# Threshold Analysis: Differential Technique for Interpreting Criminal Records in Colombia (2019)

## Análisis de umbral: técnica diferencial en la interpretación de los registros de criminalidad en Colombia (2019)

## Análise limiar: técnica diferencial na interpretação dos registros de criminalidade na Colômbia (2019)

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## Abstract

In the world, crime is measured based on indicators that represent criminality and figures of violence. For this reason, it is important to establish the driving factors of criminality on a jurisprudential and criminal level. In Colombia, consolidating this measurement poses various challenges. However, homicide remains one of the most representative crimes, not only because of the veracity of the statistical data it generates, but because cognitive, social and economic conditions associated with the victim or aggressor are circumscribed within the action's execution (Brookman, 2005). The methodology is focused on explaining, interpreting and applying the concepts developed in the "threshold analysis" using data from SIEDCO[1]. In this study's case, common homicides recorded in 2019 in the city of Bogotá were correlated with this city's behavior in the last five years by localities, as well as by political departments and municipalities on a national level. Using the above, another information analysis tool that allows interpreting from an objective perspective will be made known. As a result, it was established that the "threshold analysis" allows combining historical data, averages and standard deviations to methodologically determine and guide timely decision-making, recognizing crime pattern detection (positive and negative) on different levels of geographic disaggregation (regions, departments, municipalities, localities, communes, neighborhoods, etc.), contributing to developing public policies in terms of coexistence and security, and planning and distributing interinstitutional efforts against the conducts that affect the community.

## Keywords

Criminality analysis, crimes, criminality, homicides (source: Latin American Criminal Policy Thesaurus - ILANUD), threshold, georeferencing (author).

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1. SIEDCO database (the Statistical, Criminal, Contraventional and Operational Information System of the National Police of Colombia).

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## Introduction

*Revista Criminalidad* of the Directorate of Criminal Investigation and INTERPOL has published figures on criminal behavior in the country for 62 consecutive years. In this way, the journal is a reference and historical, academic and scientific input for generating strategies and public policies focused on solving the mentioned issues, in order to fight crime. All societies produce a certain amount and types of crimes. Needs for security and to improve coexistence conditions arise in light of this fact, which is called criminality. This article records statistical figures in terms of the crimes committed in Colombia during 2019, revealing criminality behavior by means of a comparison between 2018 and 2019 that disaggregates crimes that highly impact citizen safety and those that affect a community's social and economic stability.

In seeking to analyze statistical data in an alternative manner that allows obtaining a more holistic and historical vision of criminal behavior, the Crime Observatory of the National Police has focused its efforts on implementing methodologies that allow changing the way criminality figures are observed and prioritizing alternate change areas that, under the comparative analysis model, escape the behavioral incidence of a crime's observable analysis. Criminal analysis is a decisive method for the success of crime reduction strategies. Fundación Paz Ciudadana and International Association of Crime Analysts (IACA, 2010, p. 3) mention the experience of Anglo-Saxon countries, in which the police and university community have achieved fruitful partnerships between crime prevention policies and designing information and knowledge management models in organizations, program assessments and public safety research.

Law enforcement agencies and academic institutions seek more efficient ways to identify emerging series and patterns in criminal activity. This means that, in a certain way, the social environment's complexity, changes during the last decades of the XX century in ways of thinking about safety and the appearance of new information technology require institutions responsible for providing security to base their operational decisions on a set of techniques and theories that are capable of optimizing the demonstrated efficiency of work preventing criminal events. The study requires knowing the operations and policies police forces adopt in terms of personnel and equipment organization and the geographic and temporal distribution of resources (Chelini, 2014, p. 55).

For this reason, the so-called "threshold analysis" is taken as a reference. Bruce (2012) describes this methodology as a statistical technique through which crimes and incidents that are not normal or are different than previously observed behaviors can be detected using a software. This tool provides greater efficacy detecting crime areas with emerging changes. Moreover, it allows identifying the particular and determining risk factors (internal and external) of these behaviors to thereby create criticality alerts. In addition, it would contribute to standardizing public policies (strategies) focused on anticipating and predicting crimes.

### The Threshold Analysis: a Statistical Technique for Identifying Crime

Bruce (2012) states it is useful to take into account the so-called "threshold analysis," a statistical technique that helps identify if a crime has "crossed the threshold" by weighting an activity from "Very Cold" to "Hot" in order to choose "the most reliable method, review each crime and compare them with a database of prior crimes" (p. 376). According to Fundación Paz Ciudadana (2013), "the fact that the threshold analysis' quantitative result is only a starting point must always be kept in mind when increases in criminal activity are discovered in particular areas" (p. 146).

The threshold analysis has a long-term perspective, reason why it can be useful for the strategic analysis that identifies long-term criminal problems and future trends, as well as to contribute to managing understanding of the criminal activity's setting and dimension (Paz Ciudadana, 2013, p. 146). Velastegui (2017) confirms the above and refers to how the threshold analysis is a multivariate quantitative statistical technique that is very useful for identifying criminal patterns in conflictive geographic areas. In addition, it allows analyzing the behavior of the different variables that identify possible causes of increasing or decreasing crime (p. 379).

In turn, Chelini (2014) studies how "analyzing crime does not simply end with obtaining information and turning it into intelligence to aid decision-making. It also brings about an assessment of the results obtained through the interventions performed by those responsible for providing safety" (p. 57).

Along this same line, current needs to objectively and timely identify, anticipate or caution criminal patterns in various criminal conducts (Law 599 of July 24, 2000) have led to designing various statistical-inferential interpretation methods or tools for

analyzing crime. These allow authorities to perform prevention, dissuasion and control activities, especially the National Police of Colombia. For this reason, it is very useful to explore, improve and implement various practices, experiences and techniques that are available in this setting, which, adapted to the context, are able to identify changes or alterations to emerging patterns of criminal conducts required to be analyzed.

Due to the above, this article's purpose is to apply the *"threshold analysis"* technique implemented by Christopher W. Bruce (2012) that compares and shows criminal activity in a determined period in the setting of criminology. It helps detect changes in crime and geographic areas where crimes are committed, taking into account normal (standard or neutral) and exceptional (negative or positive) behaviors within a threshold (trend).

In other words, this methodology, as an objective technique, allows identifying the incidence of the crime, observing and comparing the records (current data) with historical behaviors (considering frequency variations).

The tool allows answering the following questions (Bruce, 2012):
I.  What is the normal or expected volume of crime in the established area and time period?
II. How does recent criminal activity compare to the normality threshold?

Using this analysis, we seek to determine the behavior of homicide in 2019 in the city of Bogotá D.C., taking into account a historical period from January 01 to December 31 of 2014 to 2018 that allows identifying the localities and neighborhoods with a significant historical trend and that, compared to the current period (2019), record positive and negative changes in the crime's incidence for 2019.

Furthermore, we seek to disseminate the technique's application, providing the elements (method and steps) for researchers, analysts and the general population to automate this process using the available technological tools. This will contribute to preparing analyses, reports or research with instruments that allow interpreting information from another perspective in different fields, especially the criminal environment.

## Methodology Applied to the Colombian Context

Information collection is supported by record processes of the statistical operation called "police services and conducts," which allows consolidating statistical crime figures in Colombia and extracting them from the National Police's SIEDCO database. For this matter, it corresponds to the crime of homicide - cases recorded in the city of Bogotá D.C. in the period from January 1 to December 31, 2019 (recent activity) and the same time period from 2014 to 2018.

Applying the technique begins with identifying the variables (DANE code[2], department, municipality and, for Bogotá D.C., to identify the localities, jurisdiction, station, latitude-longitude/geographical coordinates) and establishing three aspects:
A.  Selecting the jurisdiction or geographic territory (region, department, municipality, locality, commune or neighborhood).
B.  Determining the time period (year, month, week or day) that will be the pattern to be compared (recent information or activity)
C.  Delimiting time periods (historical information of at least three years or between five and seven years, to be more accurate). This is in order to establish the normal behavior or expected criminal pattern (average). The latter must coincide with the object of comparison under the following condition.

If B. is determined, the pattern to be compared will be 2019 (that is to say, a time period from January 1 to December 31). For C., the historical period must consider that same time period for each year (2014 to 2018).

However, the above applies to full years. If a different time period is to be used (month, week or day), B. and C. must coincide. For example: a comparison pattern for the current year, in this case 2019, from April 1 to August 31, and C., the same period (04.01 to 08.31) for the established historical years.

Once the aspects above have been defined and the respective variables have been mentioned, coded with the information for the corresponding geographic territory (in this case, the localities of Bogotá D.C.), statistical calculations, are applied to the historical time period (five previous years), such as average and standard deviation, as follows:

**Average:** the measure of the central tendency.

An average sample is statistical, with *n* observations in the set of data of the sample. It is determined with the following formula:

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2   The National Administrative Department of Statistics (DANE, for the Spanish original), a Colombian institution in charge of planning, implementing and evaluating statistical information production and communication processes on a national level for decision-making in various settings (industrial, economic, agricultural, populational and quality of life).

$$\underline{x} = \frac{x_1 + x_2 + x_3 + \cdots + x_n}{n} = \frac{\sum_{i=1}^{n} x_i}{n}$$

The Greek letter $\sum$ is the symbol of summation that indicates that all observations from 1 to n are added. Individual observations indicate them.

**Example:** the number of homicides in the locality of *Antonio Nariño in Bogotá D.C.* is taken as a sample for the historical period of the full years of 2014 to 2018.

The *average* sample for the full years of 2014 and 2018 is:

$$\underline{X} = \frac{16 + 17 + 23 + 12 + 14}{5} = \frac{82}{5} = 16,4$$

The average of the historical period is 16.4 homicides.

**Standard deviation** (s) is an important measurement in data dispersion and is calculated with the square root of variance ($s^2$), which is to say:

$$s = \sqrt{s^2}$$

For the example of homicides in the locality of Antonio Nariño in Bogotá D.C. for the historical period of the full years of 2014 to 2018, in the sample, the dispersion or variability measurements are:

a. Variance

$$s^2 = \frac{(x_1 - \underline{x})^2 + (x_2 - \underline{x})^2 + \cdots + (x_n - \underline{x})^2}{n - 1} = \frac{\sum_{i=1}^{n} (x_i - \underline{x})^2}{n - 1}$$

$$s^2 = \frac{(16 - 16,4)^2 + (17 - 16,4)^2 + (23 - 16,4)^2 + (12 - 16,4)^2 + (14 - 16,4)^2 +}{5 - 1}$$

$$= \frac{69,2}{4} = 17,3$$

The variance of the historical period is 17.3 homicides.

b. Standard Deviation

$$s = \sqrt{17,3} = 4,2 \cong 4$$

Once the statistics are identified (*average, variance and standard deviation*), the Z-score is determined, which is finally the result of the threshold analysis. In other words, it is the difference between the current period and the set historical average divided by the standard deviation of the same established historical time.

