

Crime & Homicide Trend Analysis in Uruguay (2013-2025)

July 26, 2025

1 Introduction

This report is based on the analysis of raw crimes data that we can find on the [uruguayan government's open data platform](#).

I used two datasets, one that contains mostly data about crimes committed between 2013 and 2025, and other focusing solely on homicides that took place on the same time period.

I created this project to contrast my personal impressions of crime in Uruguay with the factual data.

This helped me make some interesting discoveries like which neighborhood in Montevideo is safer than others, some possible explanations for certain crime trends and most notably that domestic violence is not only important to take care of but it is increasing over the years.

This is not only interesting information that we can get, but we can use what we retrieved and use it with other reports to get to a deeper point of understanding about what is really happening in the territory.

For this analysis I used Python along with such libraries as pandas, matplotlib, seaborn and others. Also most of this project uses SQL and a personal DB made using MySQL where I uploaded and extract the clean and raw data to make different queries as to retrieve information for punctual conclusions and verify my thoughts. This paper is made entirely using Jupyter Notebook and LaTeX.

You can find the notebook, source code and other files related to this report, and the different codes for the graphs on my [Github repository](#).

2 Uruguayan reported crimes

2.1 What is this about?

Using the crime report dataset from [Ministerio del Interior](#) we aim to uncover: - The annual growth of crimes on Uruguay, per department and in general. - The evolution on crime types over the years. - What is happening to the neighborhoods with the highest number of crime reports over the years?

Metadata describing the data set can be found [here](#).

2.2 Data Insight

Some columns were irrelevant for this analysis, so I cleaned and selected only the ones we needed. This helped improve both performance and efficiency. All processed data was uploaded to my MySQL server so I wouldn't need to do the cleaning each time I open the notebook.

Columns:

- crime : Crime type - date : Date of the crime - year : Year of the crime - month : Month of the crime - dept : Department of Uruguay where the crime took place - barrio : Neighborhood on Montevideo where the crime took place.

Total: 2296511 crimes reported.

Starting date: 2013-01-01

Last date: 2025-03-31

I decided to make the 5 dataframes needed to each point of the analysis, and labeled as I needed to:

df_crimes_year_dept : Contains yearly crimes splitted by departments.

df_crimes_year : Contains all the crimes accumulated per year.

df_montevideo : Contains all crimes occurred in Montevideo.

df_crime_type : Contains all crimes accumulated by crime, year and month.

2.3 Yearly growth for each department

To understand how crime evolved across Uruguayan departments I decided to create the following visualization:

