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THE ECONOMIC COSTS OF VIOLENCE

IN THE NORTHERN CENTRAL AMERICAN COUNTRIES

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INDEX

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LIST OF ACRONYMS AND ABBREVIATIONS

CENISS	National Social Sector Information Centre, Honduras
DIGESTYC	Directorate General for Statistics and Census, El Salvador
ENPEVI	National Survey on Perception of Public Safety and Victimization, Guatemala
GDP	Gross domestic product
GNP	Gross national product
ICU	Intensive care unit
IDB	Inter-American Development Bank
INE	National Statistics Institute, Guatemala
INE	National Statistics Institute, Honduras
MESARES	Salvadoran Doctors for Social Responsibility
MSE	Micro and small enterprises
PAHO	Pan American Health Organization
PNC	National Civil Police, El Salvador
PNC	National Civil Police, Guatemala
SDG	Sustainable Development Goals
SILEX	Information System for External Cause Injuries
UNODC	United Nations Office on Drugs and Crime
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WHO	World Health Organization
YHLL	Years of healthy life lost

FOREWORD

Insecurity disrupts society, deteriorates peaceful coexistence and undermines people's capabilities, choices and freedoms. Moreover, insecurity not only causes suffering, it reduces people's quality of life and freedoms, and results in the loss of human lives, but it is also the source significant economic costs that reduce public spending by State institutions and increase private expenditures by citizens, who are concerned about ensuring their security.

Consequently, to the invaluable loss of human lives to violence must be added the costs of robbery and theft, extortion, missing persons and physical, sexual or psychological violence perpetrated against women and girls.

In El Salvador, Guatemala and Honduras, insecurity generates substantial costs for individuals and institutions. These countries have made significant progress in recent years in reducing citizen insecurity and have seen a decrease in the number of homicides over the last decade, especially in the last five years, as reflected in official data that various government institutions have provided to the regional InfoSegura project, implemented by the Regional Bureau for Latin America and the Caribbean of the United Nations Development Programme (UNDP) and funded by the United States Agency for International Development. However, in 2021 a total of 7,533 people lost their lives to violence, on average about 21 people per day.

Thus, this report aims to quantify the economic costs that violence generates in the countries of northern Central America. From an accounting perspective, all the tangible and intangible costs of violence are added up, classified into five major categories:

a) health costs; b) institutional costs; c) preventive costs in private security; d) material losses; and e) indirect costs related to the effects of insecurity on investment and economic growth.

According to estimates, violence costs El Salvador, Guatemala and Honduras more than US$14 billion annually, that is practically the total budget of Honduras (EFE News Agency, 2022), the country that, of the three considered in this study, presented the largest budget allocation in 2022. In 2019, the per-country economic cost of violence in El Salvador and Guatemala was equivalent to 2.3 times the combined education and health budgets of each country, respectively and in Honduras that ratio was 1.9.

Reducing violence in all its forms is a prerequisite for achieving higher levels of human development and is a central objective of the 2030 Agenda for Sustainable Development. The impact of violence on the development potential of the countries of the region is undeniable, especially considering that medical-hospital costs alone for rape, violence against women and domestic violence represent slightly more than 50% of total health expenditures, which undoubtedly hinders progress towards the achievement of Sustainable Development Goal (SDG) number 5, which is to achieve gender equality and empower all women and girls (United Nations, n. d.).

Notwithstanding the achievements, challenges persist in reducing insecurity and improving the quality of life of people in the countries of northern Central America. We hope that this study can insert the issue into the public debate and contribute to strengthening evidence-based citizen security policies as an indispensable tool for progressing towards the achievement of effective governance and the fulfilment of the 2030 Agenda.

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EXECUTIVE SUMMARY

Violence and crime negatively impact human development. Robberies and thefts, physical, sexual or psychological violence against women, and certainly homicide, disrupt life in society, deteriorate peaceful coexistence and undermine people's capabilities, choices and freedoms.

The United Nations Development Programme considers citizen security to be a public good, a human right and an indispensable condition for development. People cannot feel safe when they perceive that they are unsafe physically, morally, or their property is at risk, and when they cannot fully exercise their duties and rights or fully enjoy their individual freedoms because they live in contexts where established coexistence standards and norms are violated.

Insecurity is also the source of significant financial costs that reduce public spending by State institutions and increase private expenditures by citizens, who are concerned about ensuring their security. Moreover, insecurity causes irreparable costs to people's lives and physical integrity. This report aims to quantify the economic costs that violence generates in the countries of northern Central America. El Salvador, Guatemala and Honduras: The study uses the methodological approach developed in a UNDP report entitled How much does violence cost El Salvador (United Nations Development Programme, 2005) to add up, from an accounting perspective, all the costs of violence, both tangible (direct and indirect) and intangible (to the extent that the available data allows). These costs are classified into five broad categories, as follows:

1. **Health costs,** broken down into medical-hospital costs, lost production and intangible costs due to emotional and psychological damage (pain, suffering or reduced quality of life, among other consequences).

2 **Institutional costs (legal, judicial and police),** which include the budget items allocated to various State institutions responsible for implementing policies to prevent and combat crime and violence, as well as for providing assistance to victims.

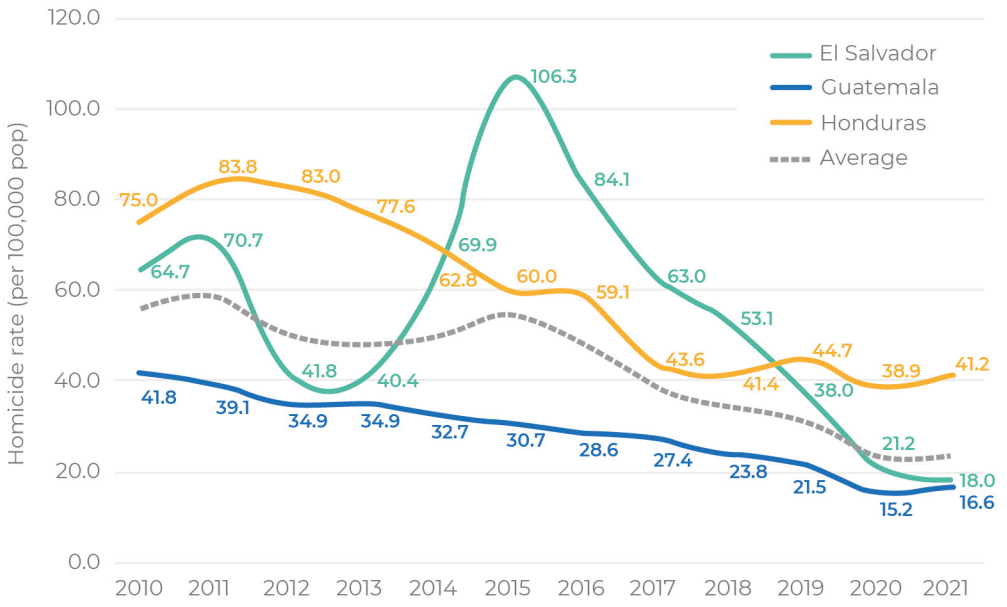
3 **Private security costs,** the expenses incurred by households and businesses on preventive measures to mitigate the risks associated with the insecurity in their setting. These costs include, for instance, the expenses incurred to install security mechanisms to protect against crime, such as the installation of locks and padlocks on doors; the reinforcement of window and patio grilles; the construction of additional fence walls; the installation of barbed wire fences and alarms; or the contracting of private security services.

4 **Material losses incurred by households and businesses as a result of a variety of criminal acts,** such as robbery and burglary; theft of everything from vehicles to merchandise and other valuables, or armed robbery of businesses or collection clerks. Within this category of costs, the phenomenon of extortion is especially relevant, as it has a particular effect on micro and small enterprises (MSEs), which employ half of the economically active population. Extortion has driven many small companies out of business in the three countries considered in this study.

5 **Indirect costs related to the effects of insecurity on investment and economic growth.** Insecurity affects the investment climate by affecting opportunities and incentives for companies to invest productively, create jobs and expand. Examples of such costs include fewer employment opportunities, higher migration rates, institutional deterioration and corruption, all of which exacerbate crime and generate a vicious cycle of economic decline and rising violence. Moreover, crime tends to have a disproportionately greater impact on the poor due to their inability to protect themselves, with an accompanying rise in the prevailing inequalities in the countries under analysis and feeds back into the spiral of violence.

Although, homicide rates in El Salvador, Guatemala and Honduras have tended to decrease since 2010 [1], violence still generates enormous economic costs in the region, affecting the investment climate, weakening social cohesion and compromising governance (see Figure RE.1). According to data from the most recent victimization and security perception surveys conducted in the countries under analysis, the majority of the population continues to consider insecurity and violence as one of the most serious problems facing these countries.

Figure RE.1
Homicide rate (per 100,000 pop) in El Salvador, Guatemala and Honduras, 2010-2021



Source: Prepared by the authors based on data from the PNC El Salvador, the INE and the PNC Guatemala, and the CENISS Honduras.

Thus, according to the estimates in this report, violence costs El Salvador, Guatemala and Honduras US$14,704.62 million annually in terms of health expenses, legal and institutional costs, absenteeism from work, investment leakage, material losses and lost productivity, with a considerable impact on the development potential of the countries under analysis.

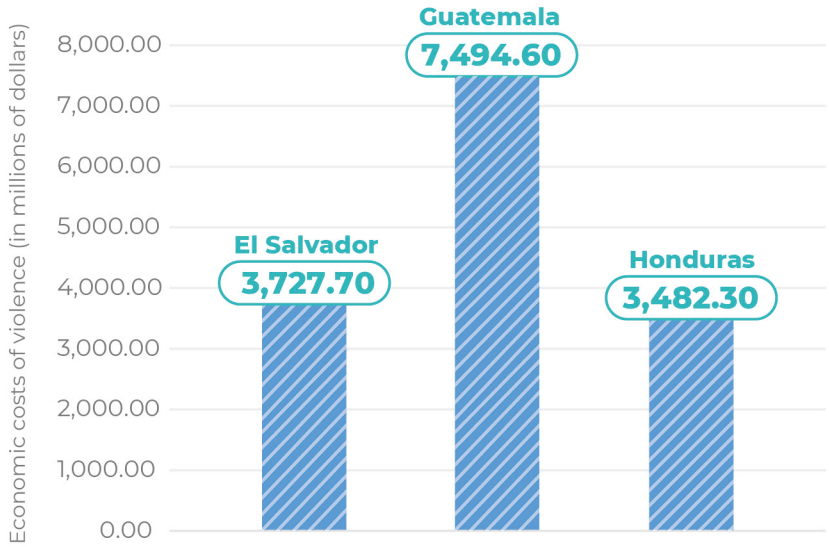
1 The average homicide rate in the three countries analysed, which was above 57 homicides per 100,000 population in 2010, decreased to 24.1 homicides per 100,000 population in 2021, thus approaching the average rate for Latin America and the Caribbean.

Breaking that figure down for the three countries, the data indicate that in 2019 the economic costs of violence amounted to:

3,727.7	**7,494.6**	**3,482.3**
Million in El Salvador (13.86% of national GDP)	**Million in Guatemala** (9.74% of national GDP)	**Million in Honduras** (13.87% of national GDP)

(see Figure RE.2).

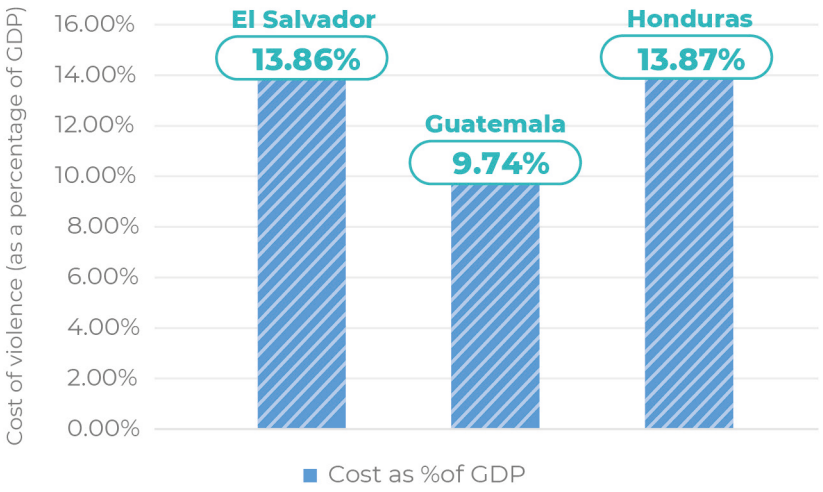
Figure RE.2
Economic costs of violence (in millions of dollars) in El Salvador, Guatemala and Honduras, 2019



Source: Prepared by the authors based on data from official sources in the countries in this study.

The results of this accounting exercise are in line with those obtained in various previous studies. Although the cost of violence measured in absolute values (i.e., in millions of dollars) was higher in Guatemala than in neighbouring countries, this country presents the lowest cost when is calculated as a proportion of GDP, because of the Guatemalan economy is larger. Measured as a proportion of GDP, the cost of violence was higher in Honduras, followed by El Salvador, and Guatemala (see Figure RE.3).

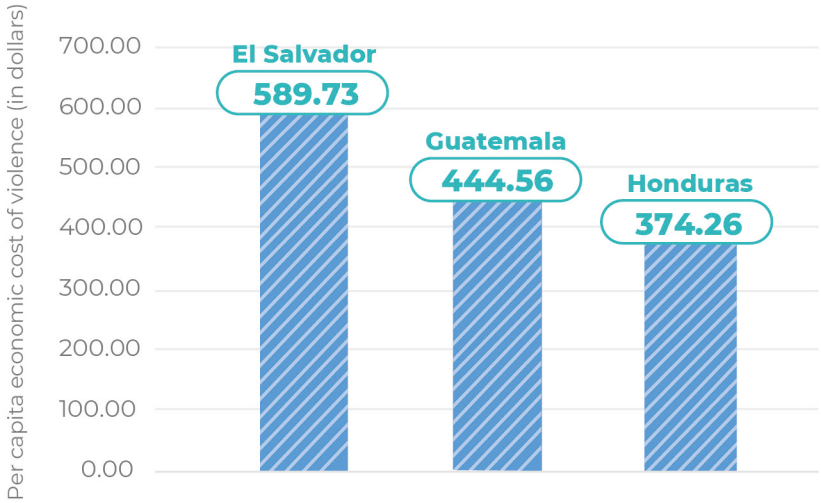
Figure RE.3
Cost of violence (as a percentage of GDP) in El Salvador, Guatemala and Honduras, 2019



Source: Prepared by the authors based on data from official sources in the countries in this study.

Per capita economic cost of violence was higher in El Salvador than in Guatemala and Honduras ($589, $444 and $374, respectively) (see Figure RE.4).

Figure RE.4
Per capita economic cost of violence (in dollars) in El Salvador, Guatemala and Honduras, 2019.



Source: Prepared by the authors based on data from official sources in the countries in this study.

The economic cost of violence in the three countries under analysis is an enormous drain on State resources, which could otherwise strengthen development and social protection policies or go to other productive purposes. In the case of El Salvador, in 2019 the economic cost of violence was 2.3 times the combined budget for education and health in that country; in Guatemala that cost represented the same proportion (2.3 times) in relation to the aforementioned budgets, and in Honduras that proportion was 1.9. **Expressed in terms of the 2019 tax burden, the resources lost due to the phenomenon of violence were equivalent to 79%, 97% and 93% of all tax revenue in El Salvador, Guatemala and Honduras, respectively.**

In this sense, it is essential for the countries of northern Central America to have comprehensive citizen security policies that are people-centred, evidence-based, gender-sensitive and territorially focused, and that favour the promotion of actions that are both preventive and legitimate coercive actions inherent to the rule of law.

In order to act effectively and efficiently, regular and reliable information is required. The analysis and monitoring of criminal behaviour allows preventive decisions to be made in order to generate positive transformations that have an impact on citizen security, quality of life and people's well-being.

Thus, the accurate measurement of the economic costs of violence is important for decision makers involved in public policymaking for citizen security. Within this framework in the countries of the region, work needs to continue and step up, in order to improve information management and the quality of data collected in administrative records, surveys and supplementary sources of information, with a focus on information related to crime victims.

Best practices in citizen security policies in the region have been characterized by engaging citizens, targeting actions, promoting local security policies, coordinating the work of national institutions responsible for the issue, incorporating the gender approach and helping technical teams develop the capacity to manage citizen security. In addition, it is necessary to redouble efforts to generate data and statistics disaggregated by sex, not only to quantify acts of violence, but also to be able to get a disaggregated measurement their economic costs.

In order to move towards achieving greater development, more effective public policies that are in line with the Sustainable Development Agenda need to be implemented, in order to reorient the use of resources aimed at guaranteeing citizen security. This requires strengthening the security and justice institutions, as well as identifying mechanisms to guarantee the financial sustainability of public policies and to convert information into action through practices that impact the operational level of security management.

The design and implementation of actions that are effective at reducing violence can have enormous potential benefits for the development of countries and the well-being of people. If resources that are diverted and spent to address the effects of violence could be redirected towards social investment, the three countries considered in this study could double their education and health budgets, and there would still be significant resources left over to promote productivity programmes, reduce infrastructure gaps, strengthen development capacities and substantially improve the quality of life of the population.

INTRODUCTION

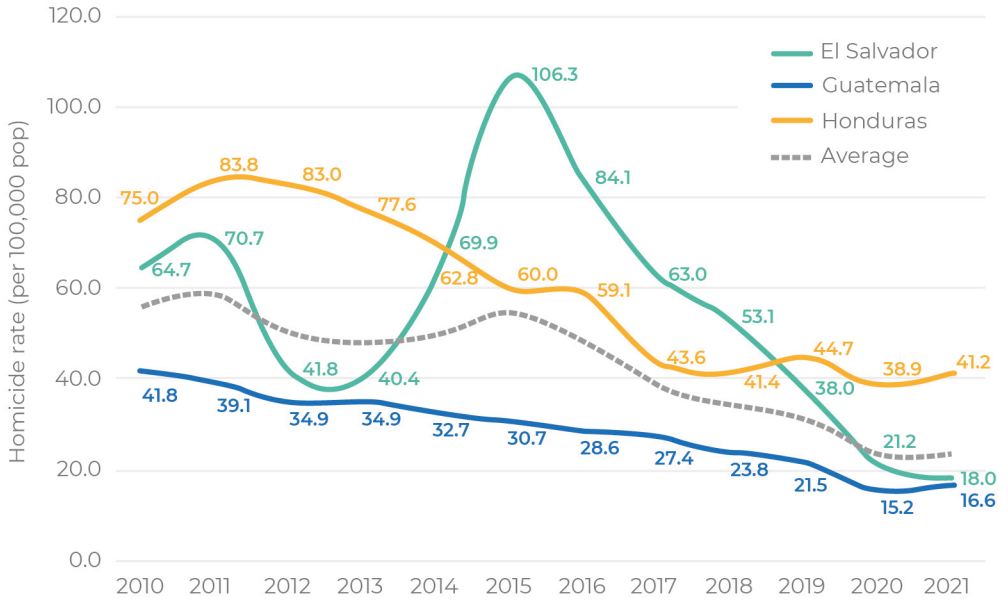
Citizen insecurity has a negative impact on human development, that is, on the process of expanding people's options and opportunities and strengthening their capabilities. The human development approach promoted by the United Nations Development Programme (UNDP) is based on the firm conviction that the true wealth of nations is their people. And people cannot exercise their rights and freedoms, fully develop their capabilities, or contribute to the well-being of their families, communities and institutions if they live in an atmosphere of insecurity.