**Table 1.**
**Z-score classification for the threshold analysis**

| LOCALITY | 2014 | 2015 | 2016 | 2017 | 2018 | AVERAGE 2014 to 2018 | STDEV 2014 to 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|
| ANTONIO NARIÑO | 16 | 17 | 23 | 12 | 14 | 16.4 | 4.2 | 11 |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

$$Z = \frac{x_j - \underline{x}}{s}$$

$$Z = \frac{11 - 16,4}{4,2} = \frac{-5,4}{4,2} = -1,29 \cong -1,3$$

The Z-score for 2019 is -1.3.

Consequently, the Z-score becomes the determining indicator for identifying whether or not the crime's behavior has crossed the threshold in the geographic territory being studies. That is to say, it identifies the movement (positive, neutral or negative) of the analyzed period with respect to the established average.

The result in the operation above is associated with the weighting and areas (classification) listed below.

**Table 2.**
**Z-score classification for the threshold analysis**

| COLOR | ZONE | WEIGHT | DESCRIPTION |
|---|---|---|---|
| | Hot/Warm | Greater than +2 | Intervention Zone (IZ), a causal factor is influencing the crime. |
| | Mild | Between +1 and +2 | Attention Zone (AZ), a moderate increase in normal values. |
| | Normal | Between -1 and +1 | Standard Zone (SZ), behavior within the expected patterns. |
| | Cold/Cool | Between -1 and -2 | Casual Zone (CZ), random variation or a cause that influences reduction. |
| | Very Cold | Less than -2 | Ideal Zone (IDZ), identifying the causes that contribute to significant reduction (replicating actions). |

**Source:** Source: Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

The resulting *Z-score* for the locality of *Antonio Nariño* (-1.3) corresponds to the weighting range between -1 and -2. In other words, the behavior of homicide in this locality for 2019 recorded a positive random variation (reduction, not just in the determined historical average from 2014 to 2018, but also the comparison with the immediately previous year), and was located in a casual zone (cold/cool).

The procedure above must be applied to each one of the geographic territories - in this case, the 20 localities of the city of *Bogotá D.C.*, obtaining the following results.
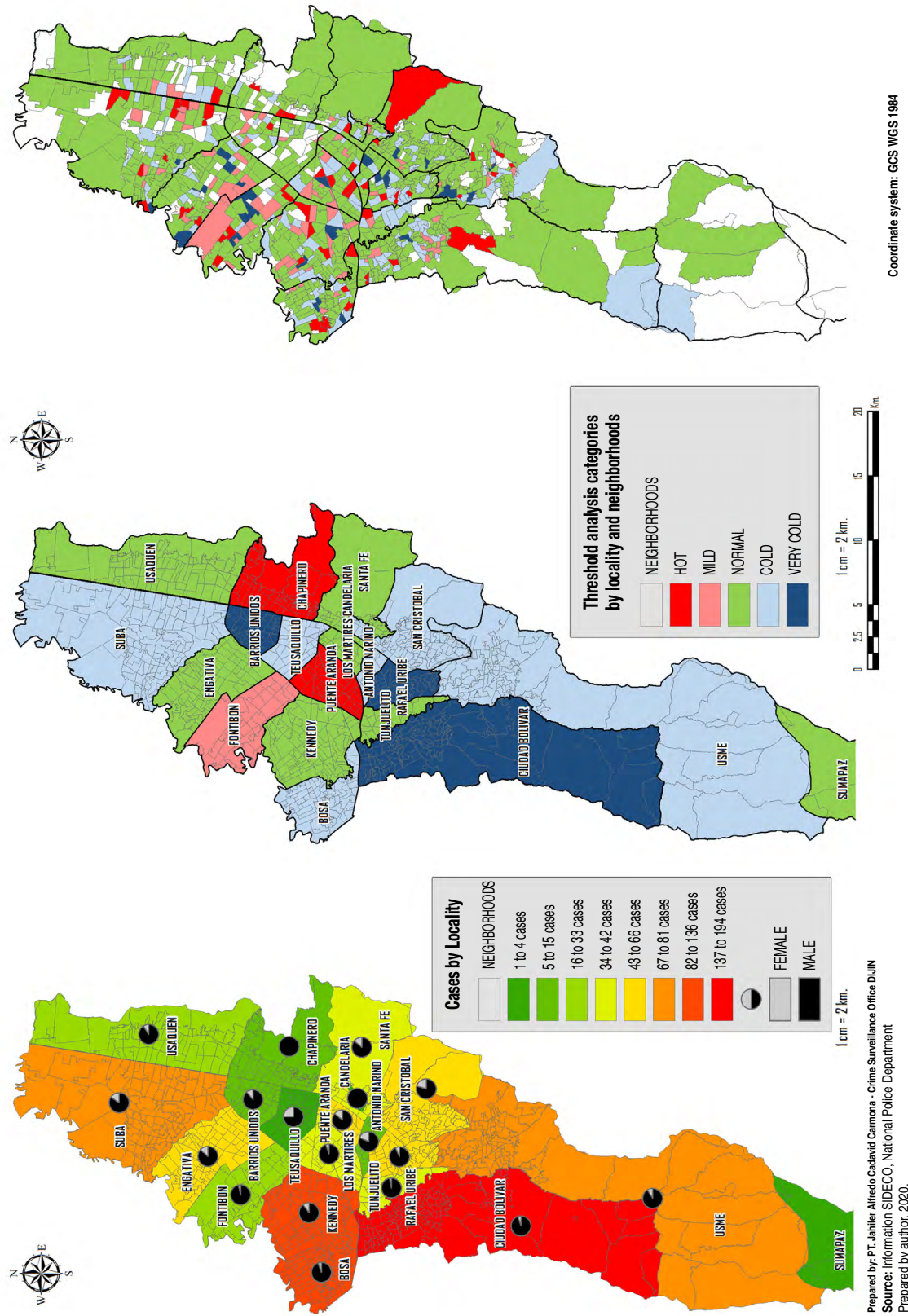
**Table 3.**
**Historical behavior of homicide in Bogotá, average, deviation and threshold**

| | LOCALITY | 2014 | 2015 | 2016 | 2017 | 2018 | AVERAGE 2014 to 2018 | STDEV 2014 to 2018 | 2019 | Result 2019 Threshold Analysis |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ANTONIO NARIÑO | 16 | 17 | 23 | 12 | 14 | 16.4 | 4.2 | 11 | Cold |
| 2 | BARRIOS UNIDOS | 13 | 10 | 12 | 11 | 12 | 11.6 | 1.1 | 9 | Very Cold |
| 3 | BOSA | 128 | 132 | 125 | 122 | 102 | 121.8 | 11.7 | 109 | Cold |
| 4 | CANDELARIA | 9 | 3 | 3 | 6 | 3 | 4.8 | 2.7 | 2 | Cold |
| 5 | CHAPINERO | 9 | 11 | 8 | 10 | 10 | 9.6 | 1.1 | 15 | Hot |
| 6 | CIUDAD BOLÍVAR | 258 | 266 | 244 | 215 | 257 | 248.0 | 20.1 | 194 | Very Cold |
| 7 | ENGATIVÁ | 66 | 70 | 55 | 68 | 35 | 58.8 | 14.5 | 53 | Normal |
| 8 | FONTIBÓN | 26 | 19 | 24 | 20 | 19 | 21.6 | 3.2 | 27 | Mild |
| 9 | KENNEDY | 146 | 151 | 156 | 125 | 140 | 143.6 | 12.0 | 136 | Normal |
| 10 | LOS MÁRTIRES | 63 | 77 | 50 | 56 | 55 | 60.2 | 10.5 | 66 | Normal |
| 11 | PUENTE ARANDA | 26 | 22 | 26 | 27 | 25 | 25.2 | 1.9 | 35 | Hot |
| 12 | RAFAEL URIBE | 94 | 105 | 98 | 106 | 71 | 94.8 | 14.2 | 61 | Very Cold |
| 13 | SAN CRISTÓBAL | 114 | 100 | 106 | 73 | 62 | 91.0 | 22.4 | 59 | Cold |
| 14 | SANTA FE | 69 | 58 | 58 | 41 | 31 | 51.4 | 15.2 | 42 | Normal |
| 15 | SUBA | 113 | 94 | 92 | 93 | 88 | 96.0 | 9.8 | 81 | Cold |
| 16 | SUMAPAZ | 6 | 3 | 1 | 0 | 0 | 2.0 | 2.5 | 1 | Normal |
| 17 | TEUSAQUILLO | 5 | 9 | 9 | 7 | 5 | 7.0 | 2.0 | 4 | Cold |
| 18 | TUNJUELITO | 26 | 46 | 35 | 26 | 22 | 31.0 | 9.6 | 38 | Normal |
| 19 | USAQUÉN | 53 | 39 | 35 | 35 | 36 | 39.6 | 7.7 | 33 | Normal |
| 20 | USME | 96 | 112 | 106 | 84 | 77 | 95.0 | 14.6 | 76 | Cold |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

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**Map 1. Homicides in Bogota by localities and implementation of the threshold analysis by localities and neighborhoods, 2019**

Coordinate system: GCS WGS 1984

**Threshold analysis categories by locality and neighborhoods**

NEIGHBORHOODS
HOT
MILD
NORMAL
COLD
VERY COLD

1 cm = 2 km.

**Cases by Locality**

NEIGHBORHOODS
1 to 4 cases
5 to 15 cases
16 to 33 cases
34 to 42 cases
43 to 66 cases
67 to 81 cases
82 to 136 cases
137 to 194 cases
FEMALE
MALE

1 cm = 2 km.

Prepared by: PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

In 2019, the city of Bogotá recorded 1,052 homicides, with a 1.13% reduction (-12) with respect to the previous year (1,052). The behavior by localities (homicide cases) was: Ciudad Bolívar (194), Kennedy (136), Bosa (109), Suba (81), Usme (76), Los Mártires (66), Rafael Uribe (61), San Cristóbal (59), Engativá (53), Santa Fe (42), Tunjuelito (38), Puente Aranda (35), Usaquén (33), Fontibón (27), Chapinero (15), Antonio Nariño (11), Barrios Unidos (9), Teusaquillo (4), Candelaria (2) and Sumapaz (1).

