunities, of the area in which it occurs. The pioneers of this theory saw in the attributes of the inhabited neighborhood - heterogeneity, high mobility - the motive of crime, hence the association of this perspective with social disorganization. At the same time, they signal the outline of some organized ways of action, in line with the cultural specificity of the neighborhood, different from those of society as a whole (Cloward, 1959).

Sutherland argues that these different and organized ways derive from a learned behavior, a criminal subculture, emphasizing that not only the generally accepted means can be inaccessible to everyone but also the unaccepted ones; the foundations of the theory of differential accessibility were thus laid (Cloward, 1959). From this perspective, to resort to a socially unaccepted means, the individual's inclination is not enough; his acceptance, tutelage, and recognition by other individuals who use such means are necessary. Sutherland (1940) explicitly disagreed with the assumption that crime is determined by poverty or bio-psychological factors.

Socio-economic changes in the second part of the 20th century opened up space for arguments for white-collar criminality (Sutherland, 1940) but also for the theory of opportunity (Mayhew *et al.*, 1976), the theory of routine activities (Cohen & Felson, 1979), and the rational choice perspective (Clark & Cornish, 1985; Becker, 1974) as sub-branches of environmental theory.

The various plans (countries, residential areas, neighborhoods, suburbs, blocks of flats, or locations) to which these theories can be applied consider not only the magnetism of rich or economically developed areas, mentioned by Guerry himself, but also the opportunities created by the environment as triggers for criminal behaviors. The latter results from the absence of a guardian, which may consist of the lack of homeowners (following the increase in employment), the choice of the aged people as a target group (expecting them to show less resistance), the impossibility of electronic monitoring (due to some characteristics of the physical space or absence of the necessary technique), or in more permissive or non-covering legislation (Wortley & Townsley, 2016). For all these perspectives, the environment has an active role in outlining the profile of criminality (in intensity and form), independent of individual criminogenic factors.

Rational choice theory (McCarthy & Chaudhary, 2014), in particular, sees criminality as the result of a decision-making process that considers costs (the risk of being caught, the severity of the sanction, social disapproval, etc.) and benefits (the gain or performance gained from the crime, etc) arising from the opportunities offered by the environment, applied, of course, to the personal context. The focus is on the crime, in forms that best respond to the cost-benefit relationship, and not on the individual. From this perspective, criminal involvement can be seen as a

form of occupation, albeit in an illicit sphere. This conclusion is supported by both the inverse relationship between the level of unemployment and that of crimes against property and the fact that criminal involvement requires time dedicated to prior training.

Socio-economic risk factors of criminality

Unemployment is an indicator considered frequently in understanding criminality, along with the standard of living, education, economic dynamics, demographic characteristics, etc.

Blau and Blau (1982) find the impact of poverty insignificant for overall criminality and weakly significant for robbery. Among violent offenses, rape was found in a positive correlation with the percentage of the divorced population, and murder with income inequality. Income inequality proved to be the decisive risk factor, as controlling for it, poverty did not remain significantly associated with criminality. Lieberman and Smith (1986) found poverty to be the only common risk factor for violent and property crimes in a model that did not consider inequality. The authors identify the low level of education (maximum four classes for the population aged 25 and over) and the percentage of households headed by a woman significantly positive factors for the first category of crimes, and the level of unemployment significantly positive for those related to property. Other authors (Jawali *et al.*, 2019; Nilsson, 2004; Edmark, 2004; Saridakis, 2003; Witt *et al.*, 1998) reach similar conclusions regarding unemployment and property crimes. Nilsson also finds demographic characteristics, such as the divorce rate and the percentage of foreign nationals, positively related to property crimes.

Ching-Chi and Pugh (1993) also find poverty and inequality having a positive correlation with violent offenses; the relation proved more decisive with murder, assault, and serious bodily injury than with rape and robbery. Somewhat to the contrary, based on literature review, Rufrancos *et al.* (2013) observed that the group of violent offenses was found most frequently negatively related to inequality. However, among them, murder and robbery tended more frequently to correlate positively.

Kang (2015) disentangles the overall inequality at county level and finds that inequality across neighborhoods has a positive relationship between murder, rape, and various forms of theft (larceny, burglary, motor vehicles) and supports the positive relationship between the overall inequality and crime. Added to this, a high concentration of poverty remains a risk for county criminality. The inequality within them usually had no significant impact or, in the case of rape, burglary, or theft, had a negative one. Burraston, McCutcheon, and Watts (2017) find inequality a more decisive factor than economic risk (population affected by poverty, unemployment, or females as head of household), but both significantly

positively impact violent criminality. However, at severe levels of economic risk, even moderate levels of inequality could lead to increased violent crime.

At the same time, Barone and Mocetti (2016) find that the level of inequality and the intergenerational transmission of inequality are negatively related to trust.² The more unequal and intergenerationally immobile the society by income, the greater the sense of unfairness and mistrust. This supports theories that see weak social relationships as triggers for crime.

Among the demographic characteristics that can impact criminality were found the share of old age people in the total population (less present as perpetrators but possibly more frequently as victims), the share of the young male population (more exposed to being perpetrators), the divorce rate (which makes the family nucleus economically vulnerable) (Levitt, 2004), and features of migration.

Light *et al.* (2020), similar to Bell (2019), do not find a higher propensity for crime among immigrants compared to the host population. However, Bell (2019), similar to Nilson (2004), identifies a positive relationship between property crime and illegal immigrants as a response to the limited resources they have access to. Among OECD countries, Tufail *et al.* (2023) do not confirm a relationship between the share of immigrants and violent or property crimes (burglary, theft, and car theft) but find a positive long-term relationship between the level of GDP and offenses against property. Specifically, the authors find significant GDP gaps between countries that attract property crimes by illegal immigration over time. The conclusion reconfirms inequality as a risk factor, this time the geographic, inter-state one.

Law enforcement and criminal policies offer a different perspective on the level of criminality (Levitt, 2004). They highlight the significance of allocated funds, the size of law enforcement, the available monitoring techniques, the aggressive penalizing mode of operation versus the community presence of law enforcement, and legislative aspects with impact on the level of criminality. In the case of the latter, it is about the severity of the sanctions, *de facto* coverage, or time lags in sanctioning certain behaviors.

Last but not least, in the previous four decades, the context of globalization and digitization has redefined the criminal space and the forms of criminality. It is believed that the decrease in property crimes is a direct result of these processes due to better spatial monitoring (Tonry, 2014).