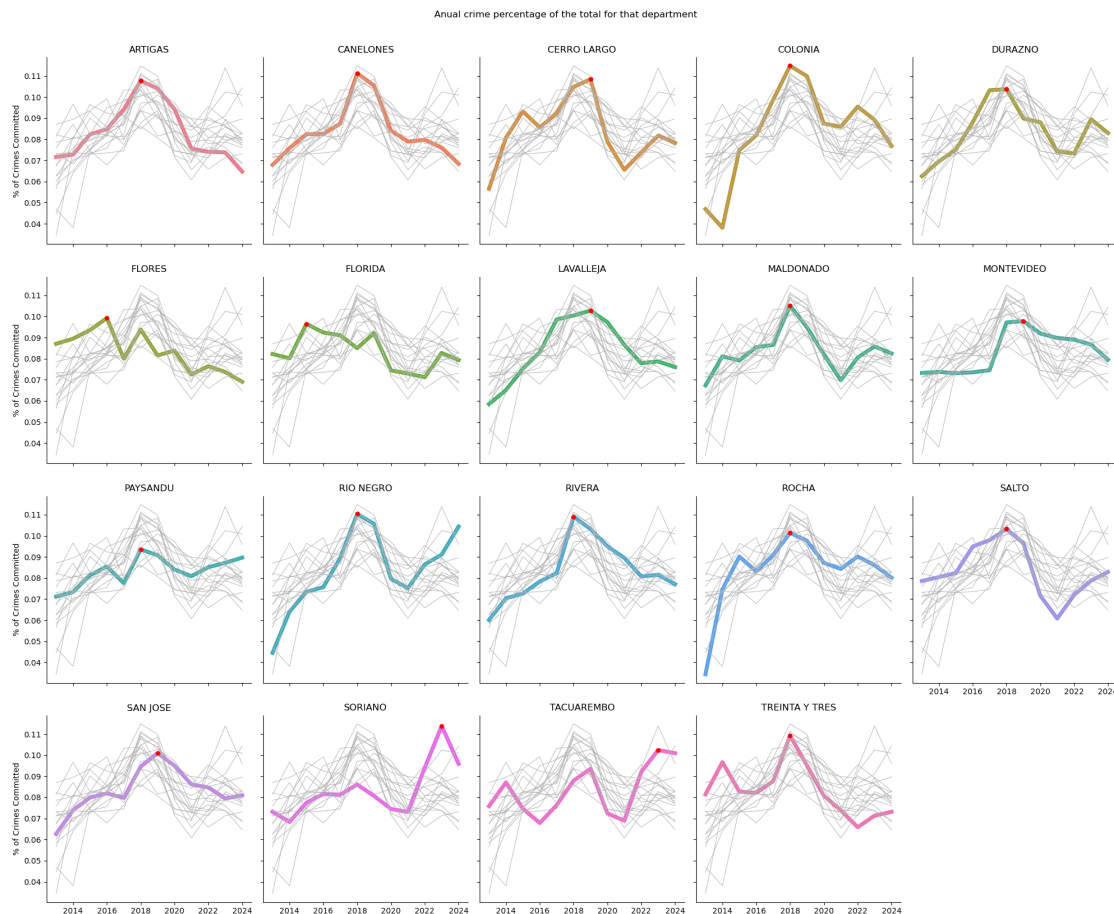


Fig 1. Crime evolution per department of Uruguay.

Each subplot shows the crime trends over the years. The colored line represents that department's trend while the gray ones represent the other 18 departments.

The red dot shows when the department reached its peak in reported crimes.

We can observe: - 17 out of 19 departments experienced a major spike in reported crimes between the years 2018 and 2019. - In 2020 the crime dropped on every department, this may have been likely due to global COVID-19 pandemic. - The largest national spike occurred between 2017 and 2018 with an increase of about 25% of crimes. - Since 2022 the national trend seems to be decreasing gradually.

After some research on different important news websites like La Diaria or El Observador, there was indeed an increase, but the percentage of mugging was way higher than the increase of crimes between 2017 and 2018, being around the 50%+, this was something alarming in that year.

We are going to talk about this on the following sections.

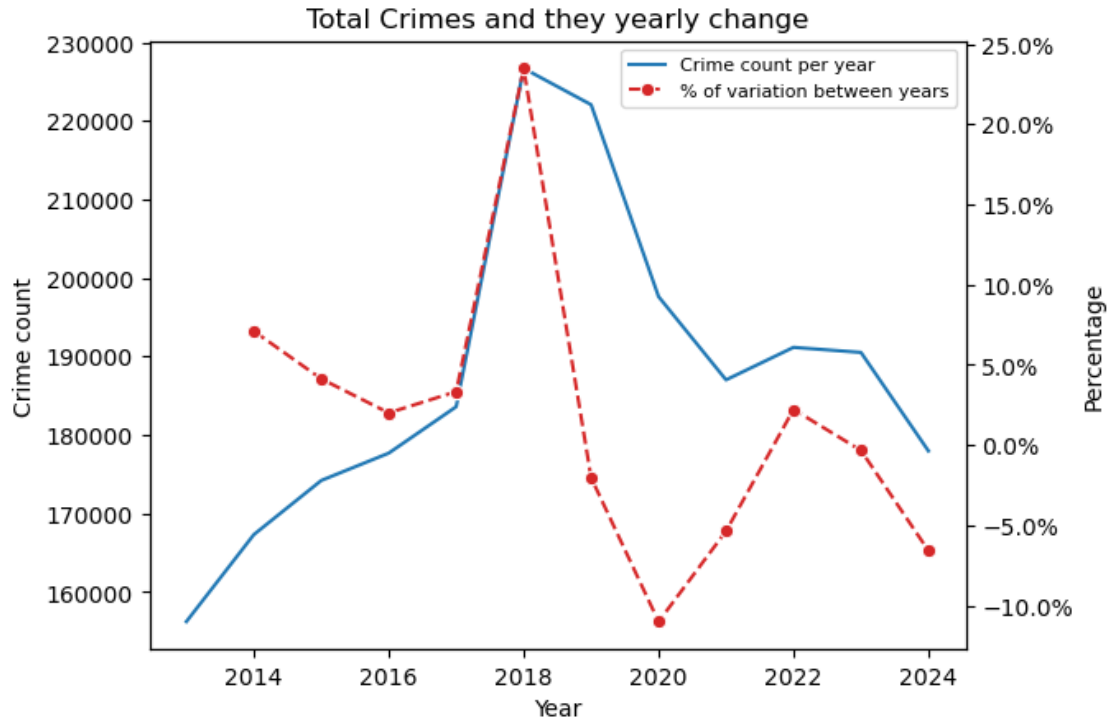


Fig 2. Crime evolution and variation in the country.