In recent decades, the broad consensus has been that citizen security is a necessary condition for full human development. Citizen security seeks to guarantee the protection of people's physical, moral wellbeing and their property, and to ensure they have the conditions necessary to fully exercise their duties and rights, and enjoy their individual freedoms in contexts where the established guidelines and norms of coexistence are respected. In this approach, citizen security is conceived as a public good, as a human right, as a condition for development and as a dimension of human security.

Since the early 2010s, average homicide rates per year recorded in the countries of northern Central America, namely El Salvador, Guatemala and Honduras, have been close to 60 homicides per 100,000 population in the years with the highest rates of violence. While homicide rates have trended downward since 2010, approaching the Latin American and Caribbean average of 20.5 homicides per 100,000 population in 2021, the economic cost of violence is still enormous in the region, affecting the investment climate, weakening social cohesion, and affecting governance (see Figure 1). Victimization and security perception surveys conducted in the region, such as Guatemala's National Survey on Perception of Public Safety and Victimization 2018 (ENPEVI 2018), show that insecurity consistently remains "the greatest concern" of the population in El Salvador (Directorate General

for Statistics and Census, 2018a) and Guatemala (Vice Ministry for Prevention of Violence and Crime, and UNDP-InfoSegura, 2019), and "the most urgent problem facing Honduras" (University Institute for Democracy, Peace and Security, 2019).

Graph 1
Homicide rate (per 100,000 pop) in El Salvador, Guatemala and Honduras, 2010-2021



Source: Prepared by the authors based on data from the PNC El Salvador, the INE and the PNC Guatemala, and the CENISS Honduras.

Since the late 1990s, several studies have attempted to quantify the economic costs generated by violence and crime in the region[2]. Within the framework of this line of research, this report is an effort to systematize the costs of violence in the economies of the countries of northern Central America, using updated information available for the year 2019.

2 The following studies are noteworthy, among others: Instituto Universitario de Opinión Pública (1998), Londoño and Guerrero (1999), United Nations Development Programme (2005), United Nations Development Programme in Guatemalan Guatemala (2006), Acevedo (2008 and 2009), World Bank, (2011), Jaitman (2015), Banco Central de Reserva de El Salvador (2016), Plotnikov (2020) e Institute for Economics & Peace (2021).

According to estimates made for this study with data from 2019, violence costs El Salvador, Guatemala and Honduras US$14,704.6 million annually in health expenses, legal and institutional costs, absenteeism from work, investment leakage, material losses and lost productivity, with a considerable impact on the development potential of these countries. This amount is equal to 11.4% of the aggregate GDP of the three countries.

The reduction in homicides and other acts of violence due to the confinement measures and the restriction of activities in the context of the COVID-19 pandemic, also led to a reduction in the economic costs associated with various expressions of violence. The flip side of this was a rise in the number of acts of violence registered at the household level. As the economies in the region undergo a relative recovery, associated with the end of quarantines and the normalization of activities, levels of violence have begun to increase, although the available data suggests that they have not reached the levels recorded before the pandemic. It is vital to deepen the implementation of ongoing citizen security programmes in the countries of the region and to advance in evidence-based public policy design that is more cost-effective given that after the pandemic the fiscal space in the three countries considered has been reduced.

1. METHODOLOGICAL APPROACH

Estimates of the economic costs of violence can vary considerably depending on the methodologies and assumptions adopted (Chan and Cho, 2010; World Bank, 2011; Jaitman, 2015 and 2017).

The economic burden associated with the phenomenon of violence includes the costs that individuals, families, businesses or institutions must face as a result of the acts of violence they have been subjected to directly or indirectly, as well as the costs that affect society as a whole and that materialize in the funding that the State must allocate to implement policies to prevent and combat violence, and to deal with its consequences.

The multidimensionality of violence implies that this phenomenon, in its various forms (physical, psychological, social, family or sexual violence, among others), is present in almost all crimes, and it is not easy to assign a monetary figure to all these dimensions. Nevertheless, the measurement of the social cost of violence needs to include both the more direct and tangible costs, like expenses incurred due to a personal brush with violence, or expenses for preventing violent acts, as well as the less tangible costs, such as the emotional impact that violence has on the victims and their families.

The study uses the methodological approach developed in a UNDP report entitled How much does violence cost El Salvador (United Nations Development Programme, 2005). This approach adopts an accounting perspective in order to add up all the tangible costs of violence - direct and indirect - as well as the intangible costs, to the extent that the available data allow. The main difference between this report and the aforementioned 2005 UNDP study is the inclusion of some categories of violence that were not included in the 2005 study, namely: Missing persons; culpable homicide and injuries resulting from road traffic incidents; acts of violence against women; and acts of domestic and intrafamily violence. In addition, this time there was access to better quality information compared to the information available at the time of the 2005 study. The estimates in this study are based on abundant background information and extensive data compiled from various sources, including victimization surveys, business surveys and multipurpose household surveys. This has allowed for more accurate estimates of the different types of violent incidents that have occurred and, in general, a more robust quantification of the costs associated with such incidents.

1.1. Records of complaints, estimated incidents and implicit multipliers

The first step in applying the accounting approach is to estimate the number of incidents that have occurred as per different acts of violence (homicides, injuries, rapes, robberies or extortions, among others). The main source of information on these crimes is the administrative records of the police or judicial authorities.

However, the problem with official records is often underreporting of the acts of violence that have occurred, since only some of the victims report the violence, they have experienced to the authorities, or any other entity, which leaves a rate of non-reported incidents, or a "hidden figure." A more realistic quantification of the occurrences of acts of violence can be achieved using implicit multipliers to estimate the number of incidents that have occurred based on the number of incidents reported. Implicit multipliers are usually obtained from the reporting rates recorded in violence victimization surveys. The multiplier for each type of crime is calculated as the inverse of the proportion of victims reporting a given crime.

> For example, if the percentage of victims reporting the crime is 20% (i.e., 0.2), the corresponding implicit multiplier will be equal to 1/0.2 = 5. If there were 1,000 reports of a given crime, the number of incidents would be estimated using the following calculation: 1,000 x 5 = 5,000, which means that the total number of crimes occurring would be five times the number of reports recorded.

Given the prevailing climate in El Salvador, Guatemala and Honduras, which is characterized by the perception of a high level of insecurity and a high level of distrust in the authorities, in all three countries the reporting rates of victimization incidents are generally low. Of the total number of crimes in Guatemala reported in the 2018 ENPEVI, only 23 out of every 100 crimes were reported to a competent authority (Vice Ministry for Prevention of Violence and Crime and UNDP-InfoSegura, 2019). In El Salvador, according to the Survey of Victimization and Perception of Insecurity and the Culture of Peace Survey, only 2 in 10 crimes are ever registered by the National Civil Police (PNC), the Prosecutor General of the Republic, the Peace Courts, the Office of the Human Rights Ombudsman and the Office of the Public Defender of the Republic, among other agencies (Directorate General for Statistics and Census, 2018a). In the case of Honduras, a report by the University Institute

on Democracy, Peace and Security of the National Autonomous University of Honduras states that of the people who were victims of a criminal act in 2018 only 22 out of every 100 reported the event (University Institute for Democracy, Peace and Security, 2019). On average, victims of violence in the three countries only report one-fifth of the crimes.

A relevant methodological aspect to consider when estimating implicit multipliers from victimization survey data is "telescoping," which the United Nations manual for victimization surveys defines as a "phenomenon whereby respondents tend to change their recollection of the time when incidents occurred" (United Nations Office on Drugs and Crime and United Nations Economic Commission for Europe, 2010). Telescoping is a very important issue to consider in victimization surveys because, if memory errors occur during the collection of retrospective data provided by victims that may affect the accuracy of the data provided, this can significantly distort the calculation of victimization levels.

Alternatively, incidents of violence can also be estimated directly from victimization rates reported in victimization surveys, or from multipurpose household surveys (MPHS), when these surveys include modules to collect information on incidents of crime affecting citizens. This was the main procedure used in this report to estimate the number of incidents occurring for most types of violent events contemplated in the quantification exercise.

A more in-depth description of the information gathering process in each of the three countries considered in this study is provided below, along with the estimates of incidents that occurred and the implicit multipliers calculated for the different types of acts of violence.

1.2. Information collection process by country

1.2.1. El Salvador

In El Salvador, the Transparency Portal of the Public Information Access Unit of the PNC provides statistics on the so-called "efficiency crimes:" Extortion, homicide, culpable homicide, thefts, vehicle theft, theft and robbery of vehicles with merchandise, injuries, robberies, vehicle thefts, kidnappings and rape. The PNC's Land Traffic Division provides information on traffic accidents, deaths and injuries. On the other hand, the Directorate for Information and Analysis of the Ministry of Justice and Public Security has provided standardized statistics on homicides and femicides since 2019, based on the inter-institutional cooperation agreement signed in July 2018

between the Ministry of Justice and Public Security, the Prosecutor General of the Republic, and the Supreme Court of Justice of El Salvador.

The Directorship for Information and Analysis also houses the National System of Data, Statistics and Information on Violence against Women, which is managed jointly with the Directorate General for Statistics and Census (DIGESTYC). The National System of Data, Statistics and Information on Violence against Women, following the mandate of the Special Comprehensive Law for a Life Free from Violence for Women, records information on various types of violence against women, including femicidal violence, sexual violence, physical violence, patrimonial violence, violence in the workplace and economic violence. The coordinating entity of the National System of Data, Statistics and Information on Violence against Women is the Ministry of Justice and Public Security, and the institution responsible for data-collection and processing is DIGESTYC.

The records of culpable homicides and persons injured in traffic accidents, injuries, rapes, kidnappings, extortions, robberies, thefts, robberies and thefts of vehicles, and robberies and thefts of vehicles with merchandise are provided by the PNC. Records of homicides and missing persons come from the Automated Information and Management System of the Fiscal Process. The definition of the figure of missing persons is found in the reform to Criminal Code Article 148-A of 31 October 2019 (Decree no. 467): “Whoever in any way deprives another of his freedom when this action is followed by the disappearance or concealment of the whereabouts or location of the victim, shall be punished with 15 to twenty-five years of imprisonment. This criminal offence shall be punished concurrently with other crimes” (Legislative Assembly of El Salvador, 2019). The records of acts of violence against women and domestic violence come from the 2019 Annual Report on Acts of Violence against Women in El Salvador (Ministry of Justice and Public Security, 2019).

The number of kidnappings, extortions, robberies and vehicle thefts was estimated based on data from the 2019 MPHS (Directorate General for Statistics and Census, 2020). The number of incidents involving injuries, robberies and vehicle thefts was calculated based on data from the Culture of Peace Survey (Directorate General for Statistics and Census, 2018a).

This survey indicates that 14.1% of the population would have been victims of at least one of seven crimes during the previous year:

I. Car, van or pick-up theft
II. Residential burglary
III. Violent robbery
IV. Robbery without violence (theft)
V. Assaults and battery
VI. Threats
VII. Extortion

The overall percentage of men who have been victimized was higher than the percentage of women (16.4% and 12.2%, respectively).

When the victimization rate is disaggregated by type of crime, the most frequent crime is robbery without violence known as theft (5.4%). This crime is followed by assault and battery (4.6%), robbery with violence (3.6%), threats (2.7%), residential burglary (1.6%) and extortion (1.5%).[3] The lowest rate corresponds to the crime of car, van or pick-up theft (0.7%). Calculating this last rate was done only using those persons who stated in the survey that they or a member of their household owned a vehicle of this type, given that these persons are actually exposed to the risk of enduring a criminal act of this type. In the other cases, the percentages were calculated using the population covered by the survey.

After estimating the number of incidents for each of the different types of crime using data from the 2019 MPHS or the Culture of Peace Survey, the multipliers for those crimes were calculated by dividing the number of estimated incidents by the number of records of such crimes.

The estimate of the number of persons injured in traffic accidents was based on the records of the Ministry of Health's hospital network, created from the Information System for External Cause Injuries. To arrive at the corresponding multiplier the estimated number of people injured was divided by the number of people injured in this type of accident, as recorded in official records.[4]

3 According to DIGESTYC, the two crimes that fall within an acceptable range of the coefficient of variation are robbery and theft. In the case of physical or verbal aggression and threats, data in the Culture of Peace Survey is less statistically reliable.
4. In this document, there is occasional use of the generic masculine to refer to both men and women, in order to lighten the text.

The multiplier for crimes of violence against women, 16.67, was calculated based on the information from the National Survey on Violence against Women 2017 (Directorship General for Statistics and Census, 2018b). According to the survey, in El Salvador only 6 out of every 100 assaulted women file a complaint or seek support.

The number of female victims of rape was calculated based on data from the Pan American Health Organization (PAHO) and the United Nations Department of Economic and Social Affairs (Pan American Health Organization, 2014; Department of Economic and Social Affairs, 2020) and with data from DIGESTYC on the age structure of the female population of El Salvador. According to the 2014 PAHO report mentioned above, 2.2% of Salvadoran women ages 15-49 reported having been victims of sexual abuse before the age of 15 (Pan American Health Organization, 2014). On the other hand, the figure used was 0.2% of Salvadoran women between the ages of 20 and 29 and at some time since the age of 15, have endured sexual violence perpetrated by a person who is not their partner. This percentage is the same as that reported by the United Nations Department of Economic and Social Affairs for Guatemala and Honduras (Department of Economic and Social Affairs, 2020). Combining data from the aforementioned sources of information, it was estimated that 7,757 Salvadoran women had been raped by a person who is not their partner. Dividing this figure by the number of reported rapes yields a multiplier of 3.4.

In estimating the number of intentional homicides and culpable homicides, a plausible multiplier of 1.03 was applied, that is, it was assumed that official records generally keep a good count of the homicides that have occurred and that, therefore, underreporting is not statistically significant, even though the existence of clandestine cemeteries should be taken into account, in that this makes it difficult to count the number of homicides more precisely. This multiplier of 1.03 was used in calculating the number of homicides in the three countries.

In the case of missing persons, the figures are less precise because of the very nature of the event. Often these people have, in fact, been murdered. When this is the case and the bodies are found, these crimes become part of the homicide register. In other cases, these people have emigrated and their relatives are unaware of their whereabouts. In general, to account for the possibility that persons initially considered missing may later turn up, a multiplier of 0.65 was used for the three countries. This multiplier takes into account that approximately one-third of the persons initially recorded as missing subsequently turn up alive as prosecutorial investigations progress.

1.2.2. Guatemala

In the case of Guatemala, records of injuries and assaults, kidnappings, extortion, robbery and theft come from the National Statistics Institute (INE), which processes data collected by the Public Ministry from complaints filed by aggrieved persons. Records of culpable homicides due to traffic accidents correspond to people who died in this type of accident, according to INE data based on information from the National Civil Police (PNC). Records of injuries due to traffic accidents, homicides and missing persons are provided by INE, and are based on PNC data, as do records of robberies and thefts of vehicles. The records of rapes and acts of violence against women provided by INE and the National Information System on Violence against Women, which has data collected by the Public Ministry from complaints filed by aggrieved persons.[5] The crimes contemplated in the Law against Femicide and other Forms of Violence against Women include femicide and various forms of violence against women, namely physical, psychological, sexual, economic or physical and psychological, in addition to other types and combinations.

Records of domestic violence were provided by the INE, which collects information on the population that is a victim of this type of violence. Data on domestic violence is based on the total number of complaints registered on the domestic violence form submitted to institutions in charge of receiving this type of complaints, according to Decree no. 97-96. Data is classified by year of registration and type of aggression, including physical, psychological, sexual or patrimonial, among other types of aggressions. The institutions in charge of collecting complaints are the Public Ministry, the Public Defender of the Nation, the PNC, the family and Peace Courts, the people's offices and the Human Rights Ombudsman's Office.

On the other hand, estimates of the number of crimes, such as injuries and assault, kidnapping, extortion, robbery and theft and vehicle robbery and vehicle theft are based on data from the 2018 ENPEVI. This survey was conducted by the Ministry of Interior of Guatemala in partnership with INE to inform the design and implementation of public policies on security, citizen security and violence and crime prevention.[6]

The 2018 ENPEVI is framed within the Crime Victimization Survey Initiative for Latin America and the Caribbean, drafted in discussions held in a series of six meetings of the initiative Working Group. The crime victimization surveys are funded by the United Nations Office on Drugs and Crime (UNODC); the Centre of Excellence for Statistical Information on Government, Public Security, Victimization and Justice funded by the National Statistics

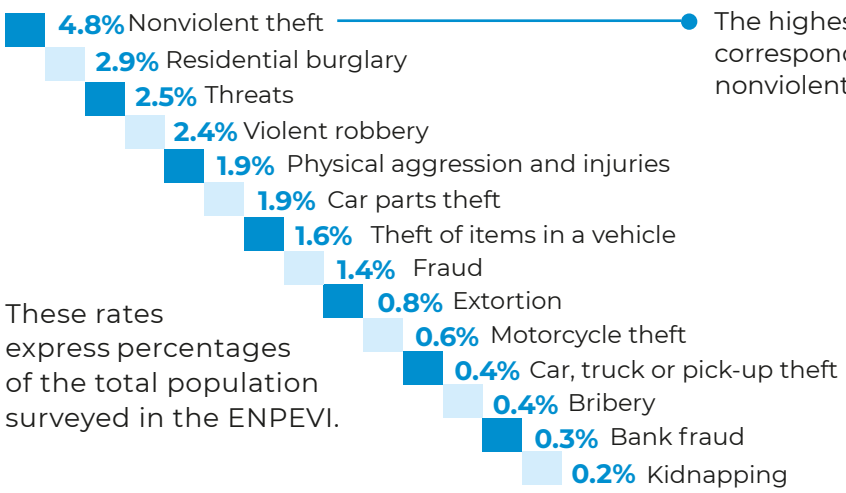
5 INE Guatemala publications on violence against women available at <www.ine.gob.gt/ine/estadisticas/bases-de-datos/violencia-en-contra-de-la-mujer/>.
6 2018 ENPEVI available at the Ministry of Governance site, <https://mingob.gob.gt/la- encuesta-nacional-de-percepcion-de-seguridad-publica-y-victimizacion-2018-enpevi-2018/>.