The rise of digitization and globalization has increased the focus on economic and cybercrime (white-collar criminality), which thrives in these environments. It consists mainly of non-violent, financially motivated actions (crimes) of individuals who possess a high educational level or good social or professional status (hence the trust given to them), which can be systemic (perhaps even part of the institutional

² Intergenerational transmission of inequality was expressed as intergenerational income elasticity, which is an indicator expressing the extent to which an individual's incomes level correlates with his parental ones.

way of functioning), with unknown and even unidentifiable victims, nonetheless numerous, producing great or, sometimes, incalculable damages (Berghoff & Spiekermann, 2018). Crimes such as tax evasion, fraud and forgery, identity and intellectual property theft (for example, misappropriation of a technology or brand, patent), bribery, abuse of trust or power, influencing public procurement, elections, or the stock market belong to this category. Over the last twenty years, online crime has expanded significantly, either by adapting old forms of crime to the online environment or by creating new criminal opportunities: viruses installed on personal computers that allow the destruction of or access to stored information (personal, banking or company secrets), false requests for personal data from financial or public authorities (scams), cryptocurrency-related crimes or the sale of counterfeit products are examples thereof.

Like individuals, legal persons can be on one side or the other of the criminal phenomenon. They can resort to creative accounting practices to optimize the tax burdens owed; the transnational ones can speculate the legislative differences between countries, or they can serve as a front for money laundering crimes.

On the other hand, a study by PricewaterhouseCoopers (PwC, 2022; PwC, 2018) finds almost 1 in 2 companies' victims of economic and cybercrime; 49% (in 2018, the maximum of the last 20 years), respectively 46% (in 2020) of the entities participating in the study declared that they were victims of such crimes in the previous two years. In this interval, cybercrime became the most frequent form in almost all economic branches, surpassing the criminal behavior of customers (e.g., theft of products/services) or unprofessional/illegal practices of employees). It is not by chance that the criminality with external perpetrators has increased; in the top 3 in 2022 were the hackers (31%), the clients of the company (29%), and people belonging to some organized crime networks (28%).

Both companies and individuals can carry out legal activities in content, but outside the conditions established by law, whose economic result pertains to the informal economy; its drivers can be a higher immediate profit, possibly motivated by poverty, financial instability, or just avarice. Activities such as unregistered work, underdeclared salary, sales without tax receipt, intellectual property theft, and other much more consistent forms of tax evasion carried out by companies through the game of financial optimization and return/non-payment of VAT (Grecu, 2015³) can be found here (Schneider, 2022; Stănculescu & Ilie, 2001). Economic results of illicit activities, usually part of organized crime, are added to these. Organized crime can develop around one or more criminal forms but is frequently found in acts of smuggling, actions against flora, fauna, and other natural resources, human trafficking, illegal activities implying state border crossing, and illicit

³ By taking advantage of differing laws and regulations in various countries, some companies can declare a zero-budget year for several consecutive years. This allows them to be exempt from paying tax on profit or dividends in the country where they operate.

trafficking in drugs or weapons (GITOC, 2021). In 2021, a risk score of 4.87 (out of 10) for the presence of these criminal forms was identified globally, a level considered moderate (GITOC, 2021, 29). The highest exposure was identified in the coastal countries (5.33), as in Europe the score varied between a minimum of 3.60, in the Nordic countries, and a maximum of 5.19, in the Central Eastern European region. Part of both high-risk subgroups, Romania had an overall score of 4.13 (GITOC, 2021, 167).

Context and risks of criminality in Romania

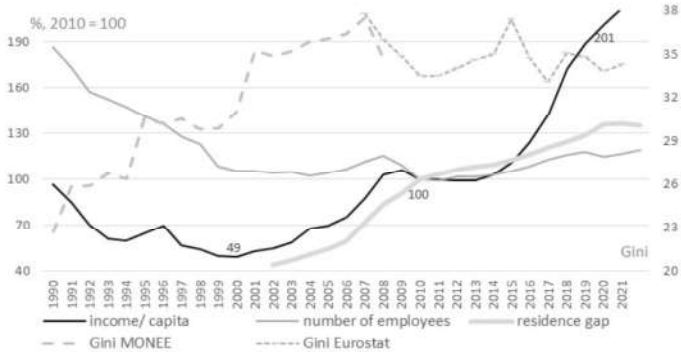
The Romanian society of the last decades stands out as a society marked by income inequality, in which we find arguments in favor of the excessive importance given to economic goals (in line with the theory of institutionalized anomie). Undoubtedly, the return to the capitalist organization of society was a profound change (in Durkheim's terms), with an initial negative impact on living standards (in the first decade). Later, the economic situation improved, but a significant gap against European countries remained: the median per capita income in Romania increased from 11% in 2007 to only 30% of the European average in 2022, respectively 33% in 2023 (Eurostat, ILC_DI03). Furthermore, income inequality in the country has risen to some of the highest levels in Europe (Table 1, Figure 1). The disparity between different residential areas regarding the risk of poverty remains significant (Ilie, 2021 55). The already low confidence in the possibility of affirmation /success in life decreased even more, from 2.7 to 2.4 between 1990 and 2010 (Mărginean, 2020).

The (eventual) delayed legal response to new criminal opportunities in Romania and neighboring countries has sparked debates about the rational choice theory as a factor in crime.

Throughout the last three decades, economic and social development indicators and events of various nature allowed for the delimitation of a few sub-periods in the dynamics of Romanian society, briefly presented below.

Economic restructuring and crisis (1990-2000). Restructuring, privatization, gradual layoffs, and liberalization of the movement of people, goods, and increasing prices characterized the entire decade. Two waves of hyperinflation shattered the population's financial resources and small-entrepreneurial initiatives. In this first stage, the majority of the population became the owner of the dwelling but the per capita income fell to half of the level of 1990. In the same period, the number of employees decreased to almost half, simultaneously with the formation of a substantial segment of the self-employed population. The latter, mostly on own account (without employees) or family businesses with working household

members, represented an economically vulnerable segment in search of survival resources. While the resumption of economic growth was slow, the population of the areas directly affected by mass restructuring paid attention to the working abroad alternative, even in difficult migration conditions developed on informal networks, and with significant costs (Şerban, 2006). Since 1991, the lack of a job was no longer sanctioned, and for 20 years, until Law 176/2010, which provided for the obligation of wealth declarations for civil servants, the origin of the wealth was no longer questioned. The year 2000 can be considered a zero moment of post-socialist Romanian development, with the lowest population income.



Source: INS (price index, _BUF105, _AMG156D, _POP106A, _POP108B);⁴ Eurostat ILC_DI12; Proiect TransMONEE (Unicef)

Figure 1. Population and living standards indicators*

Table 1. The persistence of poverty risk and income inequality: Romania vs. Europe

| | | 2013 | 2019 | 2022 |
|---------------------|------------|------|------|------|
| Poverty persistence | Romania | 17.1 | 16.8 | 15.4 |
| | EU average | 9.6 | 10.9 | 10.4 |
| Gini Index | Romania | 34.6 | 34.8 | 32.0 |
| | EU average | 29.9 | 29.7 | 29.0 |

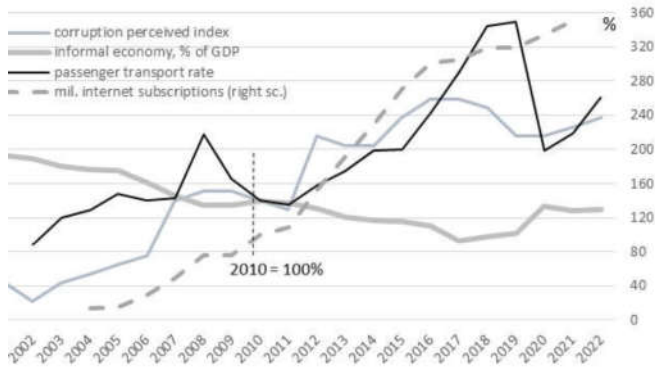
Source: Eurostat_tessi190, _tessi020.