Over this graph we can see and confirm what we saw before, there was not only a raw increase in crime but an interesting and fast growth rate for the crime in 2018 specially.

In 2018 the crimes got around 23% up from 2017, and got a drastic drop from 2019 to 2020 of a 10% less.

It's clear that after the pandemic effects, the crime was going to increase as we can see it get around a 5%-10% increase between 2021 to 2022, nowadays it seems to be going down.

2.4 Theft got the first place. Concerned about Domestic Violence

In this section we want to know which crimes are the most common and their evolution since 2013 to previous year.

From the metadata we found that there are this type of crimes: - Hurto : Theft - Rapiña : Mugging - Violencia Domestica : Domestic violence - Lesiones : Injuries - Abigeato : Cattle rustling

Theft and mugging decline post 2018 peak, While domestic violence continues to rise

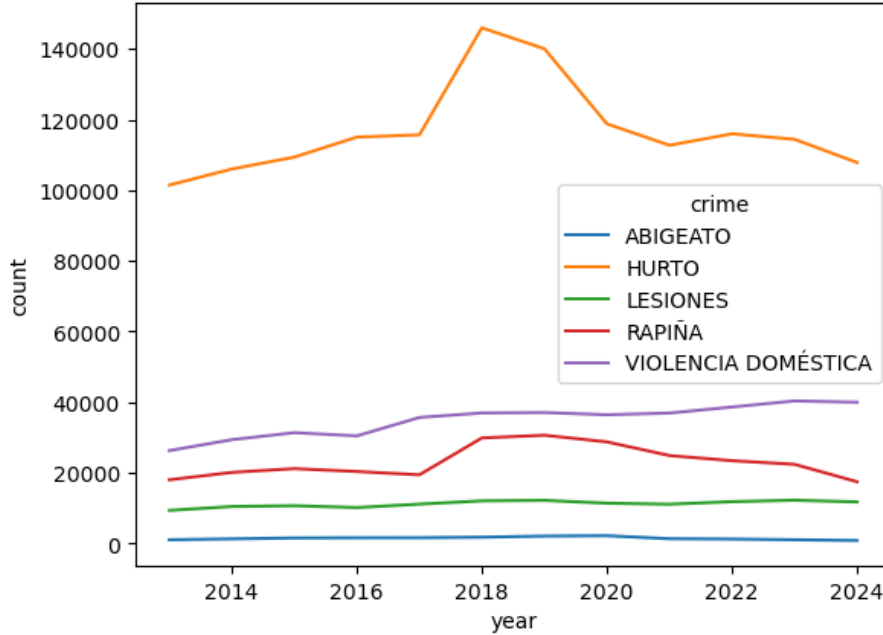


Fig 3. Crime trends over the years.

year	2013	2018	2020	2024
crime				
ABIGEATO	1059	1794	2206	852
HURTO	101453	145973	118783	107845
LESIONES	9370	12069	11408	11780
RAPIÑA	18035	29885	28757	17480
VIOLENCIA DOMÉSTICA	26288	36946	36445	39990

We can observe:

- Abigeato has decreased a lot since 2021, being on the all time low on 2024.
- Hurto has it's peak on 2018 as well as Rapiña did.
- Hurto is the most current type of crime.
- All the crimes are currently decreasing over the time except domestic violence.
- Domestic violence seems to be increasing steady and slowly over the years, on 2023 it reached it's max.

These are really concerning results, we are going to talk more about **domestic violence** in the homicides section, where we are going to see how many women were killed by their couples, specially on 2023.

It's worth noting that mugging increased sharply from around 20.000 to almost 30.000 between 2017 and 2018. This marks a 50% increase in a single year being the same that we found on the newspaper's articles we read.

Nowadays mugging along with theft are starting to be less common as the time passes by.