On the other and, 11 localities recorded a reduction of between 1 and 63 cases with respect to the immediately prior recorded year: Ciudad Bolívar (-63), Rafael Uribe (-10), Suba (-7), Kennedy (-4), Usaquén (-3), San Cristóbal (-3), Barrios Unidos (-3), Antonio Nariño (-3), Usme (-1), Teusaquillo (-1) and Candelaria (-1).

In comparison, Engativá (+18), Tunjuelito (+16), Santa Fe (+11), Los Mártires (+11), Puente Aranda (+10), Fontibón (+8), Bosa (+7), Chapinero (+5) and Sumapaz (1) recorded an increase of between 1 and 18 cases of homicide.

Despite the interpretation of these geographic territories above associated with the amount and variation between the periods (2018-2019) with respect to the homicides recorded in the jurisdictions, another reading can be established from the applicability of the threshold analysis.

In the case of the locality of Ciudad Bolivar's 2019 participation in the crime of homicide, the locality placed first, with 194 homicides, and a 24.51% (-63) decrease with respect to the 257 cases recorded in the comparison with 2018. However, the result of the threshold analysis established that the behavior of homicide in this locality was in an "ideal zone." That is to say, the significant reduction in crimes in 2019 and its normal average in terms of the historical period (2014-2018) shows there were causes or factors that allowed reducing the crime significantly. For this reason, establishing the determining factors (prevention actions, dissuasion and control by political and administrative authorities, the National Police and other bodies in charge of security and coexistence strategies) would be optimal to replicate actions in other jurisdictions.

The locality of Kennedy, regarding the participation by cases, is second place with 136 cases and a 2.86% decrease (-4) with respect to the 140 events reported in the comparison of 2018. However, the threshold analysis' result verified that the behavior of homicides in 2019 was in a "standard area." That is to say, it was within the expected range of behavior for this crime in this jurisdiction.

Finally, in accordance with the threshold analysis (Z-score), the localities of Bosa, Suba, Usme, San Cristóbal, Antonio Nariño, Teusaquillo and Candelaria recorded a positive random reduction in 2019 with respect to previous years (historical period from 2014 to 2018). Moreover, the localities of Ciudad Bolívar, Rafael Uribe and Barrios Unidos contributed significant reductions in homicide.

On the other hand, the localities of Kennedy, Los Mártires, Engativá, Santa Fe, Tunjuelito, Usaquén and Sumapaz had behaviors within the expected patterns in the analyzed period: Puente Aranda and Chapinero recorded a significant increase, while Fontibón recorded a moderate increase.

## Common Homicide in Bogotá

In Bogotá, in 2019, 9 localities accounted for 80% of cases in accordance with the Pareto principle: Ciudad Bolívar (18.44%), Kennedy (12.93%), Bosa (10.36%), Suba (7.7%), Usme (7.22%), Mártires (6.27%), Rafael Uribe (5.8%), San Cristóbal (5.61%) and Engativá (5.04%) for a total of 835 homicides. Of the localities, 5 recorded a higher participation in brawls: Suba (24 cases), Usme (23), Mártires (28), Rafael Uribe (19) and Engativá (20).
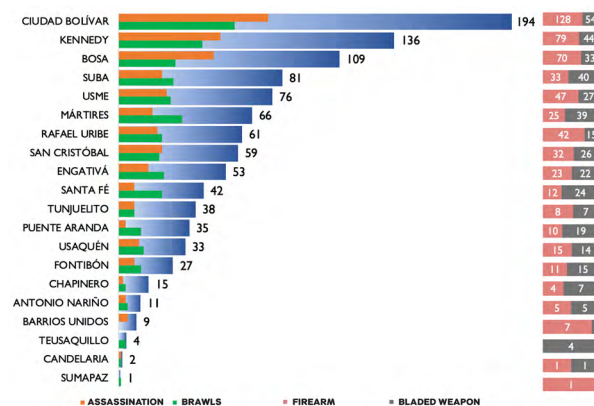


**Figure 1.** **Localities, modality and weapon or means. Homicide in Bogotá, D.C. (2019)**
**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Moreover, brawls accounted for 29.85% (314 cases) of homicides. It was the modality with the highest recurrence and was followed by instrumental violence (assassination) with 28.52% (300) and muggings with 7.70% (81). These cases were largely induced by factors, such as social intolerance, with 89.16% (938), the illegal adjustment of accounts, with 2.28% (24) and theft, with 2.19% (23).

Besides that, firearms were the tool used most to commit homicide in 2019, at 52.57%, represented by 553 cases, followed by bladed weapons, with 37.74% (397) and blunt weapons, with 7.51% (79). In 7 of the localities of Bogotá D.C. (Suba, Mártires, Santa Fe, Puente Aranda, Fontibón, Chapinero and Teusaquillo), blunt weapons were the weapons used most by aggressors.
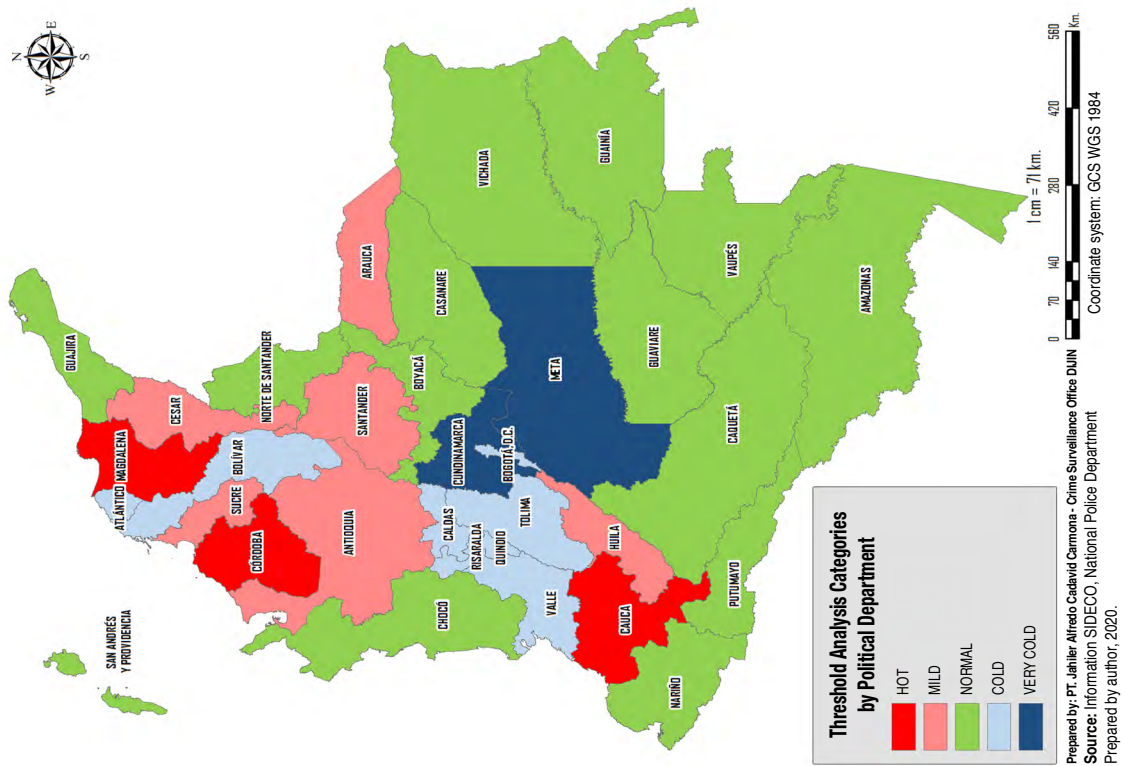
A summary associating a series of words with statistical figures of homicide in the city of Bogotá, D.C. in cloud variables with data for 2019 is presented below. The size of the main words is related to its participation in the main group of variables (modality, cause, injury, weapon or means, gender, nationality, marital status, age group, month, quarter, semester, day of the week, area, neighborhood, site and hour) (figure 2).
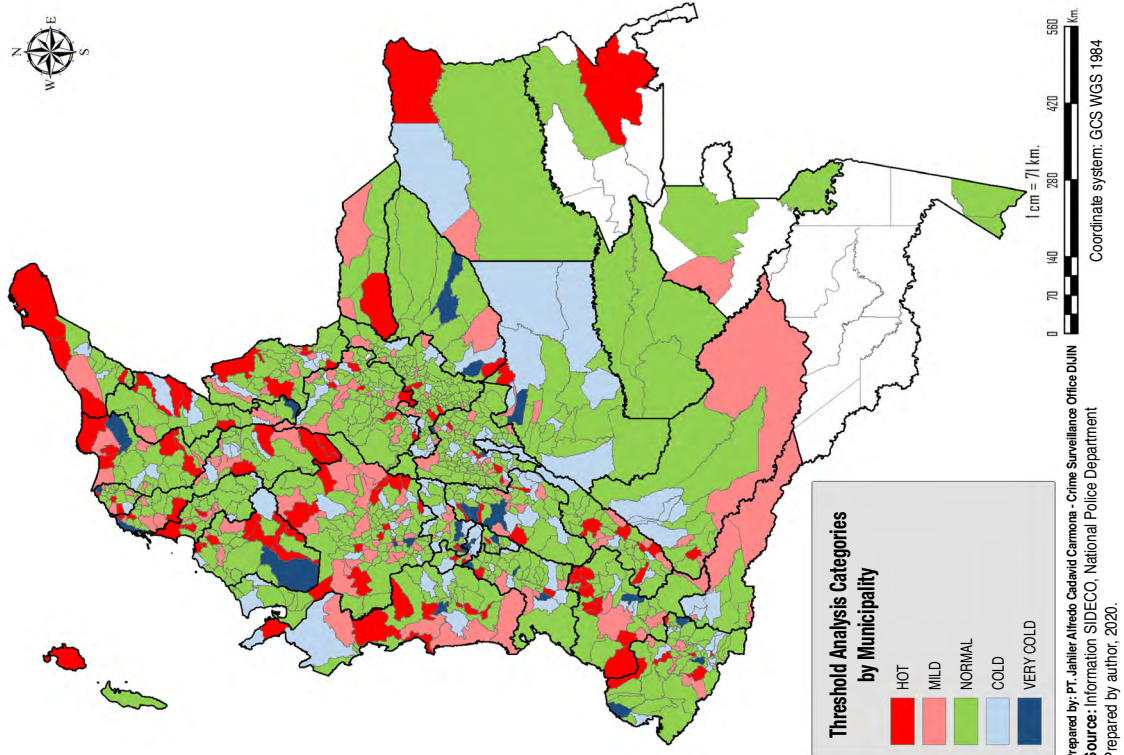


**Figure 2.** **"Cloud variables with data"** of homicide in Bogotá, D.C., (2019)

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Map 3. Threshold analysis by homicides, at country level, by municipalities, 2019**



**Threshold Analysis Categories by Municipality**

HOT
MILD
NORMAL
COLD
VERY COLD

1 cm = 71 km.