⁴ INS – National Institute for Statistics datasets; The *residence gap* indicator reflects the difference between the population by domicile and that resident in Romania, as an index compared to 2010. The TransMONEE and Eurostat data refer to the Gini indicator, calculated as monetary income available in the household per capita (until 2006), respectively per equivalent adult (subsequent).

Economic growth and preparation for accession (2001-2007/8). The pre-accession period, and the moment of accession to the EU occurred in a positive economic context, accompanied by improving figures regarding the perception of the corruption index (Figure 2). In 2002, self-employment exceeded 2/3 of the total rural employment, following a downward trend (Ilie, 2021). At the same time, notable changes in the financial field have occurred: relaxation of income taxation, liberalization of mortgage loans, and intensification of consumer loans in relatively easy conditions. The latter marked the beginning of a risk largely unfamiliar to Romanians until then: the indebtedness to banks. It became notable already before 2008 (BNR, 2007), doubling the sharp devaluation of incomes of the previous decade. Towards the end of the period, there were opportunities for waged employment, but not consistently in rural areas, along with legislative adjustments favorable to pension income. Moreover, six years of this stage were marked by severe climate risks (Stanciu *et al.*, 2010) - floods, droughts, and excessive temperatures - which further eroded the income resources of the population, especially rural ones. Although *per capita* income doubled by the end of the period against its beginning, inequality continued to rise. Emblematic for this period was the gradual relaxation of migration to the European space (in 2002 and 2007) for the population looking for more profitable economic alternatives, not always in safe or legal forms. The *residence gap* indicator, a proxy for the temporary internal or international migration phenomenon, registered a continuous increase after 2002, slowing down since the financial crisis.

International in scope, **the financial crisis** (2009-2012/13) led to the loss of jobs, the reduction of incomes (initially in the private sector, then also in the public one), and the accumulation of debts. In 2012, Romania recorded 32.1% of households as having debts of monthly payment obligations (of any type), almost triple the EU average (11.6%; Eurostat, ILC_MDES05). By protecting incomes for a large segment of the population (increasing the minimum wage and pensions at the beginning of the crisis), and by measures that limited incomes in the upper zone, inequality decreased during the years of the financial crisis. Under the imperative of economic stability, public spending was severely restricted between 2010-2012 (Ilie, 2020).

Following a moment of change in the Romanian electoral system (decoupling the presidential elections from the legislative ones, the possibility of voting from abroad, the organization of a referendum to suspend the President, the collapse of the level of voter turnout, contesting the results and public accusations of fraud) the period was characterized by a **political crisis**, too (Zamfir *et al.*, 2011). Against this background, the elections that followed (2015) and the infusion of European funds, along with the concern for public expenditures ricocheted in the topic of the anti-corruption fight. In this context, the index of perceived corruption improved towards the end of the period, the expansion of IT infrastructure continued, and there was a slightly downward trend in the informal economy (Figure 2).



Source: author's computation based on Transparency International data; Schneider, 2022; INS_PTT104B, _TRN135A

Figure 2. Criminality's risk and opportunity indicators

Economic recovery and migration pressure (2013-2019). The period was characterized by positive economic trends in the European space, but considerable gaps in the standard of living have been maintained between Romania and most European countries. Internally, this period was characterized by the substantial increase in the minimum wage, which doubled its real value in just 5 years, while employment in the countryside improved, but still maintaining the gap in living standards compared to the urban. The level and the persistence of poverty risk remained among the highest in EU27 (Table 1).

At the same time, the perceived corruption index (PCI) continued to improve in Romania, doubled by the increase in trust in the Parliament, Justice, and Police. The last ones recovered from their minimum values recorded during the Romanian political crisis (2011). Only trust in Justice exceeded pre-crisis levels (with a score of 4.7 against a European average of 5.2). However, they remained below the European average. Trust in people did not follow the same positive evolution: consistently below the European average, between 2003 and 2016, it decreased from 5.5 to 4.8 (Mihalache, 2019, 273-276). PCI has continued to improve, but its maximum values (between 44 and 48, during 2016-2018) were lower than the EU area average (65-67), and half of the maximum recorded in Germany, the Netherlands, Switzerland, and the Nordic countries (over 80).⁵

Under these conditions, the Romanian population's interest in emigration only tempered. The regulations for the formalization of temporary work in the EU space supported the periodic outflow from the national space, as the national regulations for attracting labor force from the non-EU space fueled the inflow.

⁵ <https://www.transparency.org/en/cpi>.

The migration of refugees as a result of internal ethnic wars in African and Middle Eastern countries, the withdrawal of the US and NATO from Afghanistan, and later the war in Ukraine added to these transits. Passenger traffic at the border almost doubled between the end and the beginning of the period (from 38.5 to 69.8 million people; PFR, 2014-2023). More or less organized forms of crime have found new ways within this intensified international traffic.

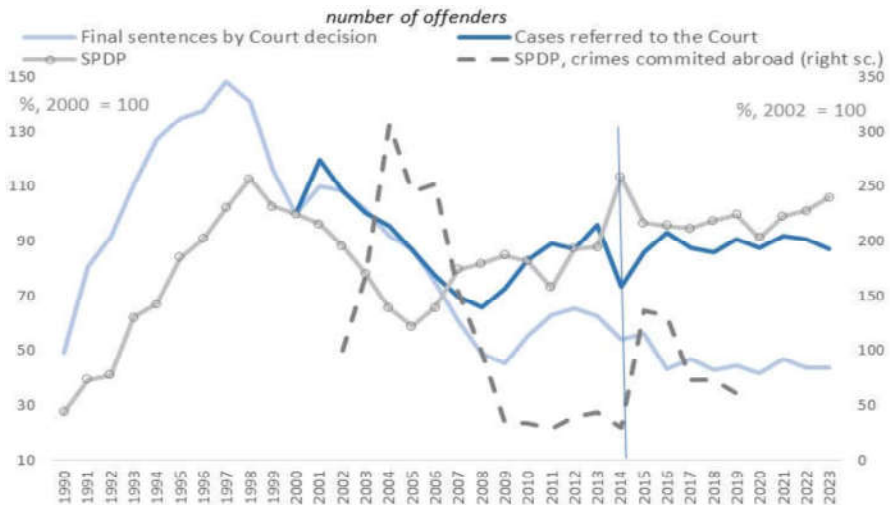
Health and Energy Crisis (2020+). The COVID-19 pandemic has put governments and societies in front of an unprecedented situation, with implications in the economic and social sphere, as well as on criminality. By hindering the usual opportunities for crime, the first impact of the unusual restrictions of the COVID-19 pandemic was to reduce criminality. However, freezing the economy for several months affected employment (and income) unevenly, depending on the economic branch (Ilie, 2020), fueled the informal economy (Schneider, 2022), and predictably created inflation straining the economy. The context is marked by passenger traffic, through customs but also domestically, which decreased in one year (2020) to levels similar to the end of the financial crisis sub-period (2013-14) and even the peak of traffic before it (Figure 2). Not the increase in travel or commercial transport, but an accelerated pace or their significant variations over a short time impacted both the opportunity to occur, and the chances to identify illicit situations at the border.