2.5 Summer, where the most crimes are committed

On the following plot we can see that most of the crimes take place on the summer season of the year.

This may be caused due to people going out more in the summer than in the winter.

Some are empty during vacations, people walk more freely since there is no cold.

It is interesting to see that domestic violence does have the same behavior. After some research I found from a [C.A.W.C](#) (Connections for abused women and their children) website that indeed the summer affects the domestic violence rate by the physiological effects of the heat that lead to irritability and heightened stress.

Also states that heat also cause sleep deprivation which is linked to increases irritability and lower impulse control.

It's important to note that most of 2024 is below the average for each part of the year (except February), this is good news.

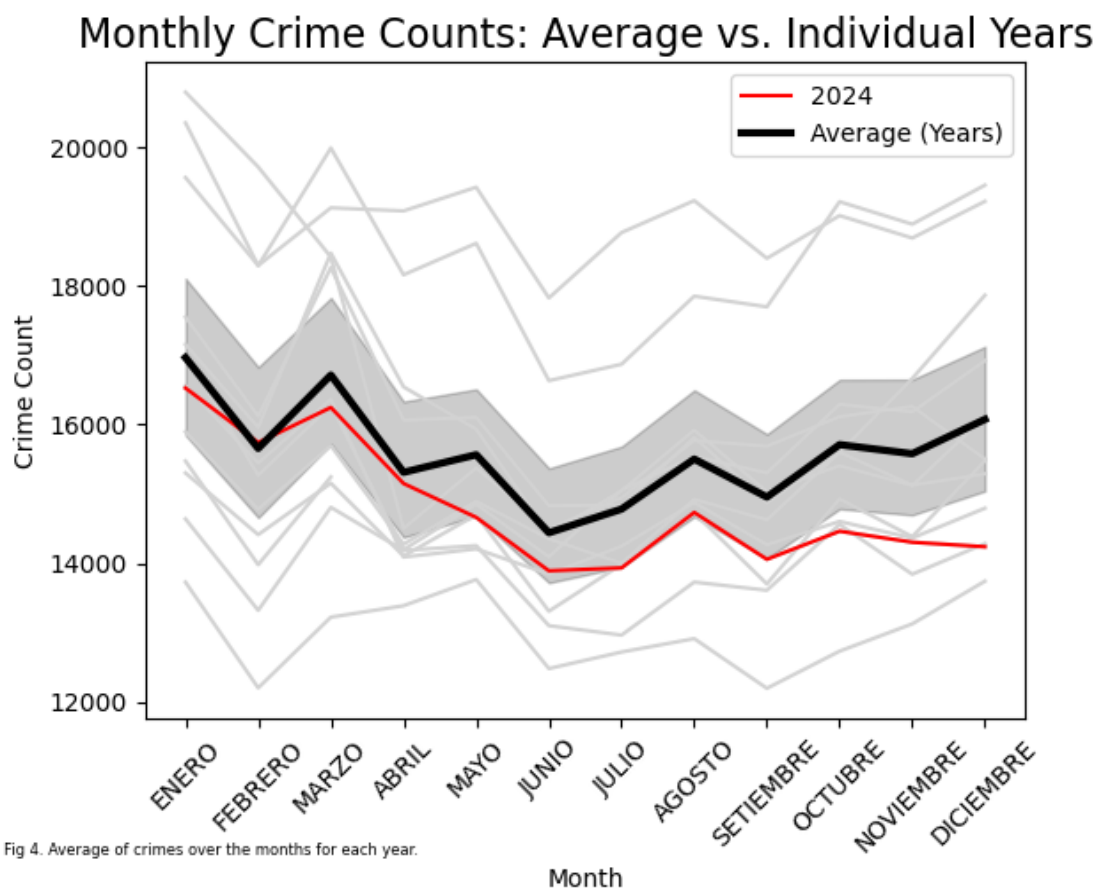


Fig 4. Average of crimes over the months for each year.

2.6 Neighborhoods and crime report impact over the years

To analyze how neighborhood-level crime evolved I used a Choropleth map of Montevideo, where the redder areas are showing more reported crimes than the whiter ones.

The shapefile was sourced from a [GitHub repository by Vierja](#), and standardized to match the Ministry data.