0 70 140 280 420 560 Km.

Coordinate system: GCS WGS 1984

**Prepared by:** PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

**Map 2. Threshold analysis by homicides, at country level, by political departments, 2019**



GUAJIRA
CESAR
ATLÁNTICO MAGDALENA
SUCRE BOLÍVAR
CÓRDOBA
ANTIOQUIA
NORTE DE SANTANDER
SANTANDER
ARAUCA
BOYACÁ
CASANARE
VICHADA
CUNDINAMARCA
BOGOTÁ D.C.
META
GUAINÍA
CALDAS
RISARALDA
QUINDÍO
TOLIMA
GUAVIARE
VAUPÉS
CHOCÓ
VALLE
HUILA
CAQUETÁ
AMAZONAS
CAUCA
NARIÑO
PUTUMAYO
SAN ANDRÉS Y PROVIDENCIA

**Threshold Analysis Categories by Political Department**

HOT
MILD
NORMAL
COLD
VERY COLD

1 cm = 71 km.

0 70 140 280 420 560 Km.

Coordinate system: GCS WGS 1984

**Prepared by:** PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

## Criminal Characterization of Operability and Crime Statistics in 2019

In terms of crime figures reported in the SIEDCO in 2019, it was established that the number of crimes that constantly affected citizen security was 584,216, which leads to a higher index in the number of statistical records that directly influence Colombian's life and property. With this in mind, a comparative criminal analysis was performed between 2018 and 2019 for the following crimes (table 4).

**Table 4.**
**High-impact crime comparison (2018-2019)**

| High-Impact Crimes | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Common homicides | 12,667 | 12,656 | -11 | -0.09% |
| Personal injuries | 138,305 | 119,271 | -19,034 | -13.76% |
| Theft against people | 257,072 | 306,835 | 49,763 | 19.36% |
| Theft against businesses | 65,577 | 61,647 | -3,930 | -5.99% |
| Theft against residences | 47,373 | 46,466 | -907 | -1.91% |
| Automobile Theft | 9,849 | 10,500 | 651 | 6.61% |
| Motorcycle Theft | 32,734 | 35,707 | 2,973 | 9.08% |
| Kidnapping | 176 | 92 | -84 | -47.73% |
| Extortion | 7,047 | 8,207 | 1,160 | 16.46% |
| Terrorism | 121 | 186 | 65 | 53.72% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Based on the above, the National Police has designed institutional strategies in favor of the head-on fight against crime, which have allowed guaranteeing the security of citizens and driving the reduction of crime by means of actions deployed on a national level that impact crime measurement indices and the actions of state institutions.

## Criminal Description of the Crimes with the Highest Influence on Citizen Security

A comparative analysis of the aforementioned crimes during 2018 and 2019 is demonstrated below.

## Crimes against Life and Personal Integrity

## Common Homicide
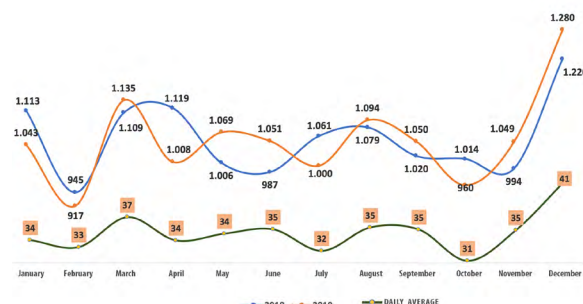


**Figure 3. Monthly behavior of common homicide (2018-2019)**
**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 5.**
**Top 5 municipalities with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS[3] | % |
| Cali | 1,159 | 1,115 | -44 | -3.80% |
| Bogotá, D.C. | 1,078 | 1,066 | 12 | -1.11% |
| Medellín | 626 | 583 | -43 | -6.87% |
| Barranquilla | 315 | 276 | -39 | -12.38% |
| San Andrés de Tumaco | 249 | 216 | -33 | -13.25% |

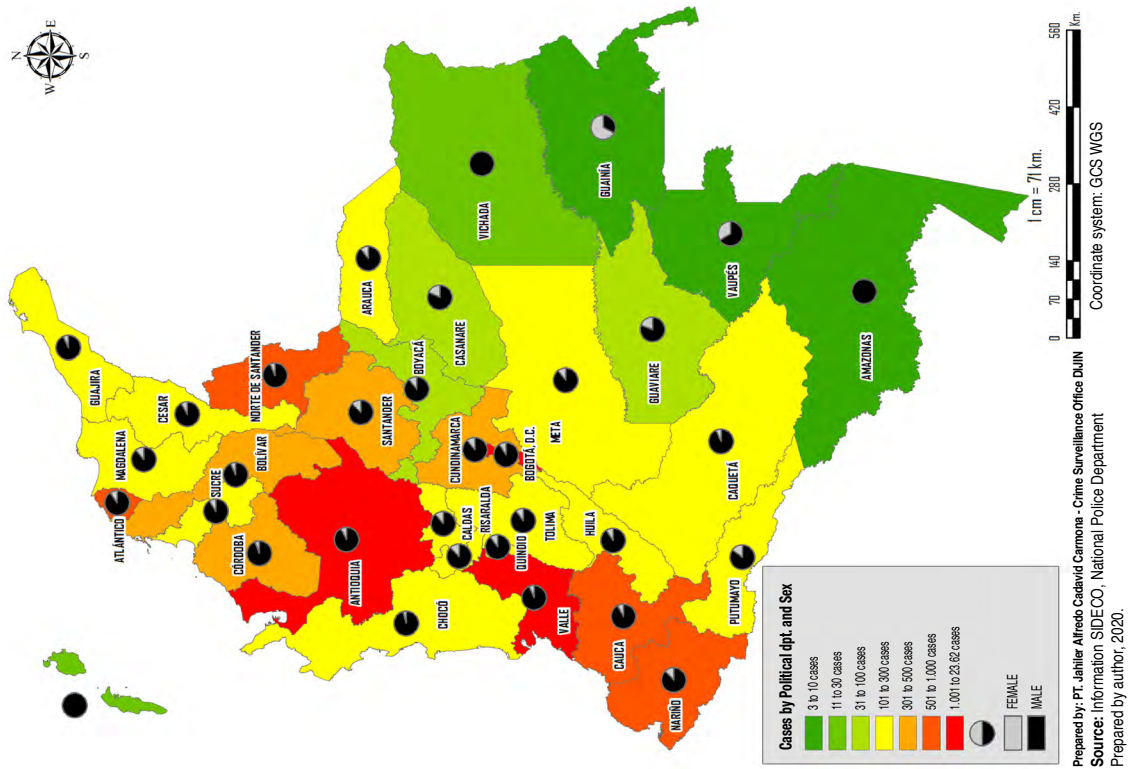**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Homicide by assassination was recorded most in 2019, with 55.8% of cases (7,068 victims), followed by brawls, with 23.4% (2,956), muggings, with 5.6% (706), subversive attacks with 1.5% (190) and others, with 13.7% (1,736). Firearms, with 72.8% (9,219) were the weapons used most in this crime, followed by bladed weapons, with 21.5% (2,714), blunt weapons with 5% (633) and others, with 0.7% (90).

Ninety-one point four percent (11,569) of victims were men and the remaining 8.6% (1,087) were women. Sixty-five point five percent (8,294) of homicides were recorded in an urban area and 34.5% (4,362) in a rural area.
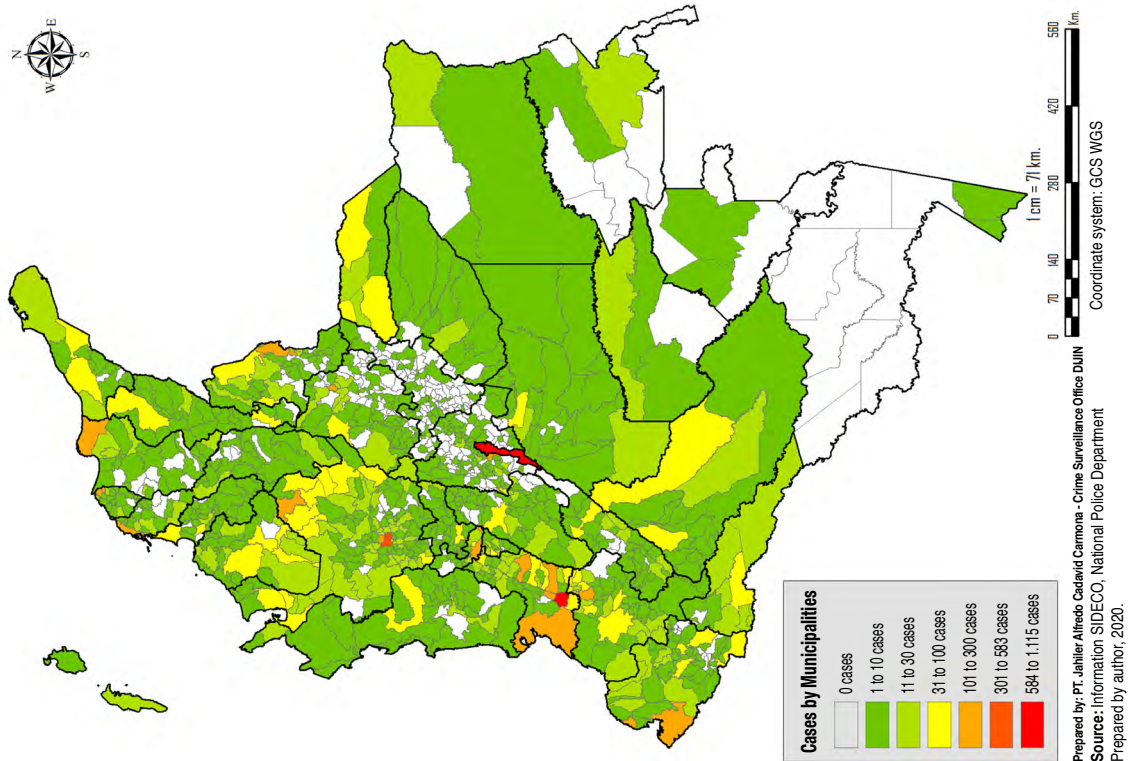
Of all victims, 3.5% (444) were Venezuelan. During 2019, 1.4% (179) were femicides.
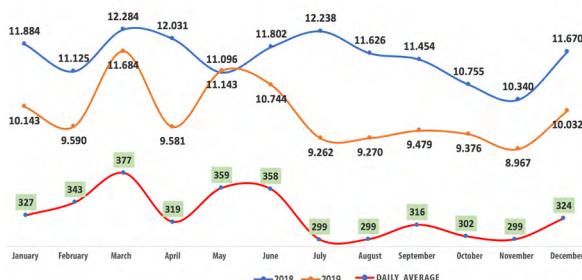
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3   ABS: Absolute variance