The war in Ukraine constituted a particular source of fear for society and sudden challenge on Romania's borders. Romania hosted refugees and allowed goods of Ukrainian origin to be traded on its domestic market, being also a transit corridor to other EU countries due to its geographical position. After just one year, its legislative openness for the trade of Ukrainian products was followed by closure through OUG84/2023, which limited it. The motivation of the Ordinance signaled the negative impact of such imports on the activity of the internal producers. The risk remained even after the Ordinance as long as the entry of such products through third-party countries outside the regulation was speculated by importers (Stanciu, 2024). In addition, the impact of the war on natural gas supplies from Russia to Europe fueled the European energy crisis. Against this background, in 2022, inflation in Romania reached a 2-digit level (13.8%) for the first time since 2004.

This context rekindled focus on the informal economy, which, like PCI, has constantly had unfavorable levels compared to the European space. Despite improvements, the gap has increased, from +50% of the European average until 2012-2013 to +66% during the health crisis years (Schneider, 2022, 303-304).

Peculiarities of Romanian criminality

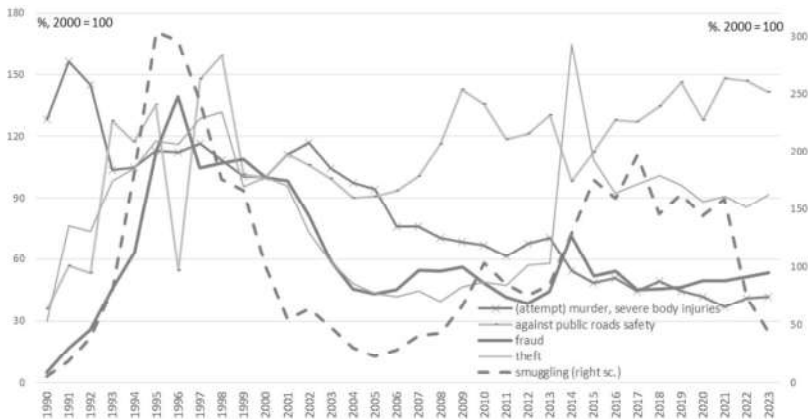
Reflecting different stages of the justice process, the crime indicators in Figure 3 confirm that the explosion of poverty in the decade of economic restructuring accompanied the explosion of crime, followed by a significant decrease during the economic growth and optimism of the pre-accession period. Although the frequency of several types of offenses, including those against persons, increased in the second half of the first decade, the trend of criminality was marked by the dynamics of smuggling and scam/deceit (Figure 4). The cases of smuggling investigated by the Police increased 6 times over 6 years in the first decade, with significantly lower subsequent increases. Smuggling tends to be positively related to periods of economic growth, while thefts increased in times of both rising and falling incomes. Offenses committed abroad were positively correlated with the liberalization of international traffic and the economic context, resulting in a significant decrease during the financial crisis. However, the subsequent positive economic context was no longer accompanied by equally pronounced increases in external criminality. The trend of the 2000s decade supports the conclusion of exporting criminality to countries with a higher standard of living, as indicated by Tufail et al. (2023). The dynamics of the next decade may indicate not only its cessation, possibly due to the reduction of income differences, but also potential changes in actual criminal forms or procedural adjustments when criminality is committed outside national borders.



Source: INS_JUS tables; MP, 2013-2022; MMSS, 2014-2020.

Note: SPDP - crimes solved by the Police or declined to the Prosecutor's Office if the Police declines jurisdiction.

Figure 3. Criminality size by procedural stages of the justice process



Source: INS_JUS109B.

Figure 4. Some criminal form dynamic (SPDP)

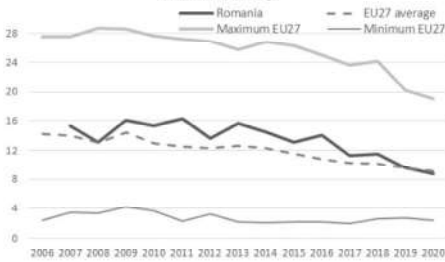
Subsequently, only the dynamics of convictions followed a downward trend (in a negative relation to income). The referral to the Court, and offenses under investigation followed this trend only until the outbreak of the financial crisis. Lately, the criminal phenomenon has intensified, albeit the referrals to the Court seem relatively stagnant in the last 5-6 years. The systematic decrease in convictions may be attributed to changes in the characteristics of criminality or procedural aspects, which may allow for more opportunities for delays and appeals, generally extending the time required to document and prove a criminal act.



Source: INS_JUS104A.

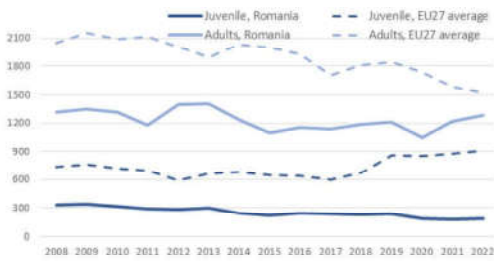
Figure 5. Final sentences by Court decision: dynamic by gender and age

a. Household perception: crime, violence, or vandalism in the area where they live (% of households)