Institute and Geography of the Government of Mexico; the Inter-American Development Bank (IDB); and the UNDP.[7]

ENPEVI explores six crimes against homes (vehicle theft, car parts theft, theft of items in a vehicle, motorcycle theft, residential burglary and kidnapping) and eight crimes against persons (violent robbery; nonviolent theft; bank fraud; fraud; bribery; physical aggression and injuries; threats; and extortion). According to the survey, 16% of the population over 18 years of age was a victim of at least one crime between November 2016 and October, 2017. Estimates show that for each victim there were approximately 1.3 crimes. Women presented a higher victimization rate than men:

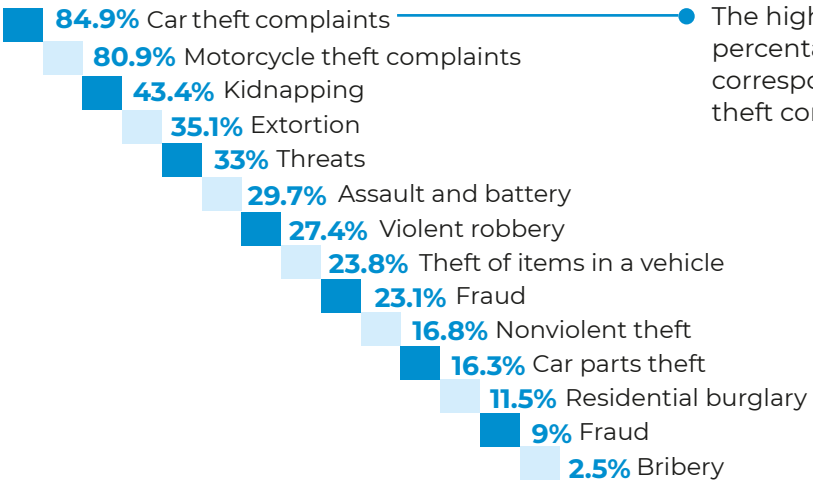
17.1 women per 100 were victims of a crime, whereas among men that was 14.7 per 100. Of the total number of victims, 6 out of 10 were women.

Regarding specific victimization rates by type of crime presented in the ENPEVI:



7 The Initiative agreed that countries should generate information on at least 12 "nuclear" offences and 6 "non-nuclear" offences. This refers to "a series of crimes that [are priority] to measure, and the latter are those crimes whose inclusion is totally discretionary and depends very much on the situation and the resources allocated for the survey." (Vice Ministry for Prevention of Violence and Crime and UNDP-InfoSegura, 2019, p. 8). The 12 nuclear crimes are: a) car, van or pick-up theft; b) car, van or pick-up parts theft; c) motorcycle or moped theft; d) residential burglary; e) violent robbery (to a person); f) robbery without violence or theft (to the person); g) bank fraud; h) fraud; i) physical aggression; j) threats; k) extortion; and l) bribery. The six non-nuclear offences include: a) theft of items in a vehicle; b) bicycle theft; c) vandalism; d) homicide; e) kidnapping; and f) illegal possession of firearms.

Regarding the percentages of complaints by crime:



Although the percentages of complaints could have been used to obtain implicit multipliers using the aforementioned formula, we opted for a direct estimate of the number of incidents that occurred using an extrapolation procedure with the data reported in the survey, allowing us to get fairly consistent estimates for the crimes of assault and battery, kidnapping, extortion, robbery and theft, and car theft and burglary, and then we calculated the multipliers for these crimes by dividing the estimated number of incidents by the official records of these crimes.

The number of culpable homicides, intentional homicides and missing persons was estimated by applying the multipliers calculated for El Salvador to the records of such crimes.

In the case of traffic accidents, the number of injured persons was estimated based on Health Information Management System data on external injuries caused by traffic accidents and treated in the hospital network of the Ministry of Public Health and Social Assistance of Guatemala. The estimated number of injured persons was then divided by the number of official records of persons injured in this type of accident to obtain the multiplier.

Regarding the acts of violence against women and domestic violence, we used a multiplier of 16.67 obtained from the 2017 National Survey on Violence against Women of El Salvador, because there was no other reliable source of information on the percentage of complaints filed in Guatemala by victims of this type of crime (Directorate General for Statistics and Census, 2018b).

According to this survey, only 6 out of every 100 women who were assaulted filed a complaint or sought support.[8]

Calculating the number of cases of rape involved crossing INE information on the age structure of the female population with PAHO data on sexual abuse in childhood provided by adult women, and with data from the United Nations Department of Economic and Social Affairs on the proportion of women ages 20-29 who have suffered any kind of sexual violence since the age of 15 from someone other than a partner (PAHO, 2014; Department of Economic and Social Affairs, 2020). Subsequently, the multiplier for rape was calculated by dividing the number of incidents by the number of records of such crimes.

According to the aforementioned PAHO report, 2.2% of Guatemalan women ages 15-49 stated that they had experienced sexual abuse before the age of 15 (Pan American Health Organization, 2014). The United Nations Department of Economic and Social Affairs report states that 0.2% of Guatemalan women between the ages of 20 and 29 have experienced a form of sexual violence since the age of 15, perpetrated by a person who is not their partner (Department of Economic and Social Affairs, 2020). The data provided by the two information sources cited above was combined to get the estimate that 22,432 Guatemalan women have been raped by someone other than their intimate partner. Dividing this figure by the number of reported rapes gives a multiplier of 2.98.

1.2.3. Honduras

The primary source of statistics on acts of violence in Honduras is the Integrated Information System for Policies of Coexistence and Citizen Security of the National Social Sector Information Centre (CENISS), which also includes the Subsecretariat for Inter-institutional Affairs. CENISS reports information on the general incidence of homicide and road traffic related deaths, injuries, extortions, kidnappings, robberies and thefts, sexual crimes, abuse, domestic violence and intrafamily violence. The system contains more than 300,000 records on crimes against life, integrity and property, in addition to information on other factors associated with insecurity. The data correspond to time series covering the period 2013-2019 and are disaggregated by sex, age group, geographic area and other variables of interest. Since the system does not provide information on missing persons, this data was taken from newspaper articles (Trigueros, 2021).

8 The implicit multiplier is 1 / 0.06 = 16.67.

For various reasons, the Honduran population that has been a victim of a crime does not always notify the authorities. Of the people who were victims of a criminal act in 2018, only 22.4% reported the incident, meaning that security authorities record 1 in every 4 or 5 crimes committed at the national level, according to the Citizen Perception Survey on Insecurity and Victimization in Honduras, prepared by the University Institute for Democracy, Peace and Security of the Faculty of Social Sciences of the National Autonomous University of Honduras. The proportion of people who report has remained in the range from 22% to 30% in recent years, according to a report by the University Institute for Democracy, Peace and Security (2019).

The number of crimes of injury, kidnapping, extortion, robbery, theft, and vehicle theft and robbery was calculated based on data from the 2019 MPHS prepared by the National Statistics Institute (INE) of Honduras. The corresponding multipliers were obtained by dividing the number of estimated crimes by the number of official records of such crimes.

The estimate of people injured in traffic accidents was based on data on external injuries caused by this type of event and treated in the national hospital network, as well as on information provided by the Hospital Escuela (2008).

The estimated number of culpable homicides, intentional homicides and disappearances was calculated by applying to the records of such crimes the multipliers used in the cases of El Salvador and Guatemala, for the reasons explained above.

Honduras records domestic violence and intrafamily violence separately, although the source of the information that keeps track of both types of incidents is the Strategic Planning and Quality Management Division of the Public Ministry. In order to standardize the information on Honduras with that corresponding to El Salvador and Guatemala, the records of both types of violent incidents were classified together under the concept of domestic violence. Then, the number of incidents of domestic violence was estimated for these records by applying the multiplier 16.67 used for El Salvador and Guatemala, as explained above.

To estimate the number of rapes, it was assumed that 2.2% of Honduran women ages 15-49 were victims of sexual abuse before the age of 15, a percentage similar to that estimated by PAHO for El Salvador and Guatemala (Pan American Health Organization, 2014). On the other hand, according to the United Nations Department of Economic and Social Affairs, 0.2% of Honduran women between the ages of 20 and 29 have a form of

suffered sexual violence since the age of 15 by someone other than a partner (Department of Economic and Social Affairs, 2020). Combining the data provided by the two sources of information cited above, it was estimated that 13,379 Honduran women have been raped by a non-partner. Dividing this figure by the number of reported rapes gives us a multiplier of 8.6.

1.3. Synthesis of information collection by country

Table 1 presents the following data for 2019, disaggregated by country and type of crime considered: The number of crimes or acts of violence recorded by government institutions, the estimated number of such crimes or acts of violence, and the corresponding implicit multipliers.

Table 1
Number of complaints counted in official records, implicit multipliers and estimated number of crimes or acts of violence in El Salvador, Guatemala and Honduras, 2019.

	El Salvador			Guatemala			Honduras		
Type of offence	Number of crimes recorded in official records	Multiplier	Estimated number of incidents	Number of crimes recorded in official records	Multiplier	Estimated number of incidents	Number of crimes recorded in official records	Multiplier	Estimated number of incidents
Culpable homicide due to traffic incident	1,395	1.03	1,437	1,757	1.03	1,810	1,767	1.03	1,820
Injuries due to traffic incident	10,929	2.50	27,301	8,907	2.63	23,445	2,133	7.96	16,968
Homicide	2,398	1.03	2,470	3,578	1.03	3,685	4,094	1.03	4,217
Missing persons	2,983	0.65	1,939	2,351	0.65	1,528	1,550	0.65	1,008
Injuries and aggression	4,069	5.00	20,345	47,819	4.08	195,092	1,073	18.91	20,289
Rape	2,258	3.44	7,757	7,524	2.98	22,432	1,551	8.63	13,379
Violence against Women	21,484	16.67	358,067	52,204	16.67	870,067			
Intrafamily Violence	12,355	16.67	205,917	31,898	16.67	531,633	12,924	16.67	215,400
Kidnapping	14	72.57	1,016	415	3.16	1,311	12	141.50	1,698
Extortion	1,980	36.67	72,598	17,888	10.62	189,889	846	29.27	24,766
Robbery	3,428	97.77	335,169	63,692	4.52	287,701	22,464	5.85	131,422
Theft	7,132	16.12	115,000	46,641	11.13	519,182	5,402	13.39	72,356
Vehicle robbery & theft	1,623	5.94	9,633	2,030	3.88	7,882	2,330	3.44	8,018
Motorcycle robbery & theft				3,621	3.25	11,761			
Robbery and theft of vehicle with merchandise	102	1.01	103						

Source: Prepared for this paper based on data consulted in the PNC Transparency Portal El Salvador, the INE of Guatemala and the CENISS of Honduras. Implicit multipliers were developed based on data from DIGESTYC (Directorate General for Statistics and Census, 2018a, 2018b and 2020), ENPEVI 2018 (Vice Ministry for Prevention of Violence and Crime and UNDP-InfoSegura, 2019) and INE of Honduras (National Statistics Institute, 2019).

The estimates presented in Table 1 depend very much on the quality of the information used. In recent years, the countries of northern Central America have significantly improved their information systems on acts of violence, and generally the information is usually quite up to date and accessible through the Internet. Nevertheless, underreporting of complaints persists, and there are still information gaps that prevent a more accurate estimation of the acts of violence, and, therefore, of the implicit multipliers.

As a result, in some cases the same multipliers were used for the three countries, knowing that these are probably not homogeneous because of the particular idiosyncrasies of each country, their different sociodemographic characteristics and the differences in the way the respective government institutions responsible for preventing and combating violence function. To the extent that these information gaps are filled, the quantification of the economic costs of violence will be more precise.

2. COST STRUCTURE

Once the number of incidents for each type of crime wad estimated, the costs of violence were quantified according to the following five major cost categories:

1. **Health costs,** broken down according to medical-hospital costs, lost production and intangible costs (psychological damage).
2. **Institutional costs** (legal, judicial and police).
3. **Private security costs for preventive purposes.**
4. **Material losses** (property transfers due to criminal violence).
5. Indirect costs related to the effects of insecurity on **economic investment and growth.**

2.1. Health costs

Analytically, health costs caused by violence can be classified into three types: **a) medical-hospital costs, b) lost production and c) intangible costs due to emotional and psychological damage** (pain, suffering or reduced quality of life, among other consequences). Assuming that estimates of acts of violence in Table 1 are accurate, the main methodological challenge would be to determine the unit costs for each type of crime.

2.1.1. Medical-hospital costs

Medical-hospital costs include expenses related to surgical services, hospitalization costs per day, medication costs and other types of expenses resulting from the care of injuries due to violence. Ideally, costs should be disaggregated by cause of injury - injuries caused by firearms and other types of weapons (cutting, sharp or blunt, for example) – and by type of injury – serious injuries (including lethal) or minor injuries, which can be treated on an outpatient basis. Total medical-hospital costs also include the "out-of-pocket expenses" (in transportation, medical examinations or medicines, for example) that victims must incur in order to receive medical attention.

El Salvador

El Salvador has a Hospital Epidemiological External Cause Injury Surveillance System based on Ministry of Health hospital records.

This system started in 2002 at three pilot hospitals:

- The Benjamín Bloom National Children's Hospital, which is the lead paediatric hospital;
- The Rosales Nacional Hospital, for internal medicine and traumatology for adults;
- The Hospital Nacional de Nueva Concepción de Chalatenango, a second level hospital in the Central health region.[9]

In 2005, coverage was extended to five more hospitals in the different health regions:

- The San Juan de Dios National Hospital in Santa Ana,
- San Rafael National Hospital in Santa Tecla
- Zacamil Hospital in San Salvador
- Santa Teresa National Hospital in Zacatecoluca
- San Juan de Dios National Hospital in San Miguel

Source: Prepared by authors based on National Health Institute (2017).

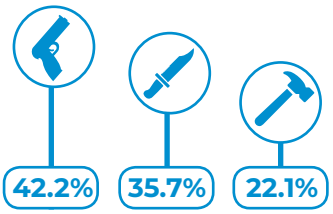
Then in 2006, the El Salvador Ministry of Health developed an interface for the Online Morbimortality System with PAHO support, strengthening the Hospital Epidemiological Surveillance System. Subsequently, the Online Information System External Causes Injuries was named SILEX. In 2013, Ministry of Health hospitals began to register external cause injuries, given the relevance to public health.

One of its characteristics is that SILEX guarantees the quality of the information, with different security mechanisms that reduce typing errors or data omission. Access to the system is by password authorized by the central level of the Ministry, enabling different types of queries, according to the role of each user. The system presents tabulated data, statistics, maps and graphs in real time. Unfortunately, SILEX does not allow open access to the information it collects, and the public information provided by the Ministry of Health is very generic.

9 In El Salvador there are five health regions with the corresponding regional offices: Wester, Central, Metropolitan, Paracentral and Eastern.

Between January and December 2019, the Ministry of Health hospital network recorded a total of 374,059 discharges, according to the Online Morbimortality System. Some of the most frequent causes recorded in the national hospital network, according to the International Statistical Classification of Diseases ICD-10, "other trauma of specified regions, unspecified regions and multiple body regions" ranked fifth among male patients of all ages, with 4,695 discharges, and fractures of other limbs ranked sixth, with 4,640 discharges. The lack of additional information made it impossible to determine whether these discharges were due to intentional acts of violence. According to information provided by the Office of Comprehensive Care for All Forms of Violence based on preliminary data from the Online Morbimortality System, the network treated 5,988 outpatients for external cause injuries due to interpersonal violence, the equivalent to 1.6% of the discharges in 2019.[10]

According to the injury reports registered by the PNC in 2019,



42.2% of the injuries were caused mainly by firearms, 35.7% of the injuries involved sharp weapons and 22.1% of them were caused with blunt objects, percentages calculated with respect to the total number of cases where type of weapon could be determined.

In order to have more specific costs information for this report, information was taken from the seminal study of Salvadoran Physicians for Social Responsibility (MESARES) published in 2004, which continues to be a key reference for estimating the medical-hospital costs of violence in El Salvador. This study was based on the clinical records of 789 patients with firearm injuries at the Rosales National Hospital between June 1, 2003 and May 31, 2004. Of this total, 623 patients were admitted to the hospital for more than one day and 133 died. At the national level, of the total number of people who died from firearm injuries (1,697), 516 died in the hospital network (30%). Based on data from 2003 and 2004, the MESARES study estimates that in the Rosales Hospital there were 5 admissions or 6.25 patients treated for each death due to firearm injuries. An interesting phenomenon is that at the end of the 1990s, the death rate of patients admitted to Rosales Hospital for gunshot wounds was less than 2%.10 Since 2003, rates of over 20% have been recorded, a significant increase in the lethality of firearm attacks, probably resulting from the consolidation of gangs in the country (Salvadoran Physicians for Social Responsibility, 2004).

10 UNDP has supported the development of an external cause injury tracking system, but the information is not yet publicly available.

According to the MESARES study, in 53% of the cases, the projectile damaged extremities, bones and joints. In 41% of the cases, there were wounds to internal organs. In terms of anatomical location, 38% of the wounds were located in the thorax, 37% in the abdomen and pelvis, and 16% in the head and neck.

MESARES estimates that the average cost of a complete stay per admission for a patient hospitalized for a gunshot wound in the sample studied was US$3,084.45 and the cost per day was US$208.13. By contrast, the overall average cost per patient admission at Rosales Hospital was US$712.93 and the cost per day per patient was US$112.37.

The costs estimated in the MESARES study were adjusted to 2019 prices in the health sector consumer price index, and used in Table 2 to show the estimated medical-hospital costs of injuries caused by acts of violence in El Salvador in 2019.

Table 2
Medical-hospital costs of violence (in dollars) in El Salvador, 2019.

Type of offence	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)
Injuries due to traffic incident	27,301	610	16.6
Injury from acts of violence	20,345	519	10.6
Hospitalized patients	4,351	2,054	8.9
Serious injuries	1,871	3,778	7.1
Moderate injuries	1,610	900	1.4
Light injuries	870	480	0.4
Outpatient care	5,988	100	0.6
Out-of-pocket expenses	20,345	50	1.0
Rape	7,757	450	3.5
Violence against Women	358,067	50	17.9
Intrafamily violence	205,917	50	10.3
Total			**58.9**

Source: Prepared for this paper based on data from Salvadoran Physicians for Social Responsibility (2004), National Health Institute (2017) and Table 1 of this report.

Regarding injuries from traffic accidents, the National Health Institute (2017) notes that, between 2012 and 2015, the Ministry of Health's hospital network's surveillance system for external cause injuries recorded care provided to a total of 46,027 people who experienced a traffic accident. Three-quarters of the injured persons were treated and sent home, while 24.4% of them required hospitalization or were referred to another more specialized hospital for follow-up care. Some 0.4% of the patients died in the emergency care units from the severity of their injuries.

Some 56.2% of the injuries were classified as mild, 39.9% of the injured presented moderate damage while 6.9% of the injuries were classified as severe. Treatment of light injuries lasts less than one hour (e.g., minor wounds, erosions or lacerations). Moderate injuries require treatment for 1 to 6 hours (e.g., requiring gastric lavage, observation or sutures). As for severe injuries (e.g., severe bleeding or organ perforation), patients require more than six hours of advanced medical treatment, such as major surgery or intensive care.

One-fifth of road traffic accident victims suffered intracranial trauma. Almost 2% of those were admitted to an intensive care unit (ICU) and more than half of them stayed there for one to six days. The average stay for each victim of a traffic accident was seven days, depending on the complexity of the injuries sustained.

The National Health Institute 2017 report states that hospital discharges of traffic accidents are 1.1% all discharges and about 4% of all deaths registered in the Ministry of Health hospital network. Hospital deaths specifically due to external cause injuries represent 28.6% of total deaths. In the period covered by the National Health Institute study (2017), the Ministry of Health invested US$15 million annually in traffic accident victim care, with per patient hospitalization cost of US$400 per day, which could rise to US$2,000 per day, depending on the care required.