**Map 4. Homicides, at country level, by political departments, 2019**

**Map 5. Homicides, at country level, by municipalities, 2019**



Cases by Political dpt. and Sex
- 3 to 10 cases
- 11 to 30 cases
- 31 to 100 cases
- 101 to 300 cases
- 301 to 500 cases
- 501 to 1.000 cases
- 1.001 to 23.62 cases
- FEMALE
- MALE

Cases by Municipalities
- 0 cases
- 1 to 10 cases
- 11 to 30 cases
- 31 to 100 cases
- 101 to 300 cases
- 301 to 583 cases
- 584 to 1.115 cases

**Prepared by: PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN**
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

Coordinate system: GCS WGS

**Prepared by: PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN**
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

Coordinate system: GCS WGS

## Personal injuries

**Table 6.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 25,762 | 22,819 | -2,943 | -11.42% |
| Cali | 8,085 | 7,169 | -916 | -11.32% |
| Medellín | 6,351 | 5,697 | -654 | -10.30% |
| Barranquilla | 3,895 | 3,746 | -149 | -3.83% |
| Cartagena | 3,091 | 3,114 | 23 | 0.74% |

Brawls had the highest percentage in personal injuries in 2019, at 93.7% (111,810 victims), followed by muggings, with 1.6% (1,904), assassination, with 1.5% (1,756), scuffles with 1% (1,179) and others, with 2.2% (2,622).

Blunt weapons, at 62.9% (75,019), were the weapons used most to commit this crime, followed by bladed weapons, with 14.8% (17,868), firearms, with 3.8% (4,546) and others, with 1.9% (2,267). In 16.4% of cases (19,571), the weapon used was not recorded.

Fifty-five point two percent (65,792) of victims were men and the remaining 44.8% (53,479) were women. Of all victims, 2.1% (2,502) were Venezuelan.
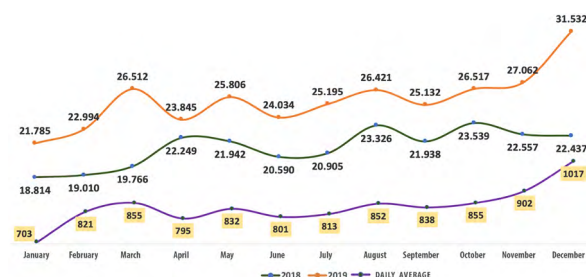
Ninety-two percent (109,767) of injuries were recorded in an urban area and 8% (9,504) in a rural area.

## Crimes Against the Safety of Citizens and Property

**Theft (people, residences and businesses):**
in 2019, these a total of 414,948 cases of theft were

recorded, with a 12.1% increase (44,926 more events) compared to the immediately previous year, during which 370,022 were recorded.

## Theft against People

**Table 7.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 105,965 | 127,835 | 21,870 | 20.64% |
| Medellín | 21,975 | 27,266 | 5,291 | 24.08% |
| Cali | 16,123 | 20,606 | 4,483 | 27.80% |
| Barranquilla | 9,621 | 11,189 | 1,568 | 16.30% |
| Bucaramanga | 5,143 | 6,335 | 1,192 | 23.18% |

For the analyzed period, muggings were recorded most, at 42.1% (129,046 cases), followed by pickpocketing, with 15.3% (46,917), snatching, with 9.8% (30,056), deceit with 2.5% (7,637) and others, with 6.7% (20,553). It is worth highlighting that the opportunity factor (neglect) was 23.7% (72,626 cases).
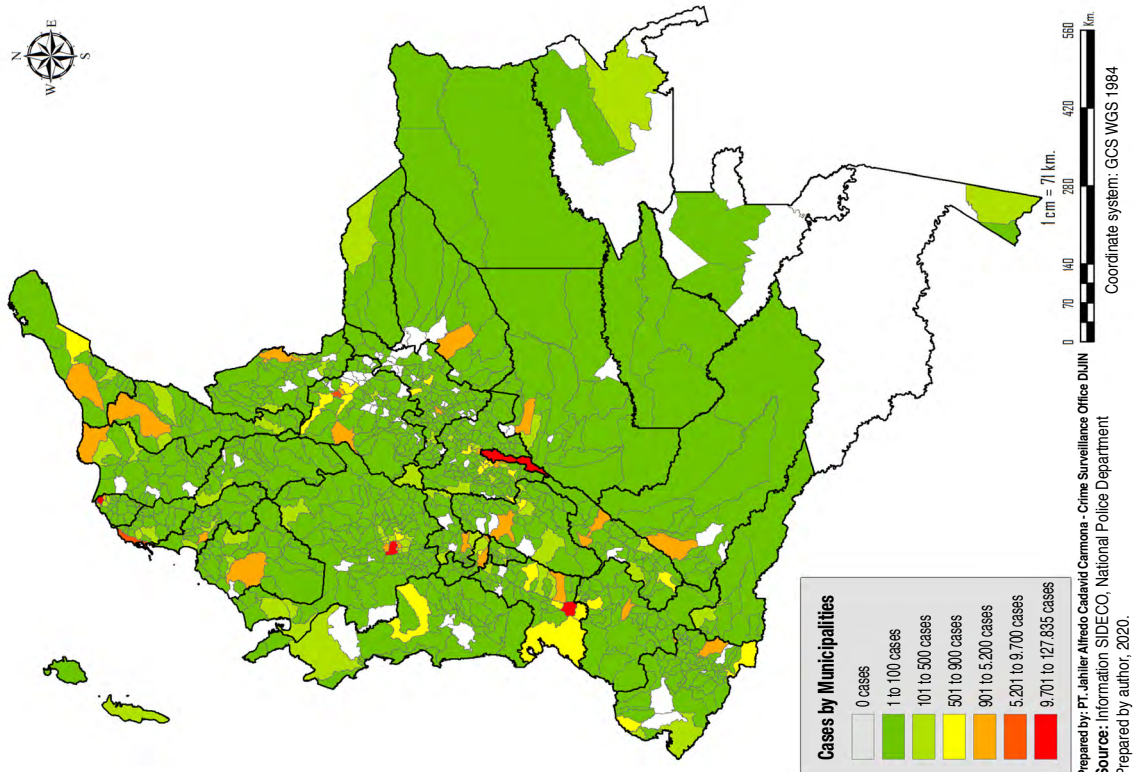
Bladed weapons, at 23.5% (72,081) were those used most to commit this crime, followed by firearms, with 14.9% (45,686), blunt weapons, with 6.7% (20,619) and others, with 0.8% (2,438). No weapons were used in 54.1% of cases (166,011 cases).

Fifty-six point one percent (172,157) of victims were men and the remaining 43.9% (134,678) were women. Of all victims, 1.2% (3,593) were Venezuelan and 0.1% (291) were American. It is worth noting that 95.9% (294,314) of thefts were recorded in urban areas and 4.1% (12,521) were in rural areas.

**Map 6. Theft against People, at country level, by political departments, 2019**



**Cases by Political dpt and Sex**

- 26 to 500 cases
- 501 to 1,500 cases
- 1,501 to 3,500 cases
- 3,501 to 7,000 cases
- 7,001 to 12,000 cases
- 12,001 to 35,000 cases
- 35,001 to 127,835 cases
- FEMALE
- MALE

Coordinate system: GCS WGS 1984

1 cm = 71 km.
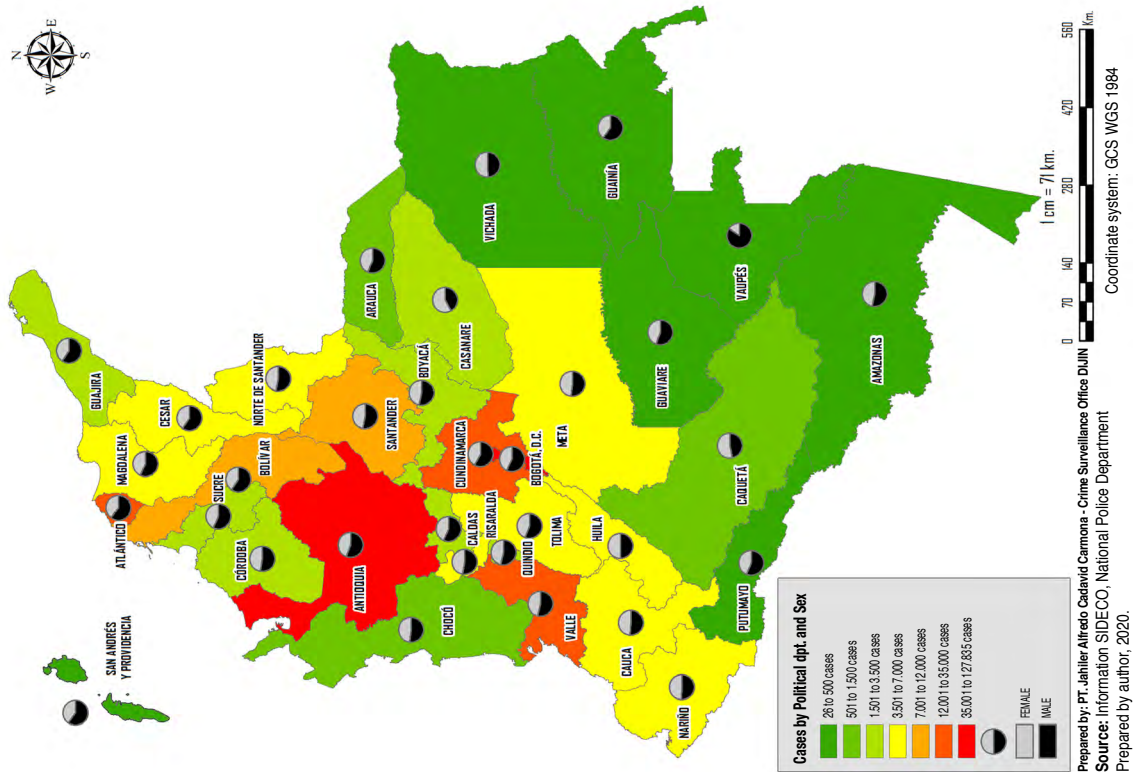
**Map 7. Theft against People, at country level, by municipality 2019**



**Cases by Municipalities**

- 0 cases
- 1 to 100 cases
- 101 to 500 cases
- 501 to 900 cases
- 901 to 5,200 cases
- 5,201 to 9,700 cases
- 9,701 to 127,835 cases

Coordinate system: GCS WGS 1984

1 cm = 71 km.