Source: Eurostat, ILC_MDDW03

b. Number of suspects in the Police records per 100,000 inhabitants



Eurostat, CRIM_JUST_AGE

Figure 6. The level of criminality Romania vs. Europe: perception and suspects

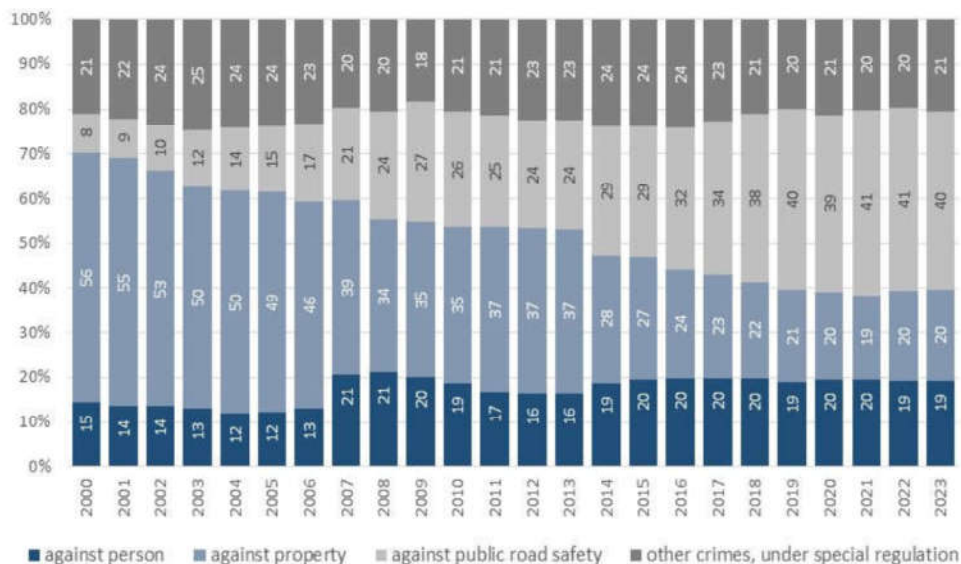
The dynamics of the final conviction/ruling also support the hypothesis of changes in the nature and frequency of criminality (Figure 5). While the stage of restructuring and the economic crisis was accompanied by increases in criminality regardless of gender and age, with juveniles having the highest increases in criminal involvement, its subsequent evolution implies juveniles less and less. After 2020, the final rulings against juveniles represented below 10% of their 2000 level, respectively below 2% of the total convictions of the period. This is not the case for the female population, for whom, after a decade of minimal presence in the criminal sphere, mechanisms or stimulus contexts for their involvement seem to have been activated. These have led to increases in convictions for female criminals since 2019, at more than 50% of their 2000 level, to the highest weight of women in the total number of final rulings: approx. 16-17%, compared to levels below 11.5% previously, respectively approx. 14% in 2000 (INS_JUS104A).

However, the population's perception tends to support the version of the decrease in the criminal phenomenon for the last decade and a half (Figure 6a). In many countries, criminality was felt to be decreasing. However, significant major fluctuations in this perception have occurred: in recent years, in Greece, there has been a notable increase, from 8.5% to 18.1%, while spectacular decreases occurred in Estonia and Latvia, from levels above 20% at ones among the lowest today.

Romania closely followed the trend and level of the European average regarding perceived criminality in the area of residence. A positive outlook for the country profiles with the estimated size of the phenomenon is indicated by the number of suspects in Police records/investigations (Figure 6b). Although the levels in Romania are significantly lower than the European average by both observed age segments, the situation has improved only concerning juveniles, whose criminal involvement follows a downward trend.

The statistics of the referral to the Courts reveal a considerable change in the structure of criminality over the last three decades (Figure 7). Road traffic offenses have increased sharply, numerically, and as a percentage, up to approximately

40% of all cases referred to the court. Other major criminal categories contribute approximately 20% each, on the background of the decrease to more than half the weight of the offenses against property.



Source: MP, 2013-2022

Figure 7. The Structure of Criminality by General Categories (referrals to the Court)

The downward trend of property crimes was due to the more than 4-fold decrease in the number of thefts (Figure 8a), along with the increase in the standard of living, and simultaneously with the expansion of digitization (theoretically both unfavorable factors of this type of offenses). On the other hand, thefts show a decreasing share among offenses against property, from 77 to 60% between 2000 and 2017, but increased afterward (65% in 2023). Except for the destruction type of crime, those against property had a general downward trend, with increases during the economic crisis. With the slowest decline and involving aspects of violence, robberies have halved in twenty years to less than a quarter of the referrals to the Court for theft.

Large-scale targeted thefts have increasingly replaced the classic forms of theft from homes: on currency exchange offices and ATMs, attacks on carriers on pension payment day or bank transfer machines (RI, 2009; Ghidovat, 2004), and various scams/deceit. As a result of the latter, victims, individuals (usually old age people), or legal entities were tricked into making transfers or transmitting personal data, being deprived of considerable sums of money (Sofronia, 2024; Cristescu,

2023;⁶ Replica, 2022; IPJ, 2019; MAI, 2014; PR, mai 2011; PR, februarie 2011; Ziarul de Prahova, 2008; Adevărul, 2001).

Offenses against a person do not cluster around a dominant one (Figure 8b), but generally the trend is downward. Violent crime was down, especially murder and fatal blows. The referrals to Court for rape were sharply downward during the pre-accession period, reaching their minimum at the end of the financial crisis; subsequently, they registered increases, even under a positive evolution of incomes. Similar to theft, fatal road traffic accidents tended to be inversely correlated with the standard of living, as did family abandonment (e.g., legal duties towards family members); the latter's level is currently 10% of that of two decades ago.

Human trafficking crimes, especially cross-border ones, require a specific identification process that depends on human resources and the available techniques for tracking and surveillance. Often part of organized crime, the time needed to draw up indictments can vary considerably from case to case, and offenses of this type are not reasonably expected to follow a consistent trend.

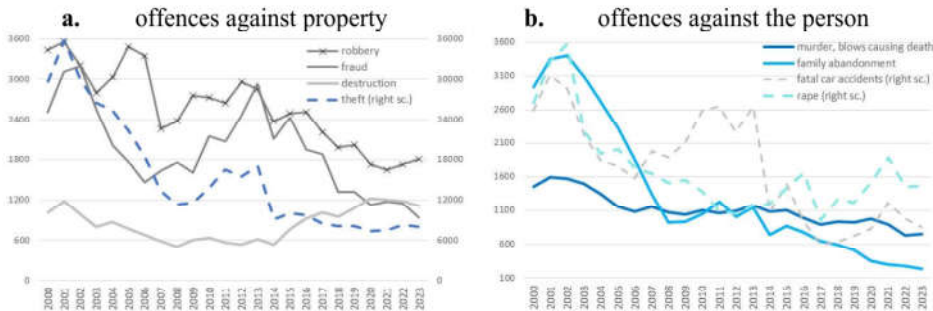


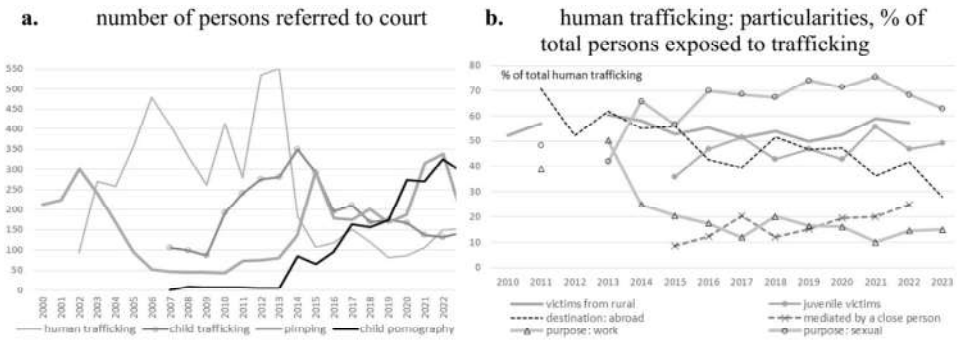
Figure 8. The number of persons referred to Court for...