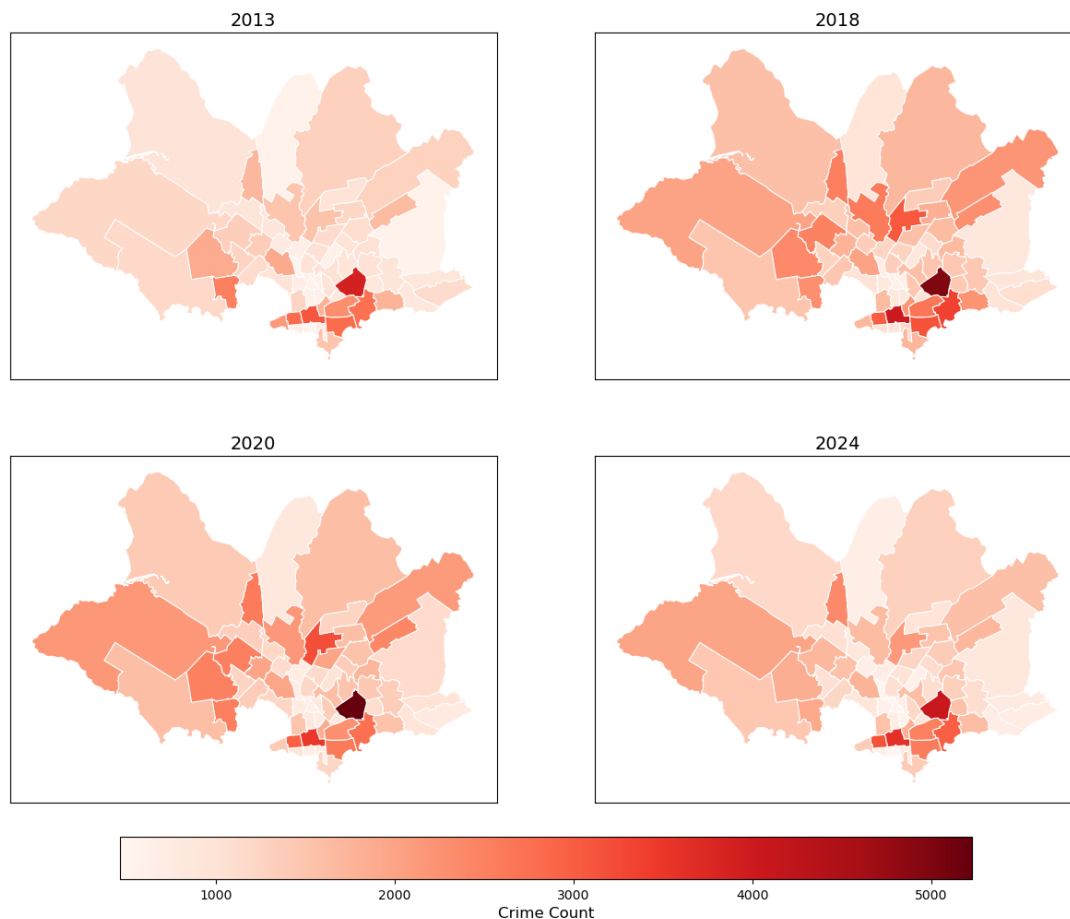


Fig 5. Heatmap of Montevideo's neighborhoods for years 2013, 2018, 2020 and 2024.

In the Montevideo map over the years we can see how the zones that did not have that much crime (reported) on it on the outsides, specially on the northwest, starts to gather more and more reports, and near zones to them like Cerro started to dismiss the crimes.

It is important to note that now zones like Centro and Ciudad Vieja start to have more crimes over the years.

The south part of Montevideo stays almost the same, being between the most crime reported zone. It is well noted that Union stayed on the top 1 of most crime reported neighbors, where the crime that was most reported in last year was theft (Hurto) and Mugging (Rapiña).

We don't know the exact nature of some reports, but we can estimate that some zones started to

gain more reports as they get out from the center in newer years.

Keep in mind that these does not mean that they are the most insecure neighborhoods, got example, in Pocitos, most of the crimes reported on previous year are theft, but mugging is less common than domestic violence.

This is an important distinction, since in Uruguay “Hurto” is classified as theft without violence, while mugging states that it is indeed with violence.

In that centric or southern zones is normal to have more crimes reported since they are more crowded, also we can state that the violence on this zones is often less than on more periferal zones, for example in Cerro, mugging is almost 4 times more frequent than in Pocitos.