## Cell phone/Mobile Device Theft

This conduct is characterized below with the administrative records in the National Police's SIEDCO database for the amount of stolen cell phones. It must be taken into account that these are included within theft against people, businesses and residences.
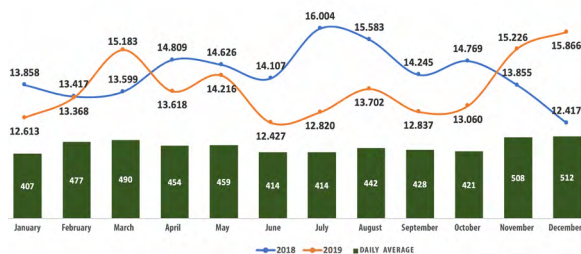


**Figure 6. Monthly behavior of cellphone theft (2018-2019)**

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 8.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 67,103 | 61,303 | -5,800 | -8.64% |
| Medellín | 16,196 | 15,886 | -310 | -1.91% |
| Cali | 11,196 | 13,616 | 2,420 | 21.61% |
| Barranquilla | 5,876 | 5,603 | -273 | -4.65% |
| Bucaramanga | 3,502 | 4,014 | 512 | 14.62% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Cellphone theft is one of the crimes that most affects citizen's property. It is committed most under the modality of mugging, with 46.8% of cases (77,211 cellphones stolen), followed by pickpocketing, with 16.5% (27,207), snatching, with 12.1% (19,877), lock picking, with 2.2% (3,608), and others, with 5.3% (8,695). It is worth highlighting that the opportunity factor (neglect) was 17.2% (28,338 cellphones stolen).

The weapons used most to steal cellphones were: bladed weapons, in 25.9% of cases (42,636), followed by firearms, with 17.3% (28,557), blunt weapons, with 3.8% (6,309) and others, with 2.4% (3,878). No weapons were used in 50.7% of cases (83,556 cases).

## The Naturalization of the Crime of Cellphone Theft

People usually travel between well-known places or nodes (home, work, supermarket, restaurant) and the same streets or routes. The theory of patterns suggests that when a crime occurs, it is because offenders and victims cross each other within some of these activity areas (node, route) (Brantingham, P. L. and Brantingham, P. J., 1990). According to Cohen and Felson (1979), an offender will tend to commit a crime in some place where they are in or close to the route they take every day. That is why cellphone theft has currently become a dynamic that is not unnatural to society. It has become a part of daily living, and has been entrenched culturally, economically and socially. Being a victim of these crimes comes along with the possibility of loss of life or considerable injury that, in many cases, can create a temporary or permanent inability.

Speaking of citizen security and approaching this concept as a whole, especially in major cities in our country, leads us to thinking about how government institutions and major strategies are in favor of fighting against this scourge, which have not had the expected effects. This allows envisaging that citizen security is everyone's job and, despite the fact that institutions have the obligation to ensure it, citizens must have the moral obligation to enact it. However, and on the contrary, cellphone theft has made its way into people's imagination, who are victims and witnesses of this fact and no longer consider it as relevant as they did a few years ago. Back then, stealing others' property, independent of the modality, was punished judicially, socially and morally.

According to the rational choice theory (Felson and Clarke, 1998), people make decisions before committing a crime in accordance with their anticipated perception of opportunity and reward. In other words, any person could commit a crime if the opportunity presents itself. On the other hand, an offender will desist from committing crimes when they perceive high risk (being identified or arrested by the police) (Felson and Clarke, 1998).
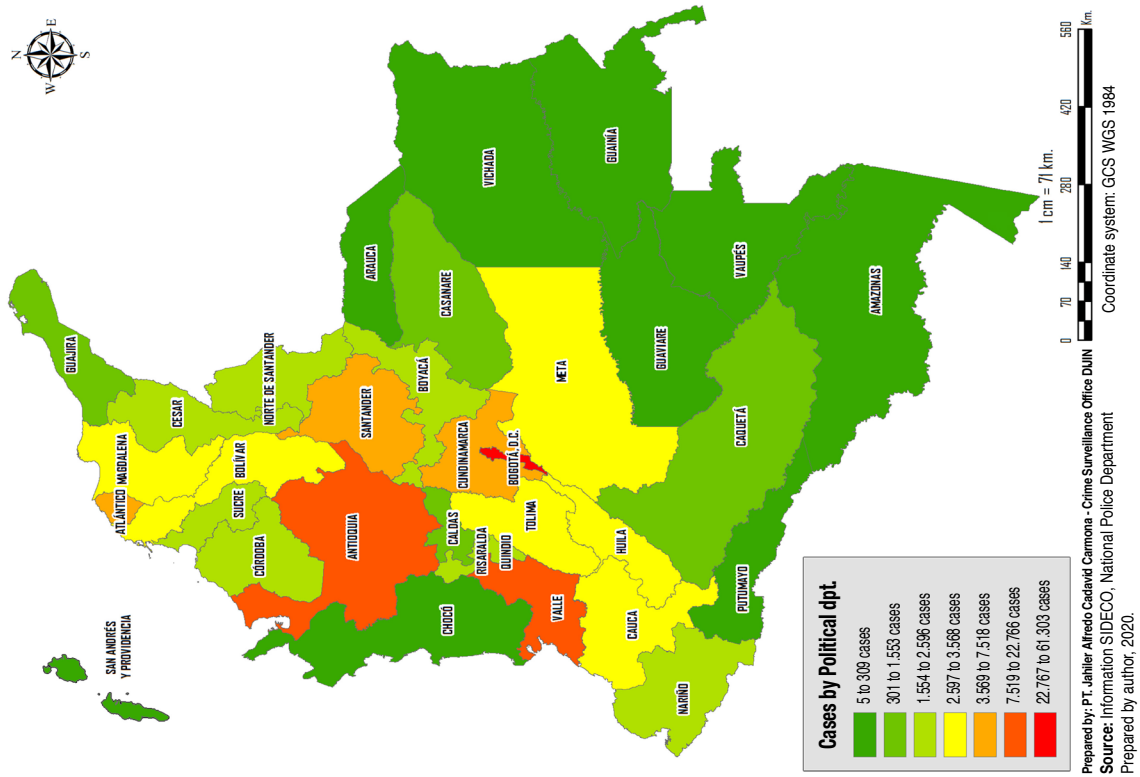
Nowadays, this significance in terms of cellphone theft has turned it into a "common activity," in which aggressors have a complete absence of fear, a general disregard for other people's property, apathy towards their victims and total disrespect for life. Society, in general, has allowed this crime to become natural, as part of the way the framework functions within a society. This has opened doors to criminals, who,

in full light of day, without any type of distinction of time, in any part of the city and moving in every way, perpetrate their crimes.
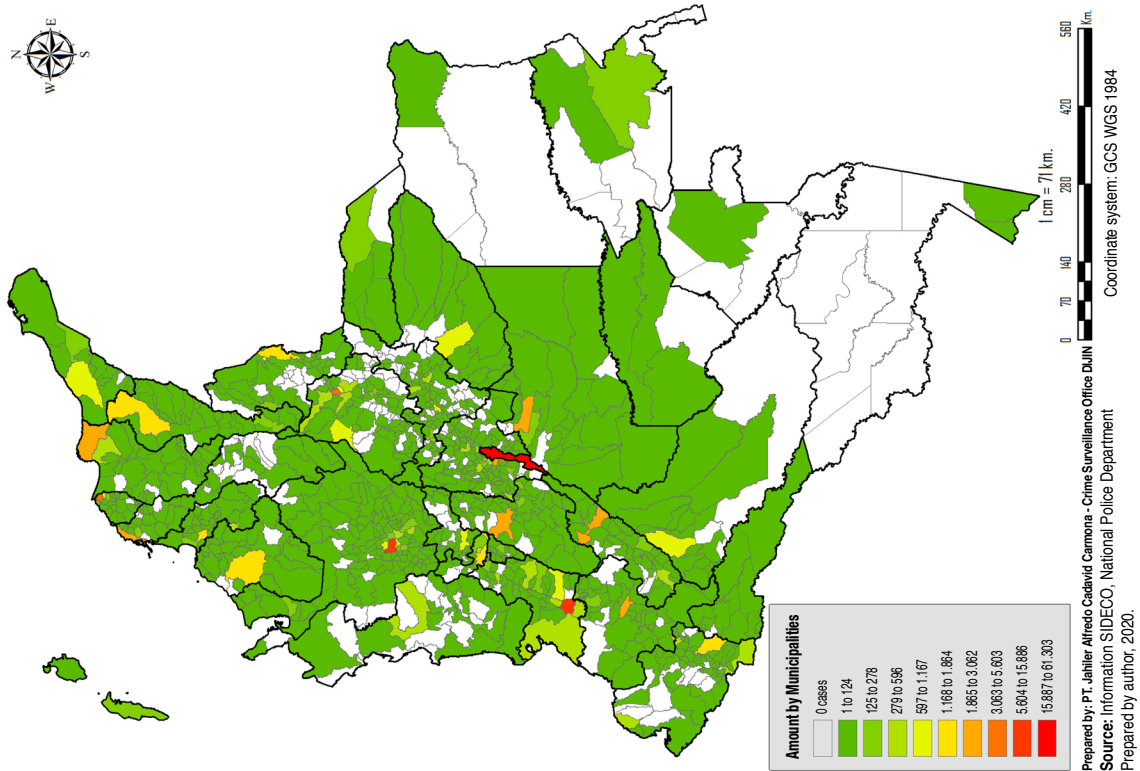
Despite judicial authority's efforts to identify and arrest the people who most often steal cellphones, not all of them are sentenced or undergo exemplary judicial punishments for their crimes. One of the main theories of environmental criminology is the theory of routine activities (Clarke and Eck, 2005). The triad of crime represents the idea that a crime occurs when a criminal and victim or objective meet at the same place and time in the absence of a capable guardian (Cohen y Felson, 1979).