The referrals to the Court for human trafficking (Figure 9a) registered an upward trend immediately after the liberalization of international migration (2002). However, they continued at high rates even during the financial crisis period, probably due to the time required to identify and document the crime. Pimping, which stagnated during the financial crisis, but registered a revival in the migration context that followed it, was on a counter-time dynamic. The risk to juveniles increased initially through exposure to trafficking and later through exposure to inappropriate sexual behavior and child pornography.

Alongside its decrease, the offense of human trafficking has changed its particularities in the last decade (Figure 9b). Trafficking for labor exploitation, significant during the years of the financial crisis, has now been surpassed by that for sexual purposes. The latter became predominant simultaneously as most traffic was oriented towards the national space and the expansion of mediation through

⁶ <https://adevarul.ro/tag/metoda%20accidentul>.

people close to the victim. Regardless of these changes, minors represented 40-50% of trafficked persons.



Source: MP, 2013-2022

Source: ANPIT, 2014-2024

Figure 9. Human trafficking and good behavior offenses



Source: MP, 2013-2023

Figure 10. Border related offences

At the end of the communist era, with restrictions on international migration, the referrals to the Court for fraudulent border crossings were down due to the gradual liberalization of people movement; nowadays, there are only a few dozen such cases (Figure 10). Instead, migrant trafficking has become an issue doubled by the refugee migration. During the **health and energy crisis**, the identified illegal border crossings fluctuated dramatically, doubling one year and halving the next. Specifically, there were 45,000 cases in 2020, 91,000 in 2021, and 44,000 in 2022. These figures exceed the average of only about 2,000 cases per year recorded from 2013 to 2016 by more than twenty times. The number of detected facilitators, carriers, or guides increased from fewer than 200 between 2013 and 2016 to over 550 after 2020 (PFR, 2014-2023). Thus, the level between 100 and

200 referrals to the Court for migrant smuggling corresponds somewhat to the reality of this type of crime before 2018.

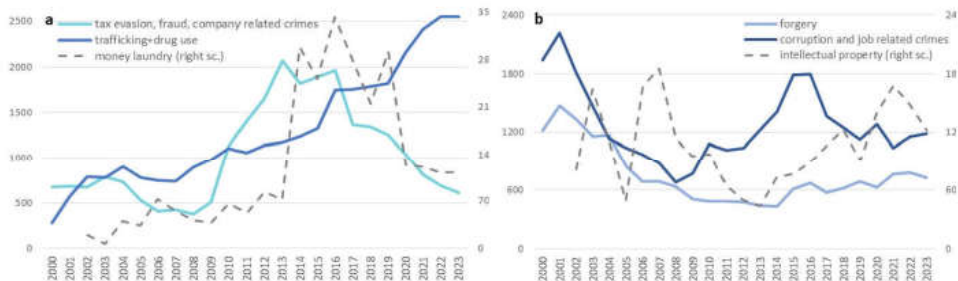
Smuggling, or the illegal trafficking of goods, tends to increase in restrictive economic conditions, such as the challenging periods like those before 2000 or during the financial crisis. These circumstances create a fertile ground for contraband activities. Contraband items commonly identified at the country's border include heritage objects, gold, silver, cars, goods protected by intellectual property laws, and products that pose risks to public health and the environment, such as drugs, tobacco, poached wildlife, and hazardous waste. Additionally, during the pandemic, there was an increase in the contraband of sanitary products.

Smuggling has long been associated with the cigarette trade, which has decreased by half in volume over the past decade. In 2023, *Romania's illegal cigarette trade fell below the EU average for the first time in 15 years* (MAI, 2023). Additionally, while the number of groups involved in cigarette and tobacco trafficking has decreased by seven times, the size of these groups has increased; on average, the number of individuals identified involved per group rose from 7.5 to 12.4 people between 2014 and 2023 (PFR, 2014-2023). Such a dynamic may be the response of criminal organizations to increase their survival chances to the improvement of surveillance techniques and the intensification of international collaborations to combat illegal cigarette trade. Drug-related offenses have been steadily growing over the last decade. The cases of drug trafficking detected by the Border Police have increased more than tenfold, and the amount of drugs detected has increased from less than 10 kg (2013) to more than 1000 after 2019 (except the year 2020), like the assortment of products (PFR, 2014-2023). Cases under medical observation following drug use (as emergencies or treatment) indicate young people under 25 as the dominant age group among victims, with an increasing prevalence in the last decade; currently, approx. 40% of those under treatment belong to this group, with over a quarter of them (13% of the total, respectively) being under 19 years old (ANA, 2014-2023).

White-collar crimes encompass a diverse range of criminal activities, each with its various methods of execution. Ponzi schemes, such as CARITAS, SAFI, and FNI, were notable examples during the first period. Amid the inflationary context of that time, these schemes promised investors a multiplied return on their investments. However, by 1999, all of these schemes had collapsed. Convictions and arrests for such scheme offenses occurred ten years after their failures (Baciu, 2018).

As mentioned, tax evasion takes different forms, fueling the informal economy. Since the pre-ascension period, prosecutions for such offenses have steadily increased; the referrals for tax evasion increased sharply once the effect of the financial crisis was felt, while those for money laundering surged at the end of the same period. After 2010, the taxes and fees collected as percentage of GDP were among the lowest in Europe, averaging 27%, well below the EU average of 41%

(Eurostat: gov_10a_taxag). Additionally, uncollected VAT reached high levels, exceeding 33% of GDP, in stark contrast to the European average of 15% during the financial crisis; the latter dropped to below 10% in the restrictive conditions of the pandemic crisis (EC, 2022; EC, 2020; Poniatowski *et al.*, 2016).



Source: MP, 2013-2023

Figure 11. White-collar crimes (number of persons referred to Court)

With the growth of IT infrastructure, theft has also evolved. This includes practices such as bank card cloning (Moldoveanu, 2022; MAI, 2011; PFR, 2008) and cyberattacks. The latter often involves perpetrators impersonating legitimate institutions or departments, such as IT services, banking units, or the Ministry of the Interior, to obtain personal or bank account information. The Romanian population was among the most exposed to identity theft in the European space (Williams, 2016).