Based on the information presented in the National Health Institute study (2017), and after adjusting costs to 2019 prices using the health sector consumer price index, **an average cost of $610 per patient treated for injuries caused by traffic accidents was estimated.**

To estimate the medical-hospital costs of violence against women and domestic violence, we used information on various types of violence against women, including femicidal violence and sexual, physical, patrimonial, labour and economic violence taken from the National System of Data, Statistics and Information on Violence against Women. In 2019, the National System of Data, Statistics and Information on Violence against Women reported 21,809 incidents of violence against women, of which 7,817 involved physical violence (35.8%); 6,973 were cases of patrimonial violence (32.0%), and 6,421 were acts of sexual violence (29.4%). As a result of applying an implicit multiplier of 16.67 to these complaints, a total of 358,067 acts of violence against women were calculated (see Table 2).

In addition, acts of violence against women and domestic violence are estimated to cost, on average, US$50, which would be roughly the out-of-pocket cost of treating injuries from acts of violence. This average, of course, hides a wide variance that is practically impossible to determine without more detailed information. In any case, it is assumed that the most critical cases of domestic violence requiring more medical attention would be included in the calculation of injuries that involve some degree of hospitalization.

As for rape, an average cost of US$450 was estimated, which also includes a wide variance. It is also assumed that the most serious cases requiring specialized medical attention would be included among the cases of persons hospitalized due to injuries resulting from acts of violence.

Guatemala

Guatemala has a National Epidemiological Surveillance System for external cause injuries that compiles information on cases treated in the national hospital network for domestic violence; deaths due to domestic violence; traffic injuries and deaths due to traffic injuries; multiple trauma and deaths due to this type of trauma, stab wounds and firearm wounds. Data on all cases treated in the various Ministry of Public Health and Social Assistance facilities inform the passive surveillance system.[11]

The National Epidemiological Surveillance System also has a sentinel surveillance subsystem[12] that operates in seven selected hospitals, with a more meticulous process of data-collection on external cause injuries treated, it also records indicators on incidence, specific mortality, sex-specific mortality, number of potential years lost and years lost due to diminished quality of life.

The Ministry of Public Health and Social Assistance sentinel units are :

- The General Hospital San Juan de Dios
- The National Hospital San Benito de Petén
- The Regional Hospital of Escuintla
- The Regional Hospital located in Quetzaltenango
- The National Hospital of Chimaltenango
- The Regional Hospital of Zacapa
- The National Hospital of Jutiapa

11 Passive surveillance is a type of epidemiological surveillance that relies on the use of local health services to collect data on disease incidence or adverse drug effects. It relies on staff and services as part of the reporting network that collects data and generates reports. No active case-finding takes place.
12 The effectiveness of sentinel surveillance is based on the quality of the information collected, which is why it is carried out in carefully selected specialized centres, with chosen personnel that are part of the surveillance network.

The emergency services at these hospitals have to complete a form to collect data on all patients requesting medical attention for any type of external cause injury. Each of these forms must be completed by the physician epidemiological specialist or by the person selected to perform this task by the hospital's epidemiological surveillance committee. The committee should then consolidate and analyse the data collected on these forms and the resulting report sent to the Department of Epidemiology of the Ministry of Public Health and Social Assistance.[13] This information is not available to the public, however. In the absence of official data on external cause injuries resulting from acts of violence, one option for collecting information is to consult journalistic information, providing a first look at the phenomenon.

It is understandable that, overall, firearm injuries attract the most media attention, given the weight that these injuries have among the different types of external cause injuries from acts of violence. In Guatemala, police data shows 63% of the injured persons were wounded by firearms, and 27% had stab wounds.

According to statements provided in June 2015 by Roosevelt Hospital director Carlos Soto, a patient with a superficial bullet-related wound could cost up to 6,000 quetzals (US$784), including hospitalization, x-rays, laboratory tests, medical care, surgeries, food and medicine (Lara, 2015). Roosevelt Hospital treats almost 20% of the people with gunshot wounds in Guatemala. Should the injuries be in the abdomen or thorax, healing can cost close to 10,000 quetzals (US$1,307), in case the condition is not aggravated; if the gunshot wound is located in the head, treatment entails expenses of at least 12,000 quetzals (US$1,569). Add to the costs the use of ventilation equipment, specialized surgery, laboratory tests and CT scans, and the administration of antibiotics and other medications, and the costs can skyrocket to 30,000 to 40,000 quetzals per patient (between US$3,900 and US$5,230). In addition, costs can reach 50,000 quetzals (US$6,536) if the person injured by a bullet is a child, since minors usually have to remain in intensive care during treatment. Meanwhile, San Juan de Dios General Hospital director Julio Figueroa estimates that the daily cost of care per gunshot wound patient, provided the wound is not serious, is around 1,000 quetzals (US$130); while serious cases requiring ICU care, the costs is no less than 5,000 quetzals per day (US$658) (Lara, 2015).

13 Epidemiological surveillance protocols of the Department of Epidemiology at the Ministry of Public Health and Social Assistance are available at the Ministry web site: <http://epidemiologia.mspas.gob.gt/informacion/salas-situacionales/protocolo-de-vigilancia>.

For the purposes of this study, a more systematic estimate of the medical-hospital costs involved in the care of people with firearm injuries in Guatemala was found in the work of Pullin (2012), based on the observation and characterization of 93 clinical records of patients with firearm injuries in 2011 that the Roosevelt Hospital archive department provided.

A more systematic estimate of the medical-hospital costs regarding the care of individuals with firearm injuries in Guatemala, of interest in this study, was included in the work of Pullin (2012), based on the observation and characterization of 93 clinical records of patients with firearm injuries in 2011 that the Roosevelt Hospital archive department provided.

That year, Roosevelt Hospital treated a total of 5,407 patients for accidents and violence, 797 were treated for a firearm injury (incidence rate of 14.7%). Of the 556 admissions who died for accidents and violence, 226 were victims of a firearm injury. This would imply a case-fatality rate of 28.4% for firearm wounds. These types of injuries are present more in men than in women, at a rate of 1 woman for every 9 men.

The Roosevelt Hospital annual budget for 2011 allocated 471,790.76 quetzals (approximately US$60,641 at the exchange rate at the time) for the care of 93 patients who were admitted for firearm wounds, according to the sample studied by Pullin (2012). The average cost for full hospital treatment was **5,073 quetzals (US$652) for each patient with a gunshot wound.** Of this total cost:

- **41%** Corresponded to food and cleaning supplies, among other expenses
- **27%** Corresponded to the use of the operating room;
- **16%** The practice of other invasive treatments
- **11%** Blood transfusions
- **5%** Supplies such as medicine, diagnostic imaging and laboratory tests.

The reported costs do not include hospital staff salaries. Pullin (2012) notes that costs would increase if there were fewer early deaths and if the hospital was fully stocked with supplies. The financial situation at the time prevented the hospital from having on hand all the required supplies, or to provide each patient with fully adequate care, which led to a reduction in the cost of care.

Per patient costs vary according to the severity of the injuries, the days of hospitalization and the type of care required by each individual. Pullin (2012) argues that a deceased patient leads to a decrease in costs, while a living patient requires supplies and invasive procedures, which means a rise in costs that increase with the number of days of hospitalization, especially if the use of expensive units such as the ICU is necessary.[14] In addition, the more days a patient requires hospitalization, the greater his or her risk of contracting hospital-acquired infections, which involves additional expenses like administering broad-spectrum antibiotics and performing more expensive laboratory cultures. It should be noted that, because during the COVID- 19 pandemic many people had to be admitted to an ICU, health institutions capacity to care for patients with serious injuries from incidents of violence was further limited.

Early discharge (less than 48 hours of stay) represents lower costs. These discharges occur due to death, contraindicated discharge (the patient decides to leave or is removed by family members) or due to the severity of the injury, which may require transfer to another more specialized hospital unit. The cost of care for these patients averages 2,868.34 quetzals (US$ 369), while patients who are discharged late (more than 48 hours of stay on average) represent an expense of 8,264 quetzals (US$ 1,062).

Depending on the anatomical location and complications of the firearm wound, a patient may be admitted for 2 to 47 days. Patients with firearm wounds in the skull are hospitalized for 2 to 6 days. Lethality is inversely proportional to the length of stay (the longer the stay, the lower the lethality). Of the total number of patients who survive more than 24 hours after admission to the hospital, 43% have a length of stay of 2 to 6 days.

The average length of stay for the 93 patients considered in the sample was 4 days, with a minimum of 1 day (a few hours) and a maximum of 47 days, with a standard deviation of 6 days. The length of stay depended on the lethality of the injuries. Of these patients, 34.4% were discharged within 24 hours (1 in 4 patients died), 32.3% were admitted for 2 to 3 days, and 33.3% had a hospital stay of more than 3 days. Of the patients who died, 59% died within the first 48 hours.

14 Of course, the fact that, for the hospital, the early death of a patient results in a lower cost than the cost of caring for a patient who requires longer hospitalization, does not take into account that the family of the deceased must pay, among other things, the costs associated with burial and death proceedings.

Of the total number of patients in the sample studied, 44 of them (47%) had a firearm wound in the thoracic-abdominal region, and 22 patients had firearm wounds in the abdomen (23%). In general, the costs of care for patients with gunshot wounds in the thoracic-abdominal region are higher, since these patients usually require two different surgeries. The surgical procedure most commonly performed on patients admitted to Roosevelt Hospital for gunshot wounds was exploratory laparotomy, which was performed in 64.0% of the patients. Of the patients, 17.2% died before receiving surgical care. Of the patients admitted for gunshot wounds, 12.9% underwent two surgical procedures (i.e., an exploratory laparotomy plus a pericardial window). The remaining 5.0% had to undergo craniotomy or intercostal and maxillofacial tube placement.

Of the sample, 77 patients underwent surgical procedures. Average time per surgical procedure was 2 hours and 20 minutes, with a minimum duration of 10 minutes (deceased patient) and a maximum of 14 hours and 30 minutes. Of those who died, 24% died within 30 minutes after the surgical procedure started.

According to the costs calculated by Pullin (2012), broken down by discharge condition, a deceased patient represents an average cost of 3,710.93 quetzals (US$477), with a minimum of 339 quetzals (US$44) and a maximum of 13,159.74 quetzals (US$1,691). The average cost of care provided to a surviving patient was estimated at 6,877.78 quetzals (US$884), with a minimum of 2,386.24 quetzals (US$307) and a maximum of 40,979.12 quetzals (US$5,267). The average cost of care for patients who underwent surgery during hospitalization was 5,917.52 quetzals (US$761), more than three times the cost of care for those who did not undergo surgery, which was 1,800.85 quetzals (US$231).

Several aspects pointed out in Pullin's (2012) study on firearm injuries have been confirmed by the retrospective cross-sectional study conducted by Asencio et al. (2016) based on a systematic review of 402 clinical records of patients with firearm and stab wounds. The sampling frame of the study was taken from the list of clinical records prepared by the researchers based on the Health Information Management System. The list comprises data on 260 patients diagnosed with a firearm injury, and 142 patients admitted for stab wounds, who were admitted to the following hospitals between January 1, 2014 and December 31, 2015: Hospital Roosevelt, Hospital General San Juan de Dios, Instituto Guatemalteco de Seguridad Social, Hospital Pedro de Bethancourt and Hospital Regional de Escuintla.

Thirty per cent of the patients in the sample (169 people) presented wounds[15] in the abdominal region, which constituted the most common anatomical location of the wounds.[15] Among the victims, the proportion of men was higher than that of women, with a ratio of 8 men for every woman. Admission to an ICU was necessary in 7 out of 100 cases: 326 patients required surgical treatment (81%) and the remaining 19%, although not admitted to an operating room, required invasive non-surgical treatment. The average hospital stay was 7 days and 16 patients died (4% of the sample).

Table 3 presents an estimate of the medical-hospital costs associated with violence in Guatemala in 2019. This table combines information on the estimated events of violence recorded in Table 1 and the unit costs calculated in the Pullin (2012) study, together with complementary data from other sources of information. The costs estimated by Pullin (2012) were updated based on 2019 prices using the Guatemalan consumer price index for the health sector, and then converted to dollars based on the exchange rate reported by the Bank of Guatemala for that year.

15 Generally head and chest wounds indicate a greater intent to cause a lethal effect, and wounds to the upper and lower extremities are classified as wounds inflicted to defend against or discourage an attack.

Table 3
Medical-hospital costs of violence (in dollars) in Guatemala, 2019

Type of offence	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)
Injuries due to traffic incident	23,445	600	14.1
Injury from acts of violence	195,092	163	31.8
Hospitalized patients	9,892	2,042	20.2
Serious injuries	4,640	3,500	16.2
Moderate injuries	3,360	925	3.1
Light injuries	1,891	450	0.9
Outpatient care	24,729	75	1.9
Out-of-pocket expenses	195,092	50	9.8
Rape	22,432	450	10.1
Violence against Women	870,067	50	43.5
Intrafamily violence	531,633	50	26.6
Total			**126.1**

Source: Prepared for this paper based on data consulted in Pullin (2012) and Table 1 of this report.

The estimated number of incidents involving assaults and battery in Guatemala is high compared to the number of such crimes calculated for El Salvador and Honduras, mainly due to the fact that in Guatemala, both injury and non-injury incidents are counted. In fact, many of the assaults recorded in the 2018 ENPEVI did not actually cause injuries, or at least not injuries that required hospital care. In the case of El Salvador and Honduras, on the other hand, the number of crimes that involved injuries does not include an estimate of "assaults" that do not involve injuries. The characterization of morbidity due to external cause injuries in the network of the Ministry of Public Health and Social Assistance of Guatemala, based on information generated by the Health Management Information System, recorded **390,743 cases of external cause injuries in 2019, of which approximately 10,000 were due to intentional violence (2.6% of the total).**[16]

16 Health Information Management System, <https://sigsa.mspas.gob.gt/>.

Of the total number of assault and battery cases, it is estimated that 34,621 were treated in the Guatemalan hospital network: 9,892 people were hospitalized and another 24,729 received outpatient treatment. The average cost per patient hospitalized for injuries caused by acts of violence was estimated at US$2,042. The average cost of medical care provided to those who experienced assault and battery was US$163, significantly lower than the cost calculated for El Salvador and Honduras. This is again mainly explained by the fact that 2018 ENPEVI records "aggression and injury," while in El Salvador and Honduras only "injuries" are recorded.

Regarding road traffic injuries, an average cost of US$600 per injured person was estimated. According to press articles, road insecurity in Guatemala has become a serious public health problem, to such an extent that traffic accidents are the second leading cause of violent death in the country and more than 50% of the hospital budget is allocated to the care and recovery of people injured in accidents of this type (Etrasa, 2019).

The medical-hospital costs of violence against women and domestic violence are estimated at an average cost of US$50 according to the consumer price index, similar to the out-of-pocket costs that a person would have to incur to receive care for injuries caused by acts of violence. Of course, in several cases the costs incurred may be substantially higher, but the lack of more detailed information makes it impossible to determine the appropriate variance of the distribution of costs. A similar caveat applies to the average cost of US$450 estimated for medical-hospital care in cases of rape. It is assumed that if a person who was injured in an incident of domestic violence or violence against women, including rape, required more specialized and costly medical care, these incidents would be included in the medical-hospital costs estimated for treating more serious injuries.

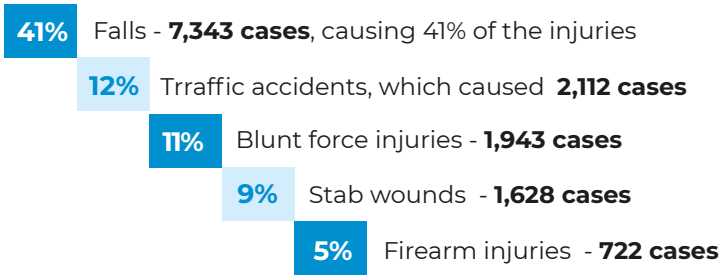
Honduras

Regarding Honduras, the two main documents considered in this report to estimate the medical-hospital costs of violence are the study *Economic and financial impact of external cause injuries at the Hospital Escuela and the Epidemiological surveillance bulletin of external cause injuries, both published by the Hospital Escuela (2006 and 2008).*

According to the Epidemiological surveillance bulletin, in 2007, Hospital Escuela treated 17,726 people with external cause injuries, this represents an increase of almost 60% over the total of 11,144 people treated for injuries in 2006. External cause injury care would have represented about 39% of the Hospital Escuela's budget in those two years. Total number of cases treated

in 2007 amounted to 17,726, of which 15,409 patients were discharged alive (87%) and 127 died in the hospital (1%), and there is no data available for 2,210 patients (12%). Of the total number of injured persons treated, 13,473 were unintentional or accidental injuries (76% of the total) and 1,914 had intentional injuries (10.7%). The cases of intentional injuries included 1,682 cases of assault and 232 cases of suicide or attempted suicide (Hospital Escuela, 2008).

The main causes for treatment and hospitalization were:



Of the 127 deaths, traffic accidents were the cause of the majority of deaths (38 cases representing 30% of deaths), followed by falls (29 cases representing 23% of deaths) and firearms (28 cases representing 22% of deaths).

Assaults (1,682 cases) accounted for 9% of the total number of injuries treated in the emergency room of the Hospital Escuela. Males accounted for 87% of those assaulted. Stab wounds accounted for 40% of the assaults, followed by gunshot wounds (29%) and blunt force injuries (24%). There were 20 cases of sexual assault (1.2%), where 75% of the victims were female.

Overall, the underreporting of cases of external cause injuries is estimated at 45%, especially with regard to injuries of this type occurring at night, when there are usually fewer staff in the emergency services or recently recruited personnel, who may not properly record such cases.

According to calculations made in the 2006 Hospital Escuela study, the cost to that institution of treating 16,158 cases of external cause injuries in 2006 (11,144 registered cases and 5,014 unregistered cases) amounted to 166.3 million lempiras (US$8.7 million).

The same study estimated that all national, regional and area hospitals and peripheral clinics treated a total of 48,966 cases of external cause injuries and spent 322 million lempiras (US$16.9 million) (Hospital Escuela, 2006). This excludes expenses incurred by the victims and their families for loss of income from work, prostheses, purchase of medicines not provided by the care centre, lodging and food expenses and transportation of family members or caregivers. These figures also do not take into account the negative externalities that the treatment of external cause injuries generates in the treatment of other diseases.

The Hospital Escuela study estimates that 70% of surgical interventions (1,200 operations per month) were unscheduled, largely due to external cause injuries. This situation leads to the permanent unscheduling of operations for other health conditions, which is detrimental to the treatment of people with other pathologies. External cause Injuries are postponed (or even not performed) of other types of procedures (Hospital Escuela, 2006).

The unit costs of treating external cause injuries without noting hospitalization time amounted to an average of 10,295 lempiras (US$540). This average, however, hides important variations in the costs of treating external cause injuries, which depend mainly on the severity of the injuries and the length of hospital stay. In this regard, the Hospital Escuela study (2006) provides valuable information on the costs involved in hospital care for different types of external cause injuries, disaggregated according to the severity of such injuries. This information is updated based on 2019 prices using the consumer price index of the Honduran health area, and is the main source for estimating the medical-hospital costs of injuries due to acts of violence presented in Table 4. The average cost of treating this type of injury was estimated at US$501. Regarding road traffic injuries, an average cost of US$602 per injured person was estimated.