If we calculate a relationship between the amount of crimes with violence that were committed on the southern neighborhood to the periferal, we can estimate that most of them are going to be like 2 or 3 times greater than in the ratio in the southern.

Conclusion: To conclude, we manage to see that the neighborhoods that got the most crimes stayed almost the same on every year. Some of them are starting to decrease, like Pocitos, but most of the southern ones, they are not related to mugging.

Most of this calculations were made by queries on SQL and checking some of the top 5, southern and periferal neighborhoods

2.6.1 Top 5 most crime reported neighborhoods

Year 2013

	barrio	year	crime_count
754	UNION	2013	3899
273	CORDON	2013	3098
182	CENTRO	2013	2825
624	POCITOS	2013	2822
91	BUCEO	2013	2745

Year 2024

	barrio	year	crime_count
765	UNION	2024	4066
284	CORDON	2024	3622
193	CENTRO	2024	3148
102	BUCEO	2024	2989
635	POCITOS	2024	2577

2.6.2 Top 5 least crime reported neighborhoods

Year 2013

	barrio	year	crime_count
26	ATAHUALPA	2013	527
546	PALERMO	2013	527
52	BAÑADOS DE CARRASCO	2013	562
247	COLON SURESTE ABAYUBA	2013	568
169	CASTRO CASTELLANOS	2013	578

Year 2024

	barrio	year	crime_count
37	ATAHUALPA	2024	461
557	PALERMO	2024	464
297	FIGURITA	2024	480
375	LA COMERCIAL	2024	562
180	CASTRO CASTELLANOS	2024	594

2.7 Conclusions of this part:

After the analysis of more than 2.2 million reported incidents along the years 2013-2025, reveals an interesting trend in the territory.

In 2018-2019 there was an increase in almost every crime, this came to drop over the Covid-19 pandemic, this is pretty much visible in almost every department making this not an isolated effect of Montevideo but a more widespread phenomenon.

Since 2018 peak where theft and mugging (Hurto y rapiña) reached its maximum, there is a decrease on this type of crime, but on the contrary, domestic violence shows a persistente and steady increase over the years, this is critical for the population on Uruguay, and should be taken more into perspective.

It's notable to see that most of the crimes occur during summer time of the year and not over the winter, this is something we could study more deeply. Is this caused by people going outside of the country? People not going out that often on winter? The day being shorter?.

This are some questions we can ask and analyze over in another paper.

To finish, Montevideo being the capital shows that most of the violent crimes occur outside the centric/south zone, but this zones keep increasing the crimes that happen, also this shows that zones where there was not common to report crimes are starting to get more and more reports over the years.

3 Homicides

We are going to use a separated data set found in the same government website that we have stated before.

[Dataset Link.](#)

From this we can retrieve the next information:

- Year, Month, Time, Department
- Weapon classifications (Fire, Hand, White, etc)
- Minors involved (Did minors participate on the homicide?)
- Relationship (What the relationship between the victim and aggressor was)
- Cause (Why did it happen)
- Sex, Age

while some records are incomplete we are still able to extract important insights.