Also, with the first cases reported in the early 2000s, plagiarism of scientific papers belonging to well-known institutional representatives continues to be identified (Șercan, 2022; Pantazi, 2018; Radu, 2017). Furthermore, corruption and job-related offenses have upsurged during economic growth after the financial crisis. However, intervals exceeding 8 years between being referred to court and conviction or even statutes of limitations (Burlă, 2023; N.G., 2023), and the combination of the financial and political crisis, motivate reservations in advancing hypotheses regarding the correlation with possible risk factors.⁷ The first cases of corruption and job-related offenses by a public authority or expert were also reported at the beginning of the 2000s. However, they multiplied after the financial and political crisis, particularly the medical system's corruption, boosted by the tragic *Colectiv* Club fire (2014) and the COVID-19 pandemic.⁸

⁷ Criminal decision no. 1170/ March 24, 2011, High Court of Cassation and Justice; Criminal decision no. 520/ April 10, 2012, Alba Iulia Court of Appeal; Criminal decision no. 1583/ May 9, 2014, High Court of Cassation and Justice; Criminal decision no. 397/ May 23, 2016, Iași Court of Appeal (<https://www.pna.ro/comunicat>; accessed October 2023).

⁸ Press releases no. 43/PNA/April 1, 2003; Press releases no. 45 /PNA/April 7, 2003;

Unusual traffic bans due to the COVID-19 pandemic have reduced criminality by limiting the usual opportunities for crime. The whole context boosted the development of online communication to areas and forms that were not present until then, defining the frame that will shape criminal activities. It has also led to the formulation of restrictions on internationally transited goods, new rules, and the emergence of new products, widening the range of counterfeit and smuggling and even covering offenses against public health (e.g., thwarting the fight against disease).

Table 2 summarizes the stimulus-offense relationships based on the correlation coefficient. It should be noted that the relationships highlighted by the significant correlation coefficients do not necessarily indicate a causal relationship between them; a high level of correlation can only result from their simultaneity, while a more complex model could reveal another stimulus mediating the correlation's intensity. Migrant trafficking has a negative relationship with the national Gini index and a positive one with the PCI. This can be seen as the result of the simultaneity of the phenomena, considering the context in which this type of offense increased; all other correlations identified make up a coherent explanation for the dynamics of migrant trafficking.

Note, in addition, that not all estimators of a stimulus hold a similar correlation with a particular offense type. The Gini index, a widely used measure of income inequality, has a significant but weak relationship with only two types of crimes. By contrast, inter-county wage inequality, that of wage distribution, but especially that of the wage gap with the European average (a proxy for inequality, but also the standard of living) shows correlations with several forms of criminality. Of course, the estimators do not measure the inequality for the same aspects, which draws attention to the selection of stimulus estimators.

Throughout the lens of the referrals to the Court, violent crimes tend to be negatively related to non-demographic stimuli. The exception is the percentage of long-term unemployed, with which the number of prosecutions for rape, murder, robbery, and fatal car accidents tends to increase. For the latter, a mediation by other stimuli would probably be worth looking for. In the context of the other identified correlations, one might think of secondhand car prevalence, illegal car trade, or drug use for this role. It can be stated that fatal accidents have an inverse relationship with the standard of living. At the same time, it might surprise that fatal traffic accidents are not specific to young people.

A positive relationship with the share of young people in the total male population is confirmed for violent crimes. For rape, the relationship weakens with age, the group aged 25-29 not having a significant one ($r=0.382$). Robbery (a theft with assault on the victim), theft, and scams/fraud tend to respond similarly

Press releases no. 51 /PNA/ April 9, 2003; Press releases no. 147/ April 21, 2004; Press releases no. 275/ April 11, 2005 (<https://www.pna.ro/comunicate.xhtml>; accessed October 2023).

to most stimuli. The exception also appears with age, as the last ones are not specific to teenagers.

Somewhat surprisingly, thefts vary inversely with wage differences between counties, a relationship probably mediated by the latter's level. Considerations related to environmental theory can also be reminded, as literature has revealed them rather specific to well-off areas.

According to expectations, crimes of corruption, that is a white-collar type of offense, and tax evasion, a heterogeneous group, tend not to depend on living standards.

Wage differences are, however, positively correlated with smuggling, tax evasion, money laundering, and child trafficking. At the same time, offenses frequently encountered in organized crime tend not to be related to unemployment. Lawsuits for money laundering and tax evasion have increased with the improvement of PCI, perhaps themselves supporting the improvement. They are uncorrelated with income per capita but positively related to inter-county inequality. Money laundering and human trafficking correlate with mobility, but inversely. The latter tends to decrease with improving living standards (per capita income and reducing the gap with the EU level). It is also positively related to the share of 20-24-year-old males but not significantly correlated with other young age groups. By contrast, other traffic offenses are inversely related to the share of young adults, supporting the hypothesis of different characteristics of perpetrators. In addition, human trafficking seems to be a poverty, not an inequality-related offense.

Concluding notes

Delinquency is a phenomenon that adapts to changes in society. These can result from local context factors (economic or institutional reforms, socio-political changes, crisis events of various nature) or phenomena that intersect the national space. They add to the changes resulting from the inherent evolution of society (lifestyle changes). Simultaneously, adjustments occur in regulating behaviors and the mechanisms for identifying and sanctioning the violation of the rules and the socially agreed way of action. The criminal landscape is modified by the different prevalence of various crimes over time, and their adaptation as the context allows them to manifest.

The nature of the Romanian criminal phenomenon in the last decades leaves room for its explanation through the lens of several theoretical perspectives. The economic shock and the liberalization of consumption and communication during the first transition period give way to the perspective of social anomie theory. Subsequently, environmental opportunities seem to provide a more suitable motivation for the criminal phenomenon. However, anchors can also be found in

the theory of institutional anomie, social control, or culturally transmitted norms (criminal subculture).

Inequality has strengthened in Romania during this time. The high and increasing figures for poverty risk persistence support the conclusion of poor social mobility. The recently narrowed wage difference compared to most European countries adds to the country's vulnerability to crime. As studies have identified, this means that, despite some improvements, severe risks for criminality are still present.

Nevertheless, stabilizing the socio-economic course, improving the standard of living, adaptive response, and strengthening the regulatory system were accompanied by a decrease in the criminal level, otherwise a trend evident in the world after the 1990s. Public perception tends to support the reduction of violent, direct crime against persons and property. Violent crimes followed a more consistent downward trend, and after an initial expansion, property crimes followed a downward trend and a return in diversified forms.

Contexts that define the post-financial crisis period tend to lead to a criminal phenomenon with a different content than the previous one. Mainly, crime against property is shaped under the technological footprint towards less visible and harder-to-detect forms; various scam schemes take forms that approach white-collar criminality. Due to the still significant gap in the standard of living between Romania and the EU countries, Romania is not a primary area of interest for crimes against property. This maintains the hypothesis of the export of criminality. On the other hand, its geographical position combined with generous transit regulations to the promising economic area of the EU led to the intensification of some, until recently, modest criminal forms in the Romanian criminal landscape.