Table 4
Medical-hospital costs of violence (in dollars) in Honduras, 2019.

Type of offence	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)
Injuries due to traffic incident	16,968	602	10.2
Injury from acts of violence	20,289	501	10.2
Hospitalized patients	6,290	1,305	8.2
Serious injuries	2,657	2,100	5.6
Moderate injuries	2,609	850	2.2
Light injuries	1,024	400	0.4
Outpatient care	12,580	75	0.9
Out-of-pocket expenses	20,289	50	1.0
Rape	13,379	450	6.0
Violence against Women			
Intrafamily violence	215,400	50	10.8
Total			**37.2**

Source: Prepared for this paper based on data consulted in Hospital Escuela (2008) and Table 1 of this report.

Regarding domestic violence, the average medical-hospital cost of care was estimated at US$50, similar to the out-of-pocket expenses incurred by individuals to receive care for injuries resulting from acts of violence. The average medical-hospital cost of care provided in a rape case was estimated at US$450. As noted above for El Salvador and Guatemala, the actual out-of-pocket expenses incurred by individuals to receive medical-hospital care after being victims of violence may be significantly higher, but the lack of information on the distribution of such costs makes it impossible to determine their variance. In any case, it is assumed that the cases involving higher expenses are probably included in the estimate of the costs associated with injuries resulting from violence that require more intensive medical-hospital care.

2.1.2. Lost production

The costs of violence measured in terms of lost production is highest in the opportunity cost of a life lost due to homicide, or the disability caused by an injury in an act of violence. As in other empirical studies on the costs of violence, to estimate the indirect costs of violence, the methodology

used in this study was based on the indicator of **years of healthy life lost (YHLL),** which refers to lost productivity or income lost due to temporary or permanent disability or premature death (World Bank, 1993).

The corresponding cost is obtained by multiplying the number of YHLL by the GDP per capita, which is roughly equivalent to the present value of the monetary income flows that each victim would have generated if he or she had a healthy life during the years lost due to an act of violence. For example, the number of years of life lost for a person killed at age 25, but who could have lived a productive life and retired at age 60, would be equal to 35 (i.e., the difference between 60 and 25).

In calculating YHLL for this report, productive working life was set to be between 15 and 60 years of age.[17] Of course, this assumption does not take into account that a significant percentage of the population in the three countries analysed enters the labour market at age 18 or later, and that after the age of 60, many people continue to work and are productive. On the other hand, the assumption does not take into account that another percentage of the population starts working around age 15 or even earlier. The lower limit of age 15 is simply set as a floor to avoid considering practices that constitute child labour as productive activities. The ceiling of age 60 is based on the retirement age established by law in the three countries analysed, although under certain circumstances people can retire at an earlier age (for example, in El Salvador women can retire at 55).

A key source of information for the estimates is the age structure of the victims of acts of violence. Information on the ages of victims of intentional and culpable homicides was taken from the databases of official sources. Overall, victims of both intentional and culpable homicide (such as traffic accidents) are relatively young in the region. The average age of homicide victims in Guatemala is 31.1, in El Salvador it is 32.1, and in Honduras it is 33.5 years old. The average age of traffic fatalities is slightly higher: 35.7 in Guatemala, 37.7 in Honduras and 41.5 in El Salvador (see Table 5). This implies that, from the outset, lost production due to YHLL is likely to be very high, since the younger the age of the victims, the higher the number of years lost, and thus the higher the losses in terms of income.

17 This means that when someone age 15 or younger is murdered, the highest YHLL is 45; for someone murdered at age 60 or older, YHLL is zero.

Table 5
Distribution of victims by type of violent event and sex of victim (in percentages) and average age of victims in El Salvador, Guatemala, and Honduras, 2019.

Type of violent event	Distribution of victims (in percentages)			Average age of victims		
	El Salv.	Guat.	Hond.	El Salv.	Guat.	Hond.
Homicides	100.0	100.0	100.0	32.1	31.1	33.5
Men	88.7	84.6	90.3	31.8	31.1	33.3
Women	11.3	15.4	9.7	34.4	31.0	35.3
Death in traffic accident	100.0		100.0	41.5	35.7	37.7
Men	79.6		85.9	41.1		37.7
Women	20.4		14.1	43.3		37.9
Missing persons		100.0			20.4	
Men		38.0			24.2	
Women		62.0			17.7	

Source: Prepared for this paper based on data provided by INE and PNC of Guatemala, PNC of El Salvador and CENISS of Honduras.

In all three countries, the majority of homicide victims (between 85% and 90%) are men and the majority of traffic fatalities are also men, although the percentages in this case are somewhat lower (this information was not available for Guatemala).

In the case of Guatemala, it is particularly striking that the missing are mostly young, with an average age of only 20.4, and the difference between the average age of the missing persons when the data is disaggregated by sex is also significant: 24.2 in the case of men and only 17.7 in the case of women. In the case of El Salvador and Honduras, this calculation could not be made due to the lack of information. It is also striking that the majority of missing persons in Guatemala were women (62% of the victims). In terms of homicide victims, the percentage of women is much lower (15.4%).

Data on GDP per capita for each country were obtained from the respective central banks. **According to the information obtained for 2019, El Salvador GDP per capita was $4,012, in Guatemala it was $4,621, and in Honduras it was $2,575** (values are expressed in current dollars). It is assumed here that GDP per capita is a good proxy for the present value of future earnings lost as a result of premature death or disability. Basically, it is assumed that the

long-run growth rate of the economy coincides with the social discount rate that would have to be applied to calculate the present value of that future income stream.[18]

Alternatively, one could consider using gross national product (GNP) per capita, or some other direct measure of personal income (average income or median income, for example) instead of GDP per capita. The measurement of GNP in the countries considered poses methodological problems that make this indicator even less reliable than GDP. Calculating personal income poses all kinds of methodological difficulties as well, for instance, under-declaration of income in household surveys, or the high informality of labour markets in the region. It was empirically determined that GDP per capita is also a good proxy variable for average annual personal income in the three countries considered. Table 6 shows the calculation of lost output in the three countries considered, based on the approach described above.

18 Therefore, we do not make the assumption that the income profile of the economies is static. Considering potential GDP to differentiate the production potential limits of the three countries does not guarantee a better measurement of lost YHLL, given the methodological difficulties inherent in the estimation of potential GDP.

Table 6
Costs of violence in terms of lost production by type of violent event (in dollars) in El Salvador, Guatemala and Honduras, 2019.

Types of violent event	El Salvador			Guatemala			Honduras		
	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)
Homicide due to traffic incident	1,437	82,922	119.1	1,810	122,637	221.9	1,820	60,967	111.0
Injuries due to traffic incident	27,301	154	4.2	23,445	178	4.2	16,968	99	1.7
Homicide	2,470	113,447	280.2	3,685	134,527	495.8	4,217	69,010	291.0
Missing persons	1,939	136,136	264.0	1,528	178,201	272.3	1,008	82,811	83.4
Injury	20,345	231	4.7	195,092	89	17.3	20,289	149	3.0
Rape	7,757	334	2.6	22,432	385	8.6	13,379	215	2.9
Violence against Women	358,067	56	19.9	870,067	64	55.8			
Intrafamily violence	205,917	56	11.5	531,633	64	34.1	215,400	36	7.7
Total			**706.3**			**1,110.1**			**500.7**

Source: Prepared for this paper based on data in Table 1 of this report.

To estimate the costs of lost production due to disability caused by injuries, an average duration of disability of one week was used in the case of Guatemala and three weeks in the cases of El Salvador and Honduras. The reason for the difference in the budget for Guatemala and that for other countries is that in the case of Guatemala, incidents of "assault and battery" are both considered, while in the cases of El Salvador and Honduras the data refer to the acts of violence involving only "injuries," as explained above. Regarding disability due to injuries caused by traffic accidents, an average duration of two weeks was used for the three countries.

Regarding the duration of disability due to rape, the same average duration of one month was considered for the three countries. As for violence against women and domestic violence, an average duration of five days was attributed to the disability caused by these acts of violence, the same for the three countries analysed. In all cases, the short average duration of the estimated time to measure lost production due to disability reflects the precarious economic conditions of the majority of the population in the three countries, and the victims of injuries cannot take a reasonable amount of time to recover because their own economic needs force them to return to their work activities as soon as possible.

2.1.3. Intangible costs: The emotional and psychological damage

One of the most difficult components to quantify when calculating the costs of violence are the so-called "intangible" costs. Conventionally, these refer to costs that are difficult to put a market price on and must be measured indirectly (Chan and Cho, 2010). These costs include the deterioration of quality of life and the psychological or emotional damage caused to the victims of violence. It should also be noted that the emotional costs of violence extend beyond the "direct" victims, as they also have an impact on families and society as a whole.

To quantify the intangible cost of violence, the expressed or revealed preference method was used, which uses the contingent valuation method. This technique surveys a sample of the population to determine their willingness to pay in order to reduce the risk of experiencing a crime (willingness to pay), or their willingness to accept compensation for facing a greater risk (willingness to accept). In the region, no studies have applied these approaches, therefore we proceeded to explore the legal framework regarding compensation for moral damages.

In the three countries, the legal framework is consistent with the criterion applied by the Inter-American Court of Human Rights in different cases, where determining moral damages is considered or estimated by the court that rules on the matter.

According to the legal doctrine applied in Guatemala, the amount to be paid for moral damages caused by a criminal offence must be established by the judge according to his comprehensive understanding of the case, taking into consideration the circumstances of the victim at the time of the act and the socioeconomic conditions of the person who is considered affected and of the person obliged to compensate, to avoid setting disproportionate or uncollectible economic compensations. Article 1655 of the Guatemalan Civil Code (Decree no. 106 and 1963) sets the parameters to calculate compensation.

In Honduras, Article 110 of the Criminal Code (Decree no. 144-83) states that financial compensation "shall consist of a pecuniary indemnity that the judge shall prudently determine according to the circumstances of the offence, the conditions of the offended person and the nature and consequences of the harm suffered." (National Congress of Honduras, 1983, Art. 110).

In El Salvador, since 1950, the Constitution has contemplated compensation for moral damages in Article 2, section 3 of the Constitution. However, the Legislative Assembly failed to legislate on this matter for more than 65 years, so that special regulations and scattered jurisprudence made the enforcement of this constitutional provision difficult for years. To fill that gap, on December 10, 2015, the Assembly approved the Law on Reparation for Moral Damage (Decree no. 216), Article 15 of which stipulates that "the amount of economic compensation for moral damage shall be set according to criteria of equity and reasonableness, and taking into account the personal conditions of those affected and of those responsible, as well as the circumstances of the case and especially the seriousness of the act and who is at fault" (Legislative Assembly, 2015, Art. 15).

Given the discretion the law affords judges in the three countries in determining moral damages, the amount of compensation for this type of damage can vary greatly.[19]

19 A similar method to determine compensation for moral damages is used in other countries in the region, like Costa Rica (Herrera, 2008).

In June 2011, for example, the Supreme Court of Justice of Guatemala upheld the sentence of an appeals court that convicted a reckless driver who had caused a traffic accident in which one of his companions lost her life instantly due to craniocerebral trauma and another had several serious injuries.[20] The Court ordered the defendant to pay 200,000 quetzals (approximately US$27,000) to the mother of the deceased as compensation for the moral damages caused by the death of her daughter. The defendant also had to pay the other accident victim 20,077.36 quetzals (US$2,677) for property damages related to the payment of the deductible (i.e. hospitalization expenses not covered by the medical insurance) and an amount of 50,000 quetzals (US$6,667) as moral damages.

In 2017, the Criminal Chamber of the Supreme Court of Justice of Guatemala ratified a judgment convicting those responsible for having caused a terrible traffic accident in which five people perished and substantial material losses were incurred. The responsible parties had to pay more than 3.2 million quetzals (approximately US$400,000) compensation to the plaintiffs and the victims. This amount included a compensation of 200,000 quetzals (US$26,300) and a payment of 50,000 quetzals (US$6,600) for moral damages to each of the underage children of the deceased.[21]

In El Salvador, a practical reference point for establishing the monetary value of compensation is the mechanism that the Criminal Procedural Code establishes so that the accused or those responsible for a traffic accident can reach a settlement with the victims, either extrajudicially, administratively (through the Prosecutor General of the Republic) or in the Peace Courts. Specifically, the Law of Special Procedures on Traffic Accidents of El Salvador regulates the actions to establish criminal and civil liability in cases of road traffic accidents, which are under the jurisdiction of the Special Traffic Courts. According to the law, a traffic accident may give rise to a civil and criminal action in the case of damages to the personal integrity of the victim, that is, in the case of injuries and culpable homicide.

In practice, motor vehicle policies in El Salvador generally contemplate an amount of around US$3,000 as compensation in case of death of the driver, the passengers or third parties as a result of a traffic accident. Frequently, the amount with which victims are compensated for damages suffered in extrajudicial, administrative or judicial settlement does not exceed US$2,000, in practice, this is the monetary value assigned to the life of a person who dies as a result of a traffic accident in that country (López, 2020).

20 Sentence no. 623-2009, Supreme Court of Justice of Guatemala, June 17, 2011.
21 Sentence no. 1548-2016 and no. 1599-2016, Supreme Court of Justice of Guatemala, December 8, 2017.

In the aforementioned UNDP study on the cost of violence in El Salvador, intangible costs associated with the emotional impact of violence were quantified using the values considered by the Department of the Environment, Transport and the Regions of the United Kingdom and by the Crime Survey for England and Wales as a reference, as an approximation of the emotional and physical impact caused by violent crime. The values used by the said department and by the aforementioned survey were adjusted based on the difference between the GDP per capita of the United Kingdom and that of El Salvador, adjusted for purchasing power parity (United Nations Development Programme, 2005).

In this report, the reference parameter used for quantifying the intangible costs of violence, in terms of the emotional damage caused to victims, is the compensation scheme contained in the Criminal Injuries Compensation Scheme of the United Kingdom, administered by the Criminal Injuries Compensation Authority. This scheme reflects the costs associated with different types of injuries sustained during a criminal action and establishes the appropriate compensation based on a scale of awards for injuries of comparable severity.

Specifically, the 2012 Criminal Injuries Compensation Scheme of the British Ministry of Justice, updated as of 13 June 2019, was used as a reference. The scheme states that a person may be eligible for compensation if he or she suffers an injury that is directly attributable to being a direct victim of a crime of violence committed in a relevant place (Ministry of Justice, 2012). The scheme provides a very detailed listing of the amount of compensation for the different types of injuries resulting from an act of violence.

For the purposes of this report, the amounts set by the UK Ministry of Justice were first expressed as a proportion of UK GDP per capita, and then those proportions were applied to the GDP per capita of the countries of northern Central America to determine the corresponding compensation in those countries for victims of relevant crimes.[22]

22 For instance, the British scheme provides for a compensation of 11,000 pounds sterling for the victim of rape. That is equivalent to one-third of the GDP per capita of the United Kingdom. Applying this ratio to the per capita GDP of the three Central American countries analysed in this report yields compensation of US$1,330, US$1,532 and US$854, respectively, for rape victims in El Salvador, Guatemala and Honduras. These figures correspond to prices in 2019.

Table 7 shows the estimates of the emotional cost of violence in El Salvador, Guatemala and Honduras, arrived at by applying the methodology described above. The table shows that the bulk of the intangible costs of emotional and psychological harm are associated with incidents of violence against women and domestic and intrafamily violence. This shows the seriousness of these forms of violence in the three countries under analysis, and it confirms the importance of public policies aimed at eradicating them. These actions are fundamental in protecting human rights and guaranteeing citizen security.

Table 7
Estimated intangible costs of violence due to emotional and psychological harm (in dollars) in El Salvador, Guatemala and Honduras, 2019.

	El Salvador			Guatemala			Honduras		
Types of violent	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)	Estimated number of incidents	Average unitary cost (in dollars)	Total cost (in millions of dollars)
Homicide due to traffic incident	1,437	1,330	1.9	1,810	1,532	2.8	1,820	854	1.6
Injuries due to traffic incident	27,301	120	3.3	23,445	140	3.3	16,968	80	1.4
Homicide	2,470	1,330	3.3	3,685	1,532	5.6	4,217	854	3.6
Missing persons	1,939	1,330	2.6	1,528	1,532	2.3	1,008	854	0.9
Injury	20,345	120	2.4	195,092	30	5.9	20,289	80	1.6
Rape	7,757	1,330	10.3	22,432	1,532	34.4	13,379	854	11.4
Violence against Women	358,067	120	43.0	870,067	140	121.8			
Intrafamily Violence	205,917	120	24.7	531,633	140	74.4	215,400	80	17.2
Total			**91.5**			**250.5**			**37.7**

Source: Prepared for this paper based on data in Table 1 of this report.

2.2. Institutional costs: Legal, judicial and police

The institutional costs associated with violence arise from State action to prevent, combat and punish crime, as well as from the assistance provided to victims of violence and actions aimed at the social rehabilitation of offenders. These functions can be classified into three main areas: **a) security (police and prison system); b) administration of justice (Justice System, Public Ministry, Public Defender's Office); and c) protection of human rights and social reintegration.** Table 8 shows the different entities that perform these functions in the three countries analysed, the similarities between the functions of the various institutions, even though they do not necessarily have the same mandates.

Table 8
Matrix of institutions responsible for security, administration of justice, protection of human rights and social reintegration in El Salvador, Guatemala and Honduras, 2019

Function	Government Institution		
	El Salvador	Guatemala	Honduras
Police	Ministry of Justice and Public Security	Ministry of Governance	Secretariat of Security
Penitentiary system	Ministry of Justice and Public Security	Ministry of Governance	National Penitentiary Institute
Courts	Judiciary: Supreme Court of Justice and courts	Justice System: Supreme Court of Justice and courts	Judicial Branch: Supreme Court of Justice and courts
Public Ministry	Prosecutor General of the Republic	Public Ministry National Forensic Science Institute.	Public Ministry
Public Defender	Office of the Public Defender of the Republic	Public Criminal Defence Institute	National Public Défense Directorship
Agencies in charge of protection of Human Rights and social reinsertion	Office of the Human Rights Ombudsman Salvadoran Institute for the Development of Women National Institute for the Comprehensive Development of Children	Public Defender General of the Nation Human Rights Ombudsman	National Commissioner for Human Rights Secretariat for Human Rights. Directorate of Children, Adolescents and Family National Institute for the Care of Juvenile Offenders National Programme for Prevention, Rehabilitation and Social Reinsertion

Source: Prepared for this paper based on the description of functions on the institution's own websites.

Determining the institutional costs of violence was done by looking at the budget items allocated to the programmes implemented by the institutions that have to do more directly with preventing and combating violence and with victim care, rather than simply recording all the funds allocated to these institutions in the general budgets of each country. Including the entire budget allocated to these institutions could significantly inflate the costs associated with violence, since some of these expenditures would have to be made anyway even if no violence occurred.