3.1 Fewer homicides committed by minors

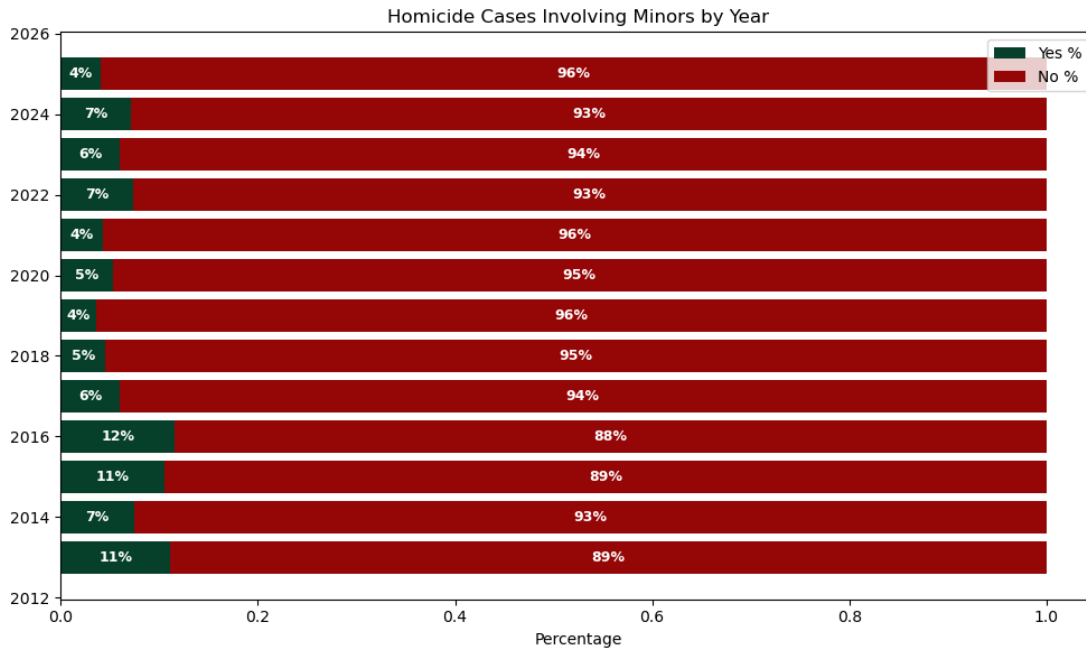


Fig 6. Percentage per year of total homicides committed by minors.

The graph above shows that most homicides are not committed by minors.

While the number of minors involved in homicides increased in 2015, they remain a small percentage of all homicides in Uruguay and seems to be decreasing over the total amount.

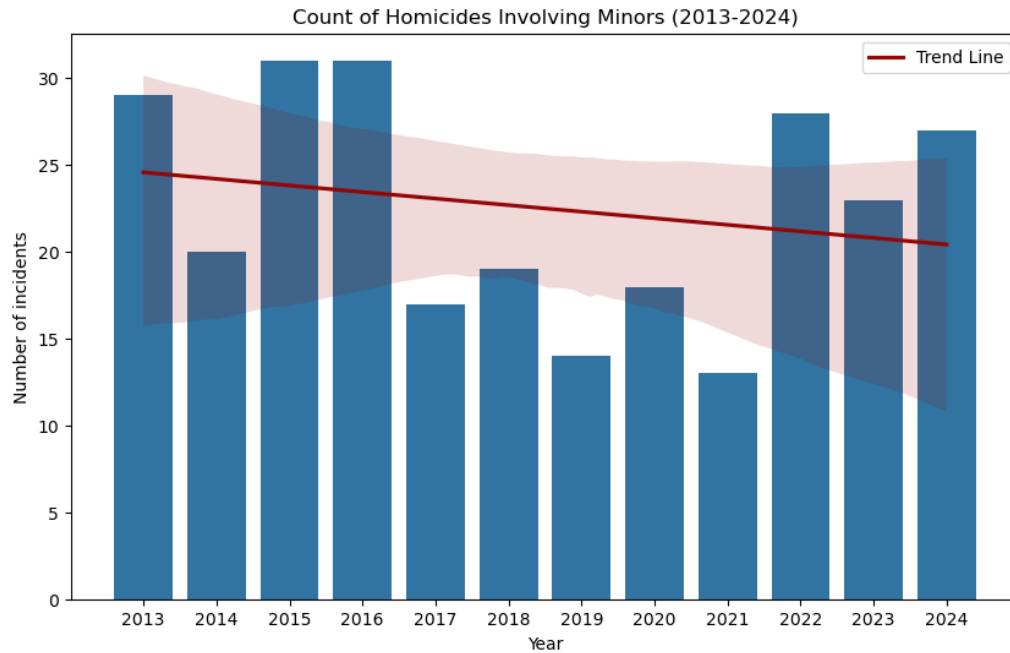


Fig 7. Chart with minors involved crimes and the trend

From the previous chart we can assure that the minors take around 25 lives per year mostly in aggravated crimes. It seems to have an non consistent trend over the years and high volatility, also it is really variable, we can see this over the confidence interval in the red graph showind that they can differ from the prediction.

After some queries I found that from the different homicides occurred by minors, only 20 were related to domestic violence, this means either revenge against an abusive parent or killing their couples or family members.

3.2 Domestic violence homicides are 1.5 times more likely to affect women

To gather insights about what is happening in Uruguay about the homicides that take place in domestic violence, we can see that there are 5 categories on their relationships between the victim and the aggressor: - Couple - Friend - Family member - Don't Know - No relationship

Between all this years there have only took place 534 homicides related to domestic violence.

Note: There was a particular outlier that