As long as citizens generally continue seeing this criminal phenomenon as part of the normal functioning of their social structure and allow the crime to become less significant and even natural, a marked entrenchment will occur in cultural collectivity, which tends to happen with cases of intolerance, leading to the weakening and functionality of our society. With respect to figures of theft, homicide and injuries to people from stealing these kinds of mobile devices, local governments continue seeking public policy strategies and tools that will allow comprehensively, multi-causally and socioculturally counteracting this scourge in such a way that the commitment to security becomes the responsibility of all citizens.

**Map 9. Cellphone theft, at country level, by political municipalities, 2019**



**Amount by Municipalities**

- 0 cases
- 1 to 124
- 125 to 278
- 279 to 596
- 597 to 1.167
- 1.168 to 1.864
- 1.865 to 3.062
- 3.063 to 5.603
- 5.604 to 15.886
- 15.887 to 61.303

Prepared by: PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

1 cm = 71 km.    Coordinate system: GCS WGS 1984

**Map 8. Cellphone theft, at country level, by political departments, 2019**



**Cases by Political dpt.**

- 5 to 309 cases
- 301 to 1.553 cases
- 1.554 to 2.596 cases
- 2.597 to 3.568 cases
- 3.569 to 7.518 cases
- 7.519 to 22.766 cases
- 22.767 to 61.303 cases

Prepared by: PT. Jahiler Alfredo Cadavid Carmona - Crime Surveillance Office DIJIN
**Source:** Information SIDECO, National Police Department
Prepared by author, 2020.

1 cm = 71 km.    Coordinate system: GCS WGS 1984

## Theft against Residences



**Figure 7. Monthly behavior of theft against residences (2018-2019)**
**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 9.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 10,021 | 9,904 | -117 | -1.17% |
| Cali | 2,280 | 2,512 | 232 | 10.18% |
| Medellín | 2,135 | 2,160 | 25 | 1.17% |
| Villavicencio | 1,211 | 1,130 | -81 | -6.69% |
| Cartagena | 827 | 830 | 3 | 0.36% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Lock picking was recorded most, at 22.7% (10,526 cases), followed by damage[4], with 10.9% (5,088), muggings, with 8.4% (3,893), using master keys, with 7.0% (3,269) and others, with 6.0% (2,769). It is worth highlighting that the opportunity factor (neglect) was 45.0% (20,921 cases).

Blunt objects, at 24.6% (11,419), were the weapons used most to commit this crime, followed by levers, with 17.8% (8,280), firearms, with 5.1% (2,362) and others, with 7.6% (3,515). No weapons were used in 45.0% of cases (20,890 cases).

Thirty-two point six percent (15,143) were recorded between 00:00 and 05:59, 25.7% (11,921) between 06:00 and 11:59, 21.7% (10,066) between 12:00 and 17:59 and 20.1% (9,336) between 18:00 and 23:59.

Eighty-five point nine percent (39,908) of thefts were recorded in an urban area and 14.1% (6,558) in a rural area.

## Theft against Businesses



**Figure 8. Monthly behavior of theft against businesses (2018-2019)**
**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 10.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 18,629 | 18,690 | 61 | 0.33% |
| Medellín | 4,945 | 5,140 | 195 | 3.94% |
| Cali | 4,020 | 3,989 | -31 | -0.77% |
| Barranquilla | 2,321 | 1,893 | -428 | -18.44% |
| Cartagena | 1,400 | 1,358 | -42 | -3.00% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

In terms of theft against businesses, the modality of mugging was recorded most, at 17.8% (10,960 cases), followed by shoplifting[5], with 17.5% (10,803), lock picking, with 8.1% (4,971), damage with 5.3% (3,237) and others, with 11.5% (7,077). It is worth highlighting that the opportunity factor (neglect) was 39.9% (24,599 cases).

Firearms, with 12.1% (7,433) were the weapons used most to commit this crime, followed by blunt objects, with 7.9% (4,898), levers, with 7.4% (4,536) and others, with 3.9% (2,388). No weapons were used in 68.8% of cases (42,392 cases).

Twenty-eight point one percent (17,346 cases) were recorded between 12:00 and 17:59, 27.3% (16,812) between 00:00 and 5:59, 25.0% (15,410) between 6:00 and 11:59 and 19.6% (12,079) between 18:00 and 23:59.

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4   Under this modality, the aggressor creates an opening, hole or orifice in a surface (walls, roofs, doors, windows, floors), through which they enter a property to steal third-party personal property within the residence. (National Police & Office of the Attorney General of Colombia, 2017, p. 21).

5   Under this modality, aggressors enter commercial establishments and steal goods, such as clothing, food, household appliances and cleaning tools, among others, which they hide in their clothes or parts of their bodies to extract from the holder, possessor or owner's custody (National Police & Office of the Attorney General of Colombia, 2017, p. 19).

Ninety-two point seven percent (57,122) of thefts occurred in an urban area and 7.3% (4,525) in a rural area. An average of 169 thefts occurred every day in the national territory in 2019.

## Vehicle Theft (Automobiles and Motorcycles)

In 2019, a total of 46,207 vehicles were stolen, with an 8.5% increase compared to the cases recorded in 2018, during which 42,581 thefts were reported. Of all cases, 77.3% of the thefts were motorcycles and 22.7% were vehicles (table 4).

## Automobile Theft
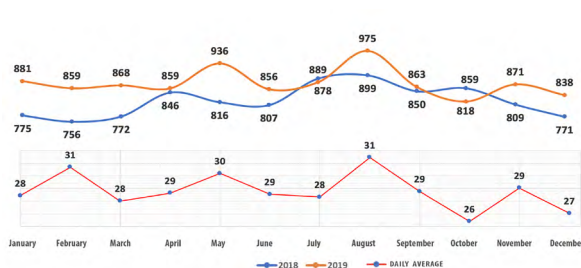


**Figure 9. Monthly behavior of automobile theft (2018-2019)**

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 11.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá D.C. | 3,650 | 3,637 | -13 | -0.36% |
| Cali | 1,797 | 2,101 | 304 | 16.92% |
| Medellín | 1,023 | 955 | -68 | -6.65% |
| Bello | 200 | 226 | 26 | 13.00% |
| Barranquilla | 248 | 223 | -25 | -10.08% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Theft without the use of force was recorded most, at 56.4% (5,919 cases), followed by mugging, with 29.4% (3,083), deceit, with 4.3% (452), using substances (scopolamine), with 0.6% (64) and others, with 0.4% (42). It is worth highlighting that the opportunity factor (neglect) was 9.0% (940 cases).

Master keys, at 48.4% (5,085) were the resources used most to steal automobiles, followed by firearms,

with 26.0% (2,726), bladed weapons, with 1.8% (186) and others, with 5.4% (568). No weapons were used in 18.4% of cases (1,935).

Thrity-four point three percent (3,601) were recorded between 18:00 and 23:59, 22.8% (2,394) between 00:00 and 05:59, 22.1% (2,323) between 6:00 and 11:59 and 20.8% (2,182 thefts) between 12:00 and 17:59.

Ninety percent (9,445) of thefts occurred in an urban area and 10.0% (1,055) in a rural area. An average of 29 thefts occurred every day in the national territory in 2019.

## Motorcycle Thefts



**Figure 10. Monthly behavior of automobile theft (2018-2019)**

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 12.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Medellín | 4,829 | 4,969 | 140 | 2.90% |
| Bogotá, D.C. | 3,998 | 4,159 | 161 | 4.03% |
| Cali | 2,304 | 3,143 | 839 | 36.41% |
| Popayán | 867 | 1,177 | 310 | 35.76% |
| Barranquilla | 769 | 793 | 24 | 3.12% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

Theft without the use of force was recorded most, at 51.3% (18,319 thefts), followed by mugging, with 34.1% (12,169), deceit, with 2.0% (702), using substances (scopolamine), with 0.1% (50) and others, with 0.1% (18). It is worth highlighting that the opportunity factor (neglect) was 12.5% (4,449 cases).

Master keys, at 36.0% (12,863) were the resource used most to commit this crime, followed by firearms, with 27.5% (9,814), bladed weapons, with 3.9% (1,394)

and others, with 5.7% (2,053). No weapons were used in 26.8% of cases (9,583 cases).

Thirty-eight point six percent (13,785 thefts) were recorded between 18:00 and 23:59, 21.0% (7,499) between 00:00 and 05:59, 20.6% (7,370) between 6:00 and 11:59 and 19.8% (7,053 thefts) between 12:00 and 17:59.

Eighty-seven point five percent (31,253) of thefts occurred in an urban area and 12.5% (4,454) in a rural area. An average of 98 thefts occurred every day in the national territory in 2019.

## Crimes against Individual Freedom and Property

### Kidnapping



**Figure 11.** Monthly behavior of kidnapping **(2018-2019)**

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 13.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Cúcuta | 6 | 6 | 0 | 0.00% |
| Piendamó | 0 | 5 | 5 | 100% |
| Bogotá, D.C. | 11 | 4 | -7 | -63.64% |
| Cali | 8 | 4 | -4 | -50.00% |
| Jamundí | 2 | 3 | 1 | 50.00% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

The modality that includes financial demands were recorded most, at 73.9% (68 victims), followed by the selective modality, with 21.7% (20), collective modality, with 3.3% (3), family and associated modalities, with 1.1% (1), respectively.

Firearms, at 62.0% (57) were the weapons used most to commit this crime, followed by bladed

weapons at 6.5% (6) and others at 4.3% (4). No weapons were used in 27.2% of cases (25 cases).

Seventy-eight point three percent of victims (72) were men and 21.7% (20) were women. Of all victims, 93.5% (86) were Colombian and 3.3% (3) were Venezuelan.

Sixty-two percent (57) of kidnappings occurred in a rural area and 38.0% (35) in an urban area. An average of 8 kidnappings occurred in the nation in 2019.