While there has been a significant decrease in overall human trafficking, the nature of the issue has evolved, but juveniles continue to represent around half of the trafficked persons. However, teenagers and young people are highly exposed as victims of a type of crime that spread swiftly: drug-related offenses.

The change in the structure of criminality in favor of crimes that require more time to detect and document undermines the positive conclusion suggested by the downward crime trend. In fact, since 2008, the statistics in the first stage of investigation have followed a somewhat upward trend, while the statistics on the various stages of the indictment process do not. Another robust current feature is that, directly or indirectly, crime in one country can affect or be affected by crime in other countries. These are equally important aspects that scholars and decision-makers must consider in understanding and monitoring the criminal response to the socio-economic context, particularly in times of crisis, along with the attention toward indicators that best operationalize the expected stimulus of a specific type of crime.

Table 2. Pearson Correlation Coefficients: Referrals to court by offense type vs. risk factors

| Type of offences | Long term unemployment % | Minimum/average wage, % | Index of Income per capita | Gini Index | Average wage RO/EU, % | County wage differences (%) | PCI | Residence gap index (%) | Passengers transport rate (%) | Male teenagers (15-19 y.a.) % | Young male of 20-24 y.a % |
|-------------------------------------|--------------------------|-------------------------|----------------------------|------------|-----------------------|-----------------------------|---------|-------------------------|-------------------------------|-------------------------------|---------------------------|
| Rape | .869** | -.626** | -.447 | | -.524** | -.659** | -.660** | -.522* | | .735** | .451* |
| Murder | .771** | -.917** | -.804** | | -.842** | .452* | -.776** | -.800** | -.678** | .631** | .790** |
| Fatal car accident | .585** | | -.629** | | -.719** | | -.711** | -.598** | -.738** | | |
| Family abandonment | .792** | -.852** | -.794** | | -.856** | -.637** | -.876** | -.895** | -.718** | .880** | .856** |
| Theft | .810** | -.832** | -.728** | | -.817** | -.563** | -.840** | -.841** | -.759** | .809** | .857** |
| Robbery | .537** | -.862** | -.848** | | -.901** | | -.770** | -.812** | -.701** | .631** | .834** |
| Fraud | .632** | -.803** | -.690** | | -.730** | | -.491* | -.439* | -.623** | | .498* |
| Smuggling | -.428* | .439* | .469* | | .549** | .612** | .763** | .686** | .578** | -.778** | -.718** |
| Forgery | .855** | -.510* | | | -.470* | -.727** | -.630** | | | .679** | |
| Corruption and job-related offences | .734** | | | -.466* | | | | | | | |
| Tax evasion | | | | | | .784** | .568** | | | -.638** | |
| Money laundry | | | | | | .535* | .710** | .512* | .519* | -.575** | -.635** |
| Traffic and drug use | -.482* | .944** | .963** | | .952** | | .788** | .910** | .703** | -.651** | -.913** |
| Human trafficking | | | -.449* | | -.511* | | -.458* | -.595** | -.668** | | .716** |
| Child trafficking | | | | | | .807** | | | | -.510* | |
| Pimping | .431* | | | | | | | .546* | | | -.611** |
| Migrant trafficking | | .921** | .854** | -.539* | .809** | | .572* | .779** | | | -.756** |

Source: author's computation based on INS TRN135A, PTT104B, POP106A, POP108B, FOM106A, SOM101D; UNECE (wages RO-UE); TransMONEE, EUROSTAT (Gini), GHOC (ICP).

Note: * correlation is significant for $p < 0.05$, ** significant for $p < 0.01$

Methodological Annex: data sources, method, limits of the paper

The study uses administrative data sources from several institutions involved in justice delivery alongside other official statistics. The delinquency and the crime rates, indicators of the national statistics used to track the criminal process, are in focus. These represent the number of crimes reported and under investigation, respectively, of convictions/final sentences relative to the total population. Considerations of statistical methodology, regulation by specific laws, and the prevalence of criminal acts over time result in datasets that do not fully cover the time horizon considered for all indicators used.

The study focuses on the criminality profiled by the referrals to the Court and data belonging to the Public Ministry (MP). Unlike the Police (Ministry of Internal Affairs) statistics depicting the reported crime, referrals have the advantage of being more detailed and precise concerning the alleged facts, reflecting those that could be reasonably well proven. However, the MP statistic has the disadvantage of moving away from the occurrence of the generating factor or context, thus blurring the causal relationship between the stimulus and the crime. The arguments for and against are even more accentuated in the case of convictions (data from the Ministry of Justice); these certify the crime but at a point in time even more distant from its occurrence. In addition, each institutional statistic covers non-transparent systemic aspects (human resources, available infrastructure/technological capacity, reorganizations). For example, the total number of cases resolved over a year (ended with a decision) represented a decreasing share of the total number of cases in the Prosecutor's Office (43% in 2007, respectively approx. 30% after 2016), as, after the year 2000, the cases referred to the Court represented only between 5 and 10% of the total solutions given by prosecutors during a year (MP, 2016-2023). Due to the abovementioned situation, the delinquency rate is approximately 3 times higher than the crime rate, and the dynamics of the criminal phenomenon may differ. Last but not least, the relationship between the stimulus and the crime can be observed/measured more or less accurately depending on the more or less direct nature of the causality and adequate indicators to measure it. For a synthetic picture of criminality evolution along with the changes in Romanian society, the paper resorts to the calculation of Pearson's correlation coefficients for the most consistent or severe offenses.⁹ Bearing in mind the stimulus frequently identified in the literature, the following indicators were considered as a proxy for it:

- a. employment: the percentage of unemployed over 9 months in the total of those registered;
- b. inequality: the ratio between the average gross salary in Romania and the

⁹ Values of the coefficient as close as possible to 1 indicate a strong correlation, as close to zero indicates the absence of correlation. The sign indicates the meaning of the relationship between the stimulus and the crime.

average of those in EU countries, between the minimum and gross average wage in Romania, the maximum-minimum difference between average net county salaries as a percentage of the minimum one, and the Gini index;

c. context: per capita income index (comparable prices, 2008 = 100), perceived corruption index;

d. population mobility: the residential gap, as the difference between people having their domicile and those living de facto (the residents) percentage of the resident population, passenger transport rate (national and international passengers transported, regardless of the way of transportation, relative to the resident population of 20-64 y.a);

e. demographic type: young people 15-19, respectively 20-24 years old as percent of the total, for the male population.

Limits. The study's holistic approach may overlook the specific context dependence of various offenses. Additionally, the indicators used to operationalize the stimuli may not be the most adequate for each type of offense. The selection of these indicators was constrained by the available statistics, which aimed to cover as long a period as possible. Nonetheless, using the same set of stimulus indicators allows for assessing how sensitive different offense types are to the estimator applied for a particular risk. Another limitation is the one-year lag between the stimulus estimator and the court referral, which may not be appropriate for all categories of offenses.

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