The optimal approach would require delineating a counterfactual scenario in which levels of violence were "normal" (lower than those actually recorded) and determining what would be the appropriate budget to be allocated to the institutions in such a scenario. Given the difficulty in establishing such a counterfactual scenario, the criterion used was to include the budget items allocated to the programmes related to each institution's functions as mentioned above, and then to exclude the items allocated to administration and institutional management. It can be assumed that in an environment of exacerbated violence the figures for these items would be higher compared to a counterfactual scenario where levels of violence were lower, so that, instead of completely excluding these items when calculating the institutional costs of violence, a better option might be to calculate it and include the "additional" amount that the management of exacerbated violence represents for the institutions in terms of administrative burden. However, since it is difficult to determine what that additional amount is, the second-best alternative is probably to exclude administrative items, rather than including the entire institutional budget. This is the approach used in this study.

In the case of El Salvador, the institutions included were the Ministry of Justice and Public Security, which is in charge of public security (PNC) and the administration of the penitentiary system, the Justice Sector, the Prosecutor General of the Republic, the Office of the Public Defender of the Republic, as well as other institutions responsible for the protection of human rights or for carrying out preventive functions or addressing problems arising from situations of violence, such as the Human Rights Ombudsman's Office, the Salvadoran Institute for the Development of Women and the Salvadoran Institute for the Comprehensive Development of Children and Adolescents. The budget items for institutional management and administration, and those for programmes not directly related to the functions mentioned in Table 8 were excluded.

The sum of the items included comes to US$594.5 million, the equivalent of 2.21% of the GDP of El Salvador, while the entire budget allocated to the institutions was US$858 million (3.19% of GDP) (see Table 9). The amount allocated for administrative and institutional management programmes, excluded from the calculation, was US$263.5 million (0.98% of GDP).

Table 9
Institutional costs associated with preventing and combating violence (in millions of dollars and as a percentage of GDP) in El Salvador, 2019.

Government institution	Budget $ In millions of dollars	Budget % In percentages of the GDP
Ministry of Justice and Public Security	335.0	1.25
Public safety services (police effectiveness)	262.3	0.98
Incarceration and rehabilitation services	48.5	0.18
Penitentiary infrastructure	19.0	0.07
Prevention, participation and social reinsertion	4.9	0.02
Victim services and gender equity	0.3	0.00
Justice Sector	184.0	0.68
Justice System	171.0	0.64
Legal Medicine Institute (Coroner)	13.0	0.05
Prosecutor General of the Republic	39.0	0.14
Défense of the interests of society	38.5	0.14
Substantive equality and a life free of violence for women	0.5	0.00
Office of the Public Defender of the Republic	9.7	0.04
Specialized Unit for the Défense of Children and Adolescents	8.2	0.03
Preventive psychosocial services	0.4	0.00
Substantive equality and a life free of violence for women	1.1	0.00
Office of the Human Rights Ombudsman	5.2	0.02
Human rights defence, protection, monitoring and education	5.2	0.02
Salvadoran Institute for the Development of Women	4.2	0.02
Managing integral development of women	4.2	0.02
National Institute for the Comprehensive Development of Children	17.4	0.06
Comprehensive care for children and adolescents	17.4	0.06
Total	**594.5**	**2.21**

Source: Prepared for this paper using data provided by the Ministry of Finance of El Salvador, 2019.

In Guatemala, the institutions considered are the Ministry of the Interior, the Justice System, the Public Ministry, the National Forensic Science Institute, the Public Criminal Défense Institute, the Office of the Public Defender of the Nation, and the Human Rights Ombudsman's Office.[23] Items for administration and general services were excluded.

In the budget of the Ministry of the Interior, only the items allocated to security services for persons and their property (police function) and to custody and rehabilitation services for persons deprived of liberty (penitentiary function) were considered. Budget items corresponding to central administrative activities, civil intelligence services, official dissemination, departmental government and immigration and alien services were excluded.

From the budget allocated to the Judicial System, only the items allocated to cover the functions of the administration of justice (Justice of the Peace, First Instance Courts and Appeals Chambers) were considered. The items for central activities and projects, shared activities and other services of the Supreme Court of Justice and the Judicial Career Council were excluded.

In the case of the Public Ministry, items for public criminal prosecution and investigation and witness protection were included, and in the case of the Office of the Public Defender of the Nation, the item for the protection of family rights was considered.

The sum total of the items included in the institutional cost of violence in Guatemala in 2019 amounted to 8,512.3 million quetzals (US$1,105.5 million), equivalent to 1.44% of GDP (see Table 10). The entire budget allocated to the institutions considered was 11,628.7 million quetzals (US$1,510.2 million). The sum total of the items for administrative and institutional management programmes, excluded from the calculation, was 3,116.42 million quetzals (US$404.7 million).

23 The figures for institutional costs are not intended to be exhaustive. For instance, spending by the different fire departments, first responders to acts of violence in the country, was not taken into account, and this had no significant impact on the aggregate amount.

Table 10
Institutional spending on preventing and combating violence (in millions of quetzals and as a percentage of GDP) in Guatemala, 2019.

Government Institution	Budget Q In millions of quetzals	Budget % In percentages of the GDP
Ministry of Governance	**4,758.6**	**0.81**
Security services provided to individuals and their assets	**4,229.1**	**0.72**
Custody and rehabilitation services for persons deprived of liberty	**529.6**	**0.09**
Justice System	**1,371.2**	**0.23**
Courts of Peace	**454.1**	**0.08**
First Instance Courts	**755.7**	**0.13**
Appeal Chambers	**161.5**	**0.03**
Public Ministry	**1,794.0**	**0.30**
Public criminal prosecution	**1,546.4**	**0.26**
Investigation and witness protection	**247.6**	**0.04**
National Forensic Science Institute	**259.6**	**0.04**
Criminalistic and forensic analysis	**259.6**	**0.04**
Public Criminal Défense Institute	**183.0**	**0.03**
Public defence in criminal proceedings	**183.0**	**0.03**
Public Defender General of the Nation	**45.7**	**0.01**
Protection of family rights	**45.7**	**0.01**
Human Rights Ombudsman	**100.1**	**0.02**
Human rights defence	**100.1**	**0.02**
Total	**8,512.3**	**1.44**

Source: Prepared for this paper based on data from the Ministry of Public Finance of Guatemala, 2019.

In the case of Honduras, budget allocations corresponding to the Secretariat of Security, the National Penitentiary Institute, the Judicial Branch, Public Ministry and other institutions linked to the defence of human rights and the development of social reinsertion programmes were included. Budget items allocated to central activities and other administrative and institutional management expenses were excluded. In Honduras, the budget allocated to the Judicial Branch does not include administrative programmes, but

rather comprises a single programme called "administration of justice," which includes the recording of administrative expenses necessary to ensure normal institutional performance and the recording of actions related to the administration of justice at the national level. Therefore, in this case, the entire budget allocated to the Judicial Branch was included in the calculation. The items considered in the calculation added up to 9,165.5 million lempiras (US$371.4 million), equivalent to 1.49% of the GDP (see Table 11). The total budget allocated to the institutions considered in the calculation was 13,041.5 million lempiras (US$528.4 million). The items excluded from the calculation amounted to 3,876 million lempiras ($157 million).

Table 11
Institutional spending on preventing and combating violence (in millions of lempiras and as a percentage of GDP) in Honduras, 2019.

Government Institution	Budget L In millions of lempiras	Budget % In percentages of the GDP
Secretariat of Security	3,615.6	0.59
Police community prevention services	2,955.4	0.48
Criminal investigation services	660.2	0.11
National Penitentiary Institute	1,070.6	0.17
Correctional treatment and management	879.7	0.14
Legal services for persons deprived of liberty	190.9	0.03
Judicial Branch	2,739.4	0.45
Justice System	2,739.4	0.45
Public Ministry	1,512.1	0.25
Défense and protection of the general interests of society	1,512.1	0.25
Agencies in charge of protection of Human Rights and social reinsertion	227.8	0.04
National Commissioner for Human Rights	55.1	0.01
Secretariat for Human Rights	35.4	0.01
Directorate of Children, Adolescents and Family	102.5	0.02
National Institute for the Care of Juvenile Offenders	26.0	0.00
National Programme for Prevention, Rehabilitation and Social Reinsertion	8.8	0.00
Total	**9,165.5**	**1.49**

Source: Prepared for this paper based on data from the Honduran Finance Secretariat, 2019.

Table 12 shows the institutional costs of actions aimed at preventing and combating violence in the three countries considered. In the cases of Guatemala and Honduras, budget items are expressed in dollars (the conversion was made based on the market exchange rate reported by the respective central banks). The total sum of the items excluded from the calculation represents approximately 30% of the total budget allocated to the institutions considered in this analysis in the three countries.

Table 12
Institutional costs associated with preventing and combating violence (in millions of dollars and as a percentage of GDP) in El Salvador, 2019

	El Salvador		Guatemala		Honduras	
	$	%	$	%	$	%
Government Institution	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP
Security	335.0	1.25	618.0	0.81	189.9	0.76
Justice Sector	184.0	0.68	178.1	0.23	111.0	0.45
Public Ministry	39.0	0.14	266.7	0.35	61.3	0.25
Public Defender	9.7	0.04	23.8	0.03		
Other institutions	26.8	0.10	18.9	0.02	9.2	0.04
Total	**594.5**	**2.21**	**1,105.5**	**1.44**	**371.4**	**1.49**
Total excluded items	263.5	0.98	404.7	0.53	157.0	0.63
Budget total	858.0	3.19	1,510.2	1.97	528.4	2.12

Source: Prepared for this paper based on data from the Ministry of Finance of Guatemala, the Ministry of Finance of El Salvador and the Finance Secretariat of Honduras, 2019.
Note: In Honduras, the budget of the Public Defender's Office is included in the budget of the Judicial Branch.

2.3. Costs of private security

There is anecdotal evidence of expenditures by households and businesses in El Salvador, Guatemala and Honduras to adopt preventive measures that allow them to mitigate the risks of the insecurity in their environment.[24] Some victimization and citizen perception surveys on insecurity calculate the

24 These expenditures not only include households and companies, they also include government agencies and international and multilateral organizations. This information is not easy to access, although it seems likely that these institutional costs could include part of these expenses in the case of the government.

percentages of the population that have adopted these types of measures, such as installing security mechanisms to protect themselves from crime: Adding metal plates and padlocks to doors, barring windows, fences around patios or other sites, building additional walls or perimeter walls, installing barbed wire or alarms, or contracting private security services.

However, such surveys rarely collect information on the cost of adopting these measures.

2.3.1. Households

The 2018 Culture of Peace Survey in El Salvador provides useful information for estimating household spending on security. This survey asks whether in the last 12 months the respondent has implemented any measure for the prevention of or protection from crime. The measures covered in the survey are the following: Construction of walls, fences or additional exterior walls in homes; the placement of barbed wire, electrified mesh or broken glass on walls around the homes; the installation of burglar alarms; the addition of padlocks or plates to doors; the acquisition of a firearm; joining together with neighbours to install a security gate to close access to the street where one resides; the installation of surveillance cameras; the hiring of a private security service or a private watchman, or the purchase or adoption of a guard dog. The average cost of such measures per household was US$128.31, according to data from the aforementioned survey. This average cost is then multiplied by the total number of households (1,938,530) to get the total expenditure of Salvadoran households on security measures to prevent crime, which amounts to approximately US$250 million (0.9% of GDP).

For Guatemala, this expenditure was estimated based on information from the 2018 ENPEVI on the cost of crime protection measures implemented by households. Examples of such measures are the installation of an armoured door or a metal door; the incorporation of special locks or padlocks on doors; the installation of burglar alarms, surveillance cameras, fences, walls or fences (new or higher); the installation of barbed wire or electrified fences; the purchase of a guard dog; the hiring of a watchman or security guard; the implementation of a formal surveillance plan by neighbours (neighbourhood committee) or informal agreements established to guard the houses, or the purchase of a firearm. The total cost of such measures amounted to 527.8 million quetzals, equivalent to US$68.5 million (0.1% of GDP).

The Citizen Perception Survey on Insecurity and Victimization conducted in Honduras by the University Institute for Democracy, Peace and Security of the National Autonomous University of Honduras asked respondents about the protection measures adopted to counteract insecurity, regardless of whether or not they had been victims of a crime. Some 19.8% respondents stated that they avoided visiting certain places, 13.1% indicated that they had made changes in their travel schedules, and when they went out 11.0% said that they didn't go out alone, 10.6% stated that they did not wear valuables, 12.9% reported that they had not taken any action, while 6.7% said they chose not to go out at all. Respondents also mentioned other actions aimed at protecting the house, namely: building perimeter fences and placing padlocks on house gates (7.4%), or buying dogs. People with greater purchasing power stated that they had acquired a vehicle to get around, or that they had hired private security guards (University Institute for Democracy, Peace and Security, 2019). The survey, however, did not collect information on the costs involved in adopting these preventive security measures. In order to estimate this cost, an average cost per household of US$74.9 was calculated (the result of getting the average of figures calculated for El Salvador and Guatemala), and this cost was multiplied by 2,207,901, which is the number of Honduran households, resulting in a total cost of US$165.5 million (0.7% of the GDP) (see Table 13).

Table 13
Household spending on security measures (in millions of dollars) in El Salvador, Guatemala, and Honduras, 2019

	Costs of private security					
	El Salvador		**Guatemala**		**Honduras**	
	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP
Households	250.0	0.9	68.5	0.1	165.5	0.7

Source: Prepared by the authors based on data from official sources.

2.3.2. Businesses

In the case of El Salvador, there is no exact figure available regarding security spending by businesses. According to calculations made by Barrios and Abrego (2020) based on the database of the National Survey of MSEs, conducted by the National Micro and Small Business Commission together with DIGESTYC, which was in charge of the field survey, investment in security measures represent approximately 42% of the average annual cost that crime

represented for MSEs surveyed in 2016.[25] If that figure is extrapolated to the universe of MSEs, this would represent in aggregate terms an expenditure of about US$100 million per year. To this should be added the investment in security by medium and large businesses, however the information insufficient. Therefore, we have taken the average expenditure on security by companies in Guatemala (US$1,185.35) and multiplied it by an estimated total of 320,000 companies, which gives a total expenditure on security in El Salvador of US$379.3 million (1.4% of GDP).[26]

The amount businesses spend on security in Guatemala was estimated based on available information on the following products: Security services, security systems and private investigation, covered in the balance of supply and use of the 2019 national accounts. The value of these services rose to 4,362.8 million quetzals (US$566.6 million), equivalent to 0.7% of GDP. On an estimated universe of 478,000 companies, this would imply an average annual security expenditure per business of US$1,185.35.

In the case of Honduras, the data corresponding to Guatemala was considered, due to the lack of hard information to calculate the security expenditure of companies (US$1,185.35 per company) and multiplied by an estimated universe of 250,000 businesses, which gives a total of US$296.3 million (1.2% of GDP) (see Table 14).

Table 14
Business spending on security measures (in millions of dollars) in El Salvador, Guatemala, and Honduras, 2019.

	Costs of private security					
	El Salvador		**Guatemala**		**Honduras**	
	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP
Businesses	379.3	1.4	566.6	0.7	296.3	1.2

Source: Prepared by the authors based on data from official sources.

25 Barrios and Abrego (2021) adopt a granular approach to estimate the cost of crime at the departmental level. The National Micro and Small Business Commission's survey sample comprises 9,569 businesses, and includes sole proprietorships, microenterprises (1 to 10 employees), and small businesses (11 to 50 employees).
26 According to Arnoldo Jiménez, former executive director of the National Association of Private Enterprise, Salvadoran companies spent $500 million on security in 2013 (CentralAmericaData, 2013).

2.4. Material loss

As for costs from the loss of assets or valuables to different types of criminal acts (robbery or theft, among others), anecdotal evidence is even more abundant and growing. Extortion, in particular, has become one of the most disquieting factors affecting the economic activity of businesses and the income of many households in all three northern Central American countries.

2.4.1. The scourge of extortion

In the countries of northern Central America, extortion has been one of the main problems affecting businesses for several years. The most vulnerable to extortion is the MSE sector, employing half of the economically active population. Extortion and robbery of stores and trucks that transport goods have led to the closure of many small businesses in the three countries. An article published in September 2014 claimed that distribution companies in northern Central America were paying organized criminal groups monthly fees of $100 per truck (CentralAmericaData, 2014b). Extortion of the transport sector has long been one of the main sources of income for gangs in El Salvador, Guatemala and Honduras. While the specifics of extortion are specific to each country, there are also characteristics common to all three countries considered.

El Salvador

El Salvador has endured the mounting scourge of extortion for several years. As in the case of its neighbouring countries, the most affected economic segment is microenterprise. According to a study prepared in 2013 by the National Council of Small Businesses of El Salvador, Unión MIPYMES and the Society of Salvadoran Merchants and Industrialists, 70% of the country's micro and small businesses were targets of extortion, and 65% of them did not file a complaint for fear of reprisals (CentralAmericaData, 2013a). A year later, representatives of National Council of Small Businesses of El Salvador reported that 90% of small business owners were being extorted, but 76% of those affected did not file complaints for fear of reprisals. Merchants affected by extortion had to pay fees ranging from US$5 to US$3,000 per month (CentralAmericaData, 2014a).

One of the sectors most affected by extortion is transportation. Information from the Federation of Transport Cooperatives shows that, in 2013, the owners of the 10,500 transport units that operated nationwide paid $36 million to extortion (CentralAmericaData, 2013b). The country's public

transport companies have even incorporated extortion payments into their formal accounting (Papadovassilakis, 2019). A 2014 article reported that sugarcane producers also allocated an additional budget amount to pay for security costs they had to assume due to increased threats and extortions carried out by gangs (CentralAmericaData, 2014c).

In March 2015, the congress unanimously approved the Special Law against the Crime of Extortion (Legislative Decree 953), with Article 1 stipulating that the law aims to "establish special criminal and procedural regulations, as well as measures of an administrative nature for the prevention, investigation, prosecution and criminal punishment of the crime of extortion" (Legislative Assembly of El Salvador, 2015). Among other measures, the law proposes stiffening prison sentences for people who commit the crime of extortion, and contemplates the application of legal measures, such as seizing assets obtained as a result of extortion, and blocking telephone signals in penitentiary centres to prevent extortion from being carried out from those institutions.

In addition, the law empowers the Prosecutor General of the Republic to carry out routine investigations without the need for a formal filing, and to apply the Asset Forfeiture Act in cases in which it is proven that goods were acquired with money from extortion. On the other hand, the General Superintendency of Electricity and Telecommunications is empowered to process and sanction commercial and telecommunications network operators that do not comply with the Law. Telecommunications companies that fail to comply with the law in force in the commercial and services sector, will be sanctioned with a strong fine for each infraction.

Although the law has been hailed as an important development in combating extortions, this scourge is a burden on a significant number of companies, especially micro and small businesses, and continues to be one of the main factors that hinder the reconstruction of business environment in the country. In May 2018, representatives of the Chamber of Commerce and Industry of El Salvador noted that every week, at least two businesses expressed their intention to close due to the negative impact extortion has on their commercial development (CentralAmericaData, 2018).

Guatemala

According to a study on citizen security in Guatemala entitled "From rent to extortion and from extortion to imitation," (Spanish only) presented in December 2020 by the National Economic Research Centre with support of the Foundation for the Development of Guatemala, extortions have tended to increase since 2005, reaching a rate of 89 extortion complaints per 100,000 population in 2019 (National Economic Research Centre, 2020). According to the 2018 ENPEVI, the Guatemalan population reports only 1 in 3 extortions. Of those reported, 60% of the victims of extortion are households, followed by businesses (31%) and the transportation sector (6%). It is estimated that in 2017, extortion of buses in Guatemala generated US$70 million in revenues for gangs (Papadovassilakis, 2019).

According to Dedik (2015), until 2004, extortion had been a low incidence crime in Guatemala, registering fewer than 800 complaints annually. Since 2005, gang as clique strength has grown, extortion, linked to the territorial control exercised by the gangs, has become systematic. Between 2004 and 2007, there was a slight but steady increase (fewer than 2,000 reports per year), and since 2008 there has been a drastic increase, reaching a peak in 2010, with 9,500 reports to the Public Ministry. This increase coincides with the wave of extortion of public transport and the creation of new investigative bodies to deal with this crime, which may have boosted the number of complaints.

In the following two years, 2011 and 2012, the number of complaints decreased. Starting in 2015, according to the National Economic Research Centre (2020), extortions increased again, with the emergence of the phenomenon of the so-called "copycats," people who, while in prison, imitated the crime committed by gangs. Copycats have a small structure that is not fixed and select victims at random. Most of them operate from prison and in total carry out 80% of the extortions, while the gangs focus on transport and commerce.

The crime of extortion is typified in Guatemala in article 261 of the Penal Code and in articles 10 and 11 of the Law Against Organized Crime, approved in 2006. In 2009, the Strengthening Criminal Prosecution Act was passed, followed by the Mobile Terminal Equipment Act of 2013. According to Dedik (2015), both legal and institutional measures have been taken to counter the scourge. In 2009, the definition of the crime of extortion was modified to increase the prison sentence from 6 to 12 years. In addition, other laws addressed the specific offences involved in extortion of public transport and new special investigation methods were developed. However, only 16% of

the complaints filed go to the Justice System and, of those, only 29% are sentenced.

Both the PNC and the Public Ministry have made progress in terms of institutional strengthening, and created the National Division against the Criminal Development of Gangs and the Office of the Prosecutor for Extortion, both with departmental and municipal offices. In 2012, the Extortion Task Force was created in order to improve inter-institutional investigation and coordination. Also, the National Forensic Science Institute, the Public Criminal Défense Institute and the Justice System have taken steps to reduce extortion. However, despite these actions, the crime has not been kept in check. According to the PNC, close to 80% of extortions come from prisons, a fact that is not acknowledged by the penitentiary system. Prisons are 380% overcrowded, with staff shortages, lack of control and corruption.

One of the extortion structures in Guatemala that has been best documented through journalistic investigations is the waste collection service. According to a report by Sofía Menchú (2019)[27] at least 550 garbage trucks travel through Guatemala City, collecting garbage from homes and businesses three times a week, and paying extortion once a month (Menchú, 2019).

Municipal authorities have authorized some 300 truck owners to carry out garbage collection and to charge for these services. These entrepreneurs are grouped in an association headed by a board of directors. In October 2017, members of the association were summoned to a general meeting where they were told that one of the drivers had received a phone, with an order to hand it over to the directors. The extortionists called that phone and demanded 100 quetzals ($13.5) per week for each truck in circulation, threatening to kill anyone who did not pay. The extortion rate has since doubled, as a second group began extorting money from the association. In total, the amount of extortion amounts to almost US$60,000 per month. Each truck that pays extortion must have a black dot of a certain size next to the registration number on the side. This way, the gangs know who pays and who does not.

27 The article cited above is part of an investigation into various types of extortion in Central America, conducted by InSight Crime and The Global Initiative.

Another extortion structure documented by Menchú is the San Martin de Porres market, one of the largest in Guatemala, located in Zone 6, north of the capital. The municipality charges each stall anywhere from 150 to 3,000 quetzals per month (between $20 and $400). A gang clique also operates in the market, and has started an extortion scheme: Gang members mark the spaces for the stalls with yellow lines on the ground, and then hand out cell phones to communicate with the vendors in order to coordinate the extortion payments. At first the gang members demanded 100 quetzals (US$13). When some vendors who refused to pay were killed, extortion payment became the norm. Subsequently, the gang members set extortion fees ranging from 100 to 300 quetzals (between $13 and $40), depending on the size of the business.

The extortion money is collected by the vendors themselves, each of whom is identified by the number assigned by the market. The cash is placed in a bag, and one of the vendors is instructed, by telephone, to deliver the money to the gang members. The fees are double three times a year, when they are called "bonuses" ("the fish" during Easter, "bonus 14" in July and "Christmas bonus" in December). Many merchants have been forced to close their stores due to the pressure. New businesses can open in the abandoned stalls, on condition that the new owner pay the gang the monthly fee, as well as a high initial fee, which ranges between 50,000 and 75,000 quetzals (between $6,750 and $10,100). The gang has ordered all vendors to place a small Guatemalan flag somewhere in their stall to indicate that the extortion payment has been made.

Honduras

In Honduras, extortion has also grown at a rapid pace over the past decade. Between 2012 and 2013, some 18,000 businesses closed due to gang pressure, with at least 72,000 direct jobs lost. In 2013, the Chamber of Commerce and Industries of Tegucigalpa surveyed 2,920 business owners, 13% of whom stated that the main obstacle to investing in the country was extortion (CentralAmericaData, 2014b).

As in El Salvador and Guatemala, one of the sectors that is hardest hit by extortion is transportation. Gangs in Honduras have forced transport workers to participate in extortion networks, which has increased vulnerability in this sector. This tactic emerged after increased police presence at transport terminals hindered gang members' chances of extorting drivers and bus owners through phone calls or written messages. In April 2019, there were protests involving hundreds of transport workers, who demanded that the

government take action against the crime of extortion. Following these protests, extortion fees increased from 900 lempiras per week (US$36) to 1,200 lempiras (US$47) (Papadovassilakis, 2019).

Many micro, small and medium-sized entrepreneurs have had to close their businesses due to the unstoppable wave of extortion by criminal gangs operating in several cities in the country. According to the testimony of a micro-entrepreneur in the Las Torres neighbourhood of Tegucigalpa, a gang of extortionists demanded that she pay 1,000 lempiras per day (US$40) to operate her business. After the appearance of a new gang of extortionists, who demanded another 1,000 lempiras per day, the micro-entrepreneur decided to close the business, as it was impossible to get the money to pay both gangs (EFE News Agency, 2019). Cases like this abound in the main cities of Honduras. A transport businessman stopped using the two units he operated due to threats from three gangs demanding 3,000 lempiras per day ($122).

Extortion has driven businesses in the transportation sector to bankruptcy, including various services such as taxi cabs, interurban and cargo transportation, as well as other types of businesses. Businessmen also report that some gangs have started to demand an additional 200,000 lempiras (US$8,150) in order to “go on Easter Week vacation.” Many cab owners have opted to discard their assigned licence plate numbers and have painted their units a different colour, in order to provide service only to regular customers (EFE News Agency, 2019).

The Honduran State has undertaken a number of initiatives to address the problem of extortion, including the creation of special security forces, such as the National Anti-Extortion Force formed in 2013 as a specialized, inter-institutional unit with personnel from the Public Ministry, the National Police, the Armed Forces and the National Directorate of Investigation and Intelligence. The main objective of the National Anti-Extortion Force was to carry out a frontal combat against the crime of extortion, but not against other crimes committed by gangs (Bastién, 2020). Based on the experience gained after the creation of that force the Government created, in July 2018, the National Anti-Gang Force (FNAMP), a unit that specialized in combating more broadly the entire criminal scheme of gangs, not only extortion. As of March 2019, the Government also deployed the National Urban Transportation Security Force to address the threats affecting this sector as a priority.

The deployment of these special security forces has been accompanied by a tightening of legislation to combat extortions. Thus, Article 373 of the new Honduran Penal Code increased the prison term for the crime of extortion from 10 to 15 years to 15 to 20 years. It also established that extortion will be considered consummated and those who intend to carry it out will be held responsible as perpetrators, regardless of whether or not the desired objective has been achieved. In addition, Article 374 provides for an increase in penalties by one-third for aggravating factors: a) the participation of minors under 18 years of age and persons with disabilities; b) the fact that the extortion has caused the closure of a company or business, and c) the fact that the extortion orders come from a prison (Legislative Branch of Honduras, 2021).

To make it easier to report extortion, in addition to being able to file the complaint in person at any of the six regional offices of the National Anti-Gang Force, a special telephone line (hotline 143)[28] has been set up, in addition to the 911 hotline and the normal telephone lines of such official institutions as well as on their social media (Facebook and Twitter).

According to a press article, in 2020, Honduran authorities received 1,466 complaints for the crime of extortion, while security forces captured 1,621 people suspected of illicit association for belonging to a gang and also accused of having committed extortion and related crimes. Those captured had 6.8 million lempiras (US$280,000) seized, and extortion victims were prevented from paying an additional 19.2 million lempiras (US$787,000) (El Heraldo News, 2020). On October 24, 2021, the spokesperson for the National Anti-Gang Force reported that citizens had filed more than 1,600 complaints of extortion charges over the course of that year. The complaints had been made through the 911 and 143 hotlines, resulting in the capture of more than 1,500 people who were brought before the Honduran Justice System (La Tribuna, 2021).

Final reflections on the crime of extortion

There is abundant anecdotal information on the scourge of extortion in the three countries of northern Central America, and the examples in the preceding sections are just a sample, but are useful to get a general sense of the scope and seriousness of this phenomenon in the region, but this does not discount the need for systematic data on the economic cost of extortion in the countries. Quantifying these costs requires detailed information on the various types of crimes that generate losses for economic operators.

28 National Investigation and Intelligence Directorate, Anonymous Reporting System, <www.dnii.gob.hn/linea- 143.html>.

Some of this type of information can be obtained from citizen victimization surveys and business activity surveys conducted in the region.

2.4.2. Information from citizen victimization surveys and business surveys

In El Salvador, according to the 2018 Culture of Peace Survey, 1.6% of households indicated that they were victims of residential burglary; 3.6% experienced an incident of robbery; 5.4% experienced an incident of theft; 0.7% experienced a car, van or pick-up theft; and 1.5% were victims of extortion. However, the survey did not provide information on the amount of household losses due to crime. In the absence of hard data on the aggregate number of losses, the available data for Guatemala (US$174.7 per household) was considered and multiplied by a total of 1,938,530 Salvadoran households, which yields a total of US$338.7 million (1.3% of GDP).

In the case of Guatemala, the 2018 ENPEVI indicates that total losses as a result of crime amounted to 4,406.7 million quetzals (US$572.3 million). The crimes contemplated are: car, truck or pick-up theft, car parts theft, theft of items in a vehicle, motorcycle theft, residential burglary, violent robbery, nonviolent theft, bank fraud, fraud, bribery, physical aggression and injury, threats, extortion and kidnapping. Considering a total of 3,275,931 households, this would be an average loss of US$174.7 per household.

In the case of Honduras, according to the Citizen Perception Survey on Insecurity and Victimization conducted in 2019 by the University Institute for Democracy, Peace and Security of the UNAH, 10.9% of inhabitants nationwide were victims of crime, with robbery, theft and extortion being the main crimes. In 2019, 8.6% of the population of Honduras claimed to have been victims of robbery, 7.4% expressed having suffered theft and 1.9% were victims of extortion, according to the survey (University Institute for Democracy, Peace and Security, 2019). Among those interviewed, 1 in 4 stated that a family member had been a victim of crime in the last 12 months. The survey, however, did not collect information on the number of losses as a result of these crimes. Taking as a reference the figure estimated for Guatemala (US$ 174.7), the total amount of household economic losses in Honduras due to crime was estimated at US$ 385.7 million (1.5% of GDP), obtained by multiplying US$ 174.7 (corresponding to Guatemala) by 2,207,901 Honduran households.

In addition to the material losses to households, there are also losses to businesses as a result of crime, namely, the theft of vehicles, merchandise and valuables; armed robbery of the payroll, or cash from a business; robbery collection clerks; damage to the company's infrastructure (vandalism), and fraud.

Data collected in 2006 in the World Bank business surveys show the total cost in terms of investment in security and economic losses due to crime in Central American companies that year represented 3.7% of sales, a figure significantly higher than the Latin American average of 2.8%. These costs ranged from 3.1% in Nicaragua to 4.5% in El Salvador and Honduras, with an intermediate value of 3.9% for Guatemala. The World Bank highlighted that the high costs of crime in these countries are a huge drag on competitiveness, reduce profit margins and could lead to future closure of companies (World Bank, 2011).

In the case of El Salvador, according to a survey conducted by the Salvadoran Foundation for Economic and Social Development in 2016, 42% of MSEs were victims of a crime in the 12 months prior to the survey, with extortion being the most frequent crime (22%). This is followed by fraud (15%), robbery and theft (13%), crimes against property (5%) and crimes against persons (2%). MSEs in the commerce and services sectors have a greater tendency to experience crime, both in terms of crime in general and extortion. Extortion, in particular, increases as the number of employees grows: While 36% of one-employee businesses were victims of some type of crime, and 17% of them experienced extortion, almost 60% of businesses with more than five employees were victims of crime and more than 30% were extorted (Salvadoran Foundation for Social and Economic Development, 2016).

According to the National Survey of Micro and Small Enterprises, 8.2% of MSEs were victims of extortion, 7.1% suffered an incident of robbery, 5.8% were victims of theft, and 5.7% were victims of other crimes. Ten per cent of the respondents stated that they had been victims of crime. Businesses run by men (14%) were more likely to suffer a criminal act than businesses run by women (7%) (National Micro and Small Business Commission, 2018).

According to calculations made by Barrios and Abrego (2020) using the database of the aforementioned survey, robbery was the type of crime that resulted in the greatest loss among MSEs that were victims of this crime (US$3,153 per year, on average), followed by the crime of theft, which entailed an average annual loss of US$3,142. Based on this information, it can be estimated that, at an aggregate level, the economic losses of MSEs due to crime amount to some US$150 million per year, if the amounts paid for extortion are excluded.

The work of Barrios and Abrego (2020) also highlights the fact that a significant number of Salvadoran businesses have only one employee. These account for 37% of all MSEs and have relatively high crime costs that derive mainly from crime losses, as they do not tend to invest as much in security measures as large and medium-sized businesses. Interestingly, data suggests nonlinear relationships between business size (measured by number of employees) and crime costs that businesses pay.

Barrios and Abrego (2020) estimated that total crime costs (as a percentage of sales) are highest for businesses with 21 to 25 employees, followed by businesses with a single employee. Another interesting fact is that when businesses are large enough (e.g., 21 to 25 employees), they seem to be a more attractive target for extortion. These businesses have an average total cost of crime of about 8% of their annual sales, i.e., for every dollar obtained from annual sales, they spend eight cents (US$0.08), on average, due to crime (security or crime losses). According to estimates by Ayala, Padilla and Santamaría (2014), the amount of extortion of MSEs would exceed US$20 million per month. In total, between losses due to robbery or theft and extortion, MSEs assume costs of around US$390 million annually.

The impact of crime on MSEs is especially important considering that they represent 98% of the country's business sector, account for approximately 35% of GDP and employ approximately one-third of the country's labour force (854,732 people, 54.2% of them women). According to the 2017 National Survey of Micro and Small Businesses, of the 317,795 economic units that are MSEs, 59.4% are owned by women, 40.5% are owned by men, and 0.4% of respondents did not give (or did not know) the sex of the person who owns the business (National Micro and Small Business Commission, 2018).

On the other hand, according to the 2020 Business Competitiveness Survey of the Salvadoran Foundation for Social and Economic Development, 1 company out of 5 experienced a criminal act (48% of the events were extortions, 42% corresponded to the theft of vehicles with merchandise, and 18% consisted of robbery from company collectors). Of the companies that were victims of a crime, 42% reported it, but only 10% were able to find a solution to the problem; the rest did not report it due to the lack of trust in the authorities (52%) or fear of reprisals (24%) (Salvadoran Foundation for Social and Economic Development, 2021). While large and medium-sized businesses invest more in security and would seemingly be better protected, they are not exempt from losses due to crime. In March 2016, for example, La Constancia Industries, one of the strongest companies in El Salvador, announced that it would suspend the operation of one of its plants due to increased insecurity and violence (CentralAmericaData, 2016).

World Bank information on losses from robbery, assault, vandalism and arson, measured as percentages of total company sales, was used to calculate company losses at the aggregate level. These percentages amount to 4.0%, 3.3% and 4.5% for El Salvador, Guatemala and Honduras, respectively, according to the latest data available in the World Bank database (n. d.). On the other hand, total company sales, calculated from the national accounts of the three countries, are estimated at US$80,868.7 million, US$28,241.54 million and US$26,353.62 million, respectively. Therefore, the total losses to businesses due to crime were estimated at US$3,234.75 million, US$931.97 million and US$1,185.91 million, respectively, equivalent to 4.2%, 3.5% and 4.7% of the GDP of each of the three countries, as shown in Table 15.

Table 15
Economic losses of households and businesses due to insecurity and violence (in millions of dollars and as percentages of GDP) in El Salvador, Guatemala, and Honduras, 2019.

	Economic losses					
	El Salvador		Guatemala		Honduras	
	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP
Households	338.7	1.3	572.3	0.7	385.7	1.5
Businesses	932.0	3.5	3,234.7	4.2	1185.9	4.7
Total	1,270.6	4.7	3,807.0	4.9	1,571.6	6.3

Source: Prepared for this paper based on official data from the countries considered.

2.5. Effects on the investment climate and growth

In addition to direct costs, such as those quantified above (medical-hospital costs, lost production, institutional costs and losses due to crime), violence also results in significant indirect costs, as it affects the investment climate and the opportunities and incentives for companies to invest in production, create jobs and expand. In the World Bank business climate surveys, levels of crime and violence are recurrently mentioned as one of the main factors restricting productivity and growth in El Salvador, Guatemala and Honduras (World Bank, 2011).

As noted by Plotnikov (2020), indirect costs derive from a lower equilibrium level of economic activity due to violence. Examples of such costs include reduced employment opportunities, higher migration rates, institutional deterioration and corruption, factors that exacerbate crime conditions, generating a vicious cycle of economic deterioration and increasing violence. Often such costs involve intangible aspects, such as the harmful effect that the perception of high levels of violence has on a country's business climate, with a loss of competitiveness, limiting investment flows and restricting economic growth.

Indirect costs are more difficult to estimate than direct costs, as they require additional assumptions to set up a counterfactual scenario, what the economic dynamics would be if the situation of violence were different (for example, if homicide rates were lower). Since the choice between productive and criminal activities is endogenous, as Becker (1968) pointed out, estimates of the costs of crime that ignore this endogeneity may underestimate these

costs. A particularly relevant example for the northern region of Central America of this type of endogenous relationship is the cost of migration generated by violence, which results in a significant loss of social capital and in turn impacts economic dynamics, feeding back into the spiral of violence and migration.

In Latin America, including Central America, several studies have attempted to estimate the effect of violence and crime on growth and productivity. The results obtained by Alaimo et al. (2009) confirm that labour productivity and total productivity are lower in businesses operating in countries with high crime rates and high levels of corruption. The World Bank report on the challenge that crime and violence pose to estimating development in Central America estimates that a 10% reduction in the homicide rate could mean a 1% increase in annual per capita income for El Salvador, and a 0.7% increase in Guatemala and Honduras (World Bank, 2011).

Carcach, Rivera and Morera (2011) ran an econometric model based on the national income identity to quantify the loss of aggregate output that is attributable to crime in El Salvador.[29] They found that, on average, the Salvadoran economy had stopped producing an amount equivalent to 7.4% of GDP due to crime over the period 1962-2008. According to the study, if the historical homicide rate for El Salvador (51.9 per 100,000) dropped to the rate in Mexico (17.5 per 100,000), the costs of crime would come down to 2.7% of GDP, and if El Salvador dropped further to the homicide rate in Costa Rica (4.7 per 100,000) the loss of output would be only 0.7% of GDP. According to that model, a homicide rate like the one registered in 2019 in El Salvador (35.3 per 100,000) would have an economic loss of 5% of GDP.

Plotnikov (2020) offers a novel alternative approach for estimating the indirect economic costs of violence, using a general equilibrium model based on the "job search" theoretical framework of Diamond, Mortensen and Pissarides according to the specification proposed by Pissarides (2000). In this model, the rate of return on engaging in criminal activity is endogenously determined along with the level of economic activity and criminality. On average, Plotnikov finds that a 1% increase in output per capita involves a 0.5% decrease in crime, while a 5% decrease in crime leads to a 1% increase in output per capita.

29 The model was adjusted using annual data from the period 1962-2008. The endogenous variable was GDP per capita, and the exogenous variables included consumption, investment and public spending, all three expressed as percentages of GDP based on purchasing power parity one period behind, GDP per capita two periods, and the homicide rate for each period.

Specifically, for the three northern Central American countries the model implies that the indirect costs of crime are equivalent to 6.7% of GDP in El Salvador, 3% of GDP in Honduras and 0.9% of GDP in Guatemala, and to this must be added the direct costs of violence on these countries. Another interesting finding in Plotnikov is that crime tends to have a disproportionately greater impact on the poor population due to their inability to protect themselves, which exacerbates the prevailing inequalities in the countries under analysis and tends to feedback into the spiral of violence.

Applying the Plotynikiv model taking into account homicides recorded in the three countries under analysis in 2019, the lowest in the period from 2010-2019, the indirect cost-estimates for violence on the economy are lower, around 1.4% of GDP in El Salvador, some 0.6% of GDP in Guatemala, and 2% of GDP in Honduras.

3. AGGREGATION OF THE COSTS OF VIOLENCE

The costs of violence in the northern Central American countries already calculated, classified according to categories, were aggregated to estimate the total cost of violence in the three countries under analysis (see Table 16).

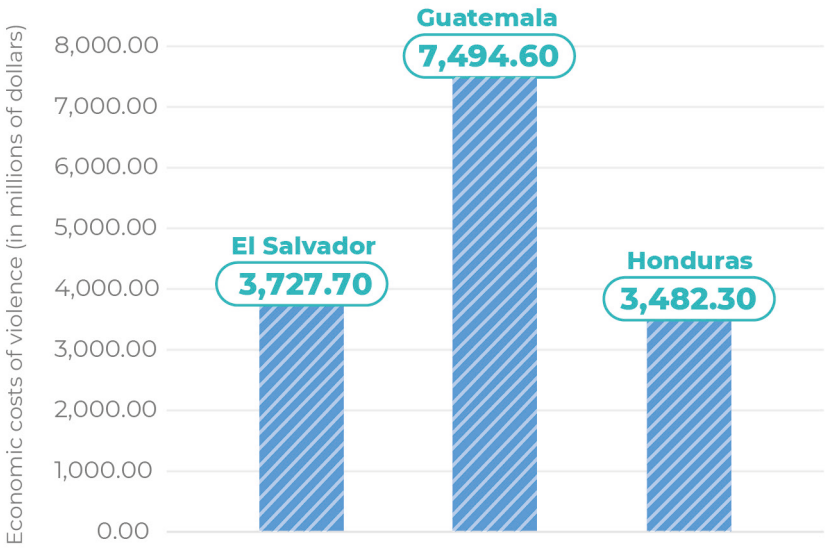
Table 16
Economic costs of violence (in millions of dollars and as a percentage of GDP) in El Salvador, Guatemala, and Honduras, 2019

	El Salvador		Guatemala		Honduras		Aggregate	
	$	%	$	%	$	%	$	%
Economic costs of violence	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP	In millions of dollars	Percentages of the GDP
Health costs	**856.6**	**3.2**	**1,486.7**	**1.9**	**575.5**	**2.3**	**2,918.8**	**2.3**
Medical-hospital costs	58.9	0.2	126.1	0.2	37.2	0.1	222.1	0.2
Lost production	706.3	2.6	1,110.1	1.4	500.7	2.0	2,317.1	1.8
Emotional damage	91.5	0.3	250.5	0.33	37.7	0.2	379.6	0.3
Institutional costs	**594.5**	**2.2**	**1,105.5**	**0.8**	**371.4**	**1.5**	**2,071.4**	**1.6**
Public safety	335.0	1.2	618.0	0.2	189.9	0.8	1,142.9	0.9
Supreme Court of Justice	184.0	0.7	178.1	0.3	111.0	0.4	473.1	0.4
Public Ministry	39.0	0.1	266.7	0.03	61.3	0.2	366.9	0.3
Public Defender	9.7	0.04	23.8	0.02			33.5	
Human Rights and social reinsertion	26.8	0.1	18.9	0.1	9.2	0.04	55.0	0.04
Private security expense	**629.3**	**2.3**	**635.1**	**0.7**	**461.8**	**1.8**	**1,726.2**	**1.3**
Households	250.0	0.9	68.5	0.7	165.5	0.7	484.0	0.4
Businesses	379.3	1.4	566.6	4.2	296.3	1.2	1,242.2	1.0
Material loss	**1,270.6**	**4.7**	**3,807.0**	**1.4**	**1,571.6**	**6.3**	**6,649.3**	**5.2**
Households	338.7	1.3	572.3	0.8	385.7	1.5	1,296.7	1.0
Businesses	932.0	3.5	3,234.7	4.9	1,185.9	4.7	5,352.6	4.1
Impact on investment and productivity	**376.6**	**1.4**	**460.3**	**0.6**	**502.0**	**2.0**	**1,338.9**	**1.0**
Total	**3,727.7**	**13.86**	**7,494.6**	**9.74**	**3,482.3**	**13.87**	**14,704.6**	**11.4**
GDP (in millions of dollars)	**26,896.7**		**76,987.0**		**25,098.7**		**128,982.4**	

Source: Prepared by the authors based on data in the tables of this report.

According to the estimates made for this study, the economic costs of violence in El Salvador in 2019 represented a total of US$3,727.7 million (13.86% of GDP), in Guatemala US$7,494.6 million (9.74% of GDP) and in Honduras US$3,482.3 million (13.87% of GDP) (see Figure 2).

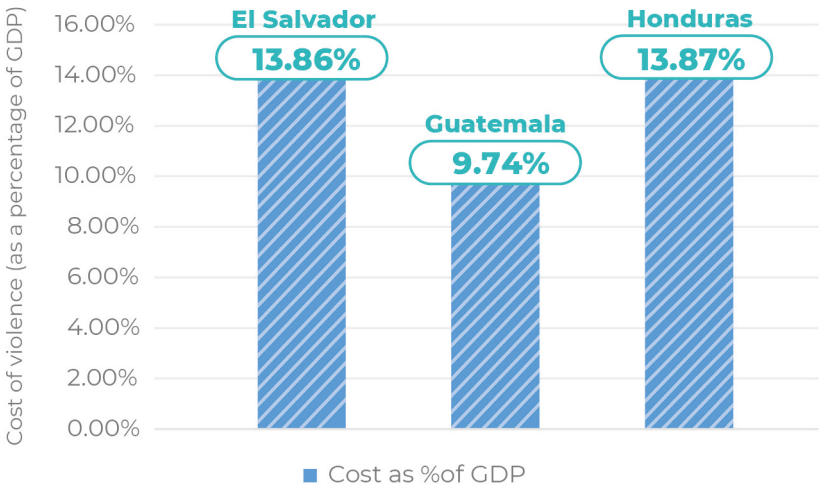
Graph 2
Economic costs of violence (in millions of dollars) in El Salvador, Guatemala and Honduras, 2019.



Source: Prepared by the authors based on data from official sources in the countries in this study.

If we consider the absolute values (in millions of dollars), the cost of violence was higher in Guatemala than its neighbours, but when measured in relation to GDP Guatemala has the lowest cost of the three countries, given that its economy is larger. If the costs are estimated as a proportion of GDP, cost of violence is highest in Honduras and El Salvador (see Figure 3).

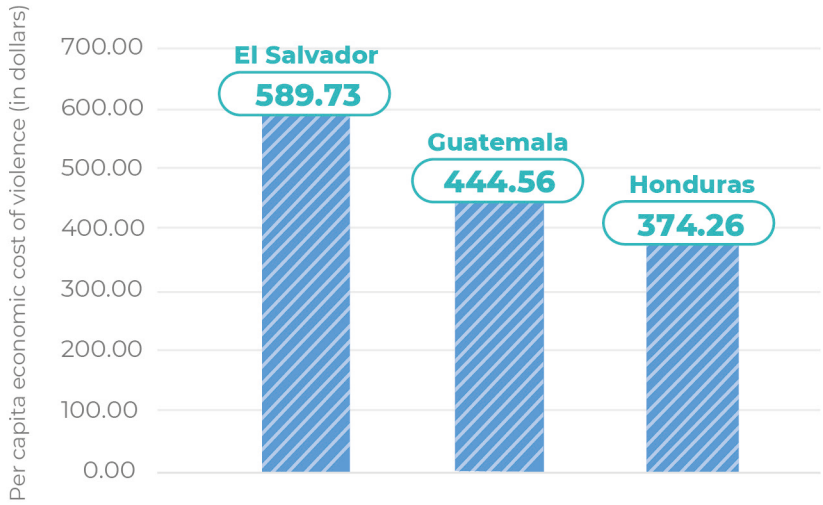
Graph 3
Cost of violence (as a percentage of GDP) in El Salvador, Guatemala and Honduras, 2019



Source: Prepared by the authors based on data from official sources in the countries in this study.

If we consider the per capita economic cost of violence, we see that cost was higher in El Salvador than in Guatemala and Honduras ($589, $444 and $374, respectively) (see Figure 4).

Graph 4
Per capita economic cost of violence (in dollars) in El Salvador, Guatemala and Honduras, 2019



Source: Prepared by the authors based on data from official sources in the countries in this study.

This represents an enormous drain of resources that could have been used for social investment or other productive purposes. In the case of Guatemala, the economic costs of violence were equivalent to 2.3 times the combined education and health budget; in the case of El Salvador, this proportion was also 2.3 times, and in the case of Honduras, it was 1.9 times.[30] Expressed in terms of tax burden, the resources lost due to violence represented, respectively, 97%, 79% and 93% of the total tax collection of El Salvador, Guatemala and Honduras.

If the resources diverted and wasted due to violence could be redirected towards social investment, the three countries could double their education and health budgets, and there would still be resources available to promote productivity programmes, reduce infrastructure gaps, invest in strengthening development capacities and substantially improve the quality of life of the population.

30 In 2019, in El Salvador budget allocations for education and health were US$997.2 million and US$662.9 million, respectively; in Guatemala they were US$2,175 million and US$1,079 million, and in Honduras they were US$1,211 million and US$597 million.

4. FINAL REMARKS

Violence and citizen insecurity are an enormous burden in El Salvador, Guatemala and Honduras in both human and economic terms, affecting people's daily lives and quality of life, negatively impacting human development, social cohesion, investment and governance.

In 2019, in the three countries considered in this study, violence cost US$14,704.6 million (11.4% of the tri-national GDP), the result of the sum of health expenses, legal costs, work absenteeism, lost investments, material losses and lost productivity. Thus, the impact of violence on the development potential of countries is significant, as it undermines human security and affects their ability to accumulate human and social capital.

In estimating the economic cost of violence for this report, we applied a standard methodology, used in previous studies, which consists of breaking down the costs of violence and insecurity. Support for the estimates came from robust information available on the subject, and extensive bibliographic work was carried out, compiling data from different sources, such as victimization surveys, business surveys and multipurpose household surveys. Data from these sources was key in estimating the total number of incidents of violence, and in filling in the information gaps due to non-reporting, a frequent obstacle encountered when trying to adequately measure the scope of this issue.

The results of this accounting exercise are in line with those presented in several previous studies, listed in Table 16 (University Public Opinion Institute, 1998; Londoño and Guerrero, 1999; United Nations Development Programme, 2005 and 2006; Acevedo, 2008 and 2009; Jaitman, 2015; Banco Central de Reserva de El Salvador, 2016; Plotnikov, 2020; Institute for Economics & Peace, 2021). It should be noted that the estimates presented in the different studies cited are not mechanically comparable with each other, because in each case the methodologies and approaches that were applied differed, and the assumptions considered, the coverage of the variables and the periods analysed, and other elements varied. Differences in homicide rates from one period to another, for example, are a factor that can change the estimates significantly, given the weight that homicides have in the calculation of lost production due to premature death in countries where most of the victims are young people.

Table 17
Comparison of the economic costs of violence estimated in various studies (as percentages of GDP) in El Salvador, Guatemala and Honduras

Study	El Salvador	Guatemala	Honduras
University Public Opinion Institute (1998)	13.4		
Londoño and Guerrero (1999)	24.9		
United Nations Development Programme (2005)	11.5		
United Nations Development Programme (2006)			
Acevedo (2008)	10.8	7.3	9.6
Acevedo (2009)	10.9	7.7	
Jaitman (2015)			4.8
Central Reserve Bank of El Salvador (2016)	16.0		
Plotnikov (2020)	26.2	7.3	16.3
Institute for Economics & Peace (2021)	18.0	8.0	13.0
UNDP-InfoSegura (2022)	**13.86**	**9.7**	**13.87**

Source: Prepared for this paper based on data consulted in the studies cited in this table.

Violence is dynamic and inextricably intertwined with the social, economic, political and cultural dynamics of countries. This implies that there is a significant degree of endogeneity between all these dynamics, which is not easy to capture in the estimates. A case in point is the relationship between violence and migratory dynamics, or the way in which the illicit economy and organized crime, mainly drug trafficking, engender certain types of violence and infiltrate the State, which in turn affects the rule of law and the institutional environment, posing considerable challenges for the diagnosis and quantification of the phenomenon.

Accurate measurement of the economic costs of violence not only provides an indicator of the magnitude and severity of the problem, but also constitutes an important input for the teams responsible for decision-making and policy formulation to address this problem. In particular, the resulting estimates can be used to better assess the relative merits of policy alternatives to address violence and to determine the most effective way to allocate resources to implement effective programmes within the framework of a comprehensive public policy of peaceful coexistence and citizen security.

Timely and quality information is key to policy assessment and design. Particularly in terms of violence against women, the actions carried out in the region to make this form of violence visible, supported in the different countries by the work of the UNDP, have made it possible to obtain better statistics, which are essential for monitoring the phenomenon and for designing more effective policies to prevent violence and care for victims. However, it is necessary to step up the actions that have been implemented in recent years in El Salvador, Guatemala and Honduras to improve the quality and accessibility of information, especially with regard to surveys and disaggregated information focused on victims. In particular, it is necessary to redouble actions aimed at generating statistics to obtain information disaggregated by sex, not only to quantify acts of violence, but also to have data that makes it possible to differentiate the variables used to measure economic costs. It is also necessary to deepen field research on those types of violence that are most relevant and on which the available information is particularly scarce.

It is also necessary to improve the production of information on the cost of private security and material household losses as a result of crime, as well as to design business surveys that provide timely and accurate information on security spending, material losses and the impact on the investment climate. In some countries, there are official databases that could provide valuable information, but they are not publicly accessible. Such is the case of epidemiological surveillance systems for external injuries, which could be useful in calculating a more accurate estimate of the medical-hospital costs of injuries caused by intentional violence.

One of the most important challenges facing countries in the field of information is the potential that efficient management of Big Data has in contributing to reducing violence and improving levels of citizen security, by strengthening statistical systems through the development of open-source software, online databases and data visualization programmes (SEGURED, 2016). The concept of Big Data refers to those volumes of information that cannot be processed through traditional methods. The online IT systems used in the field of security and crime control are increasingly indispensable as a tool for processing information in real time and making timely decisions. In this regard, the report on Global Strategies to Reduce Violence by 50% in 30 Years, prepared by the Violence Research Centre of the Institute of Criminology at the University of Cambridge and the World Health Organization (WHO), posits that the management of Big Data is a key factor that could reduce violence considerably (Violence Research Centre, 2015).

Citizen security is a public good that the State must guarantee and protect, and for which citizens must be co-responsible. Security perception surveys in the region note that insecurity and violence consistently appear as the greatest concern of the population in the three countries studied. Improving the design and effectiveness of public policies aimed at combating violence is not only a citizen demand, but also an indispensable condition for unleashing the region's development potential, based on the firm conviction that there can be no human development without citizen security.

In this sense, it is essential for the countries of northern Central America to have comprehensive citizen security policies that are people-centred, evidence-based, gender-sensitive and territorially focused, and that favour the promotion of actions that are both preventive and legitimate coercive actions inherent to the rule of law.

In order to act effectively and efficiently, regular and reliable information is required. Analysing and monitoring criminal behaviour enables preventive decisions to be made, leading to positive transformations that have an impact on citizen security, as well as people's quality of life and well-being.

Thus, the accurate measurement of the economic costs of violence is important for decision makers involved in public policymaking for citizen security. Within this framework in the countries of the region, work needs to continue and step up, in order to improve information management and the quality of data collected in administrative records, surveys and supplementary sources of information, with a focus on information related to crime victims.

Best practices in citizen security policies in the region have been characterized by engaging citizens, targeting actions, promoting local security policies, coordinating the work of national institutions responsible for the issue, incorporating the gender approach and helping technical teams develop the capacity to manage citizen security. In addition, it is necessary to redouble efforts to generate data and statistics disaggregated by sex, not only to quantify acts of violence, but also to be able to get a disaggregated measurement their economic costs.

In order to move towards achieving greater development, more effective public policies that are in line with the Sustainable Development Agenda need to be implemented, in order to reorient the use of resources aimed at guaranteeing citizen security. This requires strengthening the security and justice institutions, as well as identifying mechanisms to guarantee the financial sustainability of public policies and to convert information into action through practices that impact the operational level of security management.

The design and implementation of actions that are effective at reducing violence can have enormous potential benefits for the development of countries and the well-being of people. If resources that are diverted and spent to address the effects of violence could be redirected towards social investment, the three countries considered in this study could double their education and health budgets, and there would still be significant resources left over to promote productivity programmes, reduce infrastructure gaps, strengthen development capacities and substantially improve the quality of life of the population.

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THE ECONOMIC COSTS OF VIOLENCE

IN THE NORTHERN CENTRAL AMERICAN COUNTRIES