## Extortion
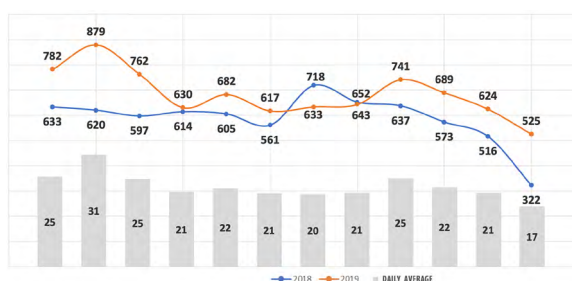


**Figure 12.** Monthly behavior of extortion **(2018-2019)**

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

**Table 14.**
**Top 5 units with the highest record (2019)**

| Municipality | 2018 | 2019 | Variation | |
| --- | --- | --- | --- | --- |
| | | | ABS | % |
| Bogotá, D.C. | 760 | 908 | 148 | 19% |
| Medellín | 578 | 628 | 50 | 9% |
| Cali | 304 | 500 | 196 | 64% |
| Villavicencio | 216 | 196 | -20 | -9% |
| Cúcuta | 139 | 181 | 42 | 30% |

**Source:** Prepared by author based on data extracted from the National Police of Colombia's SIEDCO database.

The classic modality was recorded most, at 71.6% (5,877 cases), followed by fake family members, with 8.4% (687), intimate, with 7.4% (610), property return, with 4.9% (403), micro-extortion, with 4.2% (348) and others, with 3.4% (282 cases).

Telephone calls, at 48.7% (3,997) were used most to commit this crime, followed by the direct modality, with 27.7% (2,274), extortive letters, with 4.4% (362), social networks, with 3.9% (324), mixed methods, with 1.6% (128) and others, with 13.7% (1,122).

Sixty-eight point three percent (5,603) of victims were men and the remaining 31.7% (2,604) were

women. Eighty-four point nine percent (6,964) of the cases of extortion were recorded in an urban area and 15.1% (1,243) in a rural area.

## The National Police of Colombia's Operational Activity

In 2019, the National Police of Colombia recorded the operational results of the police service's various activities performed in the respective period, making an impact in favor of citizen security and coexistence in the entire national territory. Related to the above, the amount of physical arrests of people due to written arrest warrants (mandates that must be followed and executed, respecting the terms to that end) issued by a competent authority or caught in flagrante delicto (when the person is surprised and arrested while performing a crime) in any of the criminal conducts established in the Colombian penal code is reported. Furthermore, the National Police of Colombia records the results of automobile and motorcycle recovery.

## Arrests

In 2019, the National Police performed 234,488 arrest procedures, of which 82.43% (193,284) were performed in flagrante delicto and 17.57% (41,204) through an arrest warrant issued by a competent authority. Moreover, the crime that recorded the highest participation was drug trafficking, production or possession, with 26.59% (62,357), followed by theft against people, with 13.01% (30,510), personal injuries, with 7.11% (16,682), firearm trafficking, production, possession or custody, with 6.76% (15,847), theft against businesses, with 6.11% (14,325), possession of stolen goods, with 5.21% (12,214), intrafamily violence, with 4.79% (11,224), using false documents, with 3.67% (8,594), prison escapes, with 2.73% (6,396), homicide, with 2.45% (5,755) and conspiracy to commit a crime, with 2.43% (5,699).

The 32 capital cities held 56.50% (132,488) of all arrests: Bogotá, D.C., 17.14% (40,180); Medellín, 10.30% (24,155); Barranquilla, 3.59% (8,427); Cali, 3.07% (7,208); Bucaramanga, 2.75% (6,442); Cartagena, 2.08% (4,876); Cúcuta, 1.77% (4,141); Manizales, 1.71% (4,005); Villavicencio, 1.53% (3,581); Pasto, 1.25% (2,942); Popayán, 1.19% (2,795); Santa Marta, 1.10% (2,575); Pereira, 0.91% (2,129); Ibagué, 0.87% (2,032); Armenia, 0.83% (1,954); Neiva, 0.81% (1,903); Sincelejo, 0.79% (1,846); Valledupar, 0.78% (1,827); Montería, 0.75% (1,749); Florencia, 0.54% (1,268); Yopal, 0.48% (1,114); Tunja, 0.41% (955); Riohacha, 0.39% (924);

Quibdó, 0.27% (626); Arauca, 0.25% (578); Leticia, 0.21% (482); San José del Guaviare, 0.19% (451); Mocoa, 0.17% (410); San Andrés, 0.17% (409); Inírida, 0.08% (193); Puerto Carreño, 0.07% (166), y Mitú, 0.06% (145).

With respect to the gender of the people arrested, most have been men, which represent 88.95% (208,575) of all arrests, while women represented 11.05% (25,913). Moreover, even though most people arrested were Colombian (219,771), 5.97% (13,992) were Venezuelan and another 0.31% (725) represented other nationalities.

On the other hand, verifying and detailing the place of arrest (department or municipality) and origin of the arrested person (place of origin), 55.6% (130,385) were originally from the department and municipality where they were arrested, while 44.4% (104,103) did not match this criteria. For the specific case of Bogotá, D.C., 30.10% (12,096) of the people arrested were originally from other regions of the country (Barranquilla, 288; Cali, 244; Ibagué, 224; Cartagena, 186; Soacha, 184; Medellín, 159; Villavicencio, 125; Bucaramanga, 122; Santa Marta, 110, and Neiva, 107).

## Vehicle Recovery

## Recovered Automobiles

In 2019, 3,623 automobiles were recovered, worth an amount of over 172 billion Colombian pesos. The following was the behavior of operations in the municipalities: Bogotá, D.C., 18.41% (667); Medellín, 8.67% (314); Cali, 8.20% (297); Popayán, 4.36% (158); Barranquilla, 3.09% (112); Pasto, 2.37% (86); Soacha, 1.74% (63); Pereira, 1.63% (59); Ipiales, 1.35% (49), and Villavicencio 1.13% (41). The jurisdictions above accounted for 50.95% (1,846 vehicles) of vehicle recovery on a national level.

The automobile brands recovered most were Chevrolet, with 28.93% (1,048), followed by Mazda, with 12.67% (459), Kia, with 11.23% (407), Renault, with 8.83% (320) and Toyota, with 8.42% (305).

The monthly average for recovered vehicles was 302 for the analyzed period.

## Recovered Motorcycles

A total of 11,203 motorcycles were also recovered, for an amount over 60 billion Colombian pesos, which had been stolen by various methods around the country, with an average of 934 recovered motorcycles a month. The top 10 municipalities in

terms of recoveries accounted for 37.20% (4,167) of all recoveries, with the particularity that they are all capital cities: Medellín with 11.81% (1,323); Cali, 5.64% (632); Bogotá, D.C., 5.53% (620); Popayán, 3.63% (407); Barranquilla, 2.35% (263); Bucaramanga, 1.83% (205); Cartagena, 1.67% (187); Villavicencio, 1.66% (186); Pasto, 1.58% (177), y Cúcuta, 1.49% (164).

With respect to recovery areas, urban areas recorded 81.97% (9,183) of recoveries and rural areas accounted for 18.03% (2,020). The times with the highest concentration of operability were 06:00 to 11:59 with 42.95% (4,812) and 12:00 to 17:59 with 36.62% (4,102).

## Conclusions

The analysis allows establishing that, although it is true that the way jurisdictions and crimes are prioritized is through the participation (absolute and percentage) and the absolute variance between comparative periods, the threshold analysis allowed harmonizing historical data, averages and standard deviations to methodologically and objectively determine and guide institutional efforts and capacities to face the crime's negative behavior or, otherwise, identify the strategies that significantly reduce crime to replicate them in other areas in the country.

Applying the threshold analysis to the behavior of homicide on a national level by municipalities (2019), considering the 5-year historical period (2014-2018), allows concluding that, of the 1,100 municipalities, homicide cases significantly increased in 107 (intervention zones), moderately increased in 141 municipalities (attention zones) and had a behavior within the expected patterns in 688 municipalities (standard zone). Moreover, 134 municipalities recorded a random variation with reduction (casual zone) and 30 municipalities contributed significant decreases in homicide in their jurisdictions (ideal zone). On the other hand, 80% (10,128) of homicides occurred in 185 municipalities, among which 41 were in intervention zones and 36 in attention zones.

Colombia maintains regional leadership in protecting the right to life. It represents a sustained and historical reduction in homicide, with a homicide rate of 25.1 for every 100,000 inhabitants in 2019, in which 13 departments (Arauca, Cauca, Valle, Putumayo, Chocó, Norte de Santander, Antioquia, Quindío, San Andrés, Caquetá, Nariño, Guaviare and Vichada) surpassed the national rate. In turn, the top 10 departments with the most participation (Antioquia, 2,362; Valle, 2,248; Cundinamarca, 1,434, which includes Bogotá, D.C.; Cauca, 777; Nariño, 572; Atlántico, 518; Norte

de Santander, 515; Córdoba, 403; Bolívar, 383, and Santander, 302) totaled 9,514 homicides (75.17%), five of which surpassed the rate of homicides per 100,000 inhabitants (Antioquia, 34.9; Valle, 46.7; Cauca, 54.4; Nariño, 31.2; and Norte de Santander, 36.7). Finally, considering the threshold analysis' methodology, the departments of Cauca, Córdoba and Magdalena were in the Intervention Zone (IZ), while Antioquia, Santander, Huila, Cesar, Arauca and Sucre are in the Attention Zone (AZ).

## The Analysis' Result

For the comparative years of 2018-2019, the administrative record of crimes in Colombia allow demonstrating that the crimes associated with urban phenomena, such as theft against people and motorcycle, automobile and cellphone theft have increased significantly, while those associated with crimes against public security, such as homicide, kidnapping, extortion and terrorism, have shown significant reductions.

The increase in crimes against property in the National Police's administrative record may follow internal dynamics that have contributed to increasing citizen complaints and collecting statistical information by the National Police. An example of these dynamics are the increase in complaint centers around the country, access to faster connections, such as the application "ADENUNCIAR!", strengthening the SIEDCO database, campaigns and programs to drive citizen complaints and initiatives, such as CAI Virtual.

584,216 crimes that affected the security of citizens were recorded in 2019. Significant reductions in four socially impactful crimes occurred: theft against businesses decreased by 5.99%, kidnapping by 47.72%, homicide by 0.09% and theft against residences by 1.91%. These four crimes represented significant reductions in crime in Colombia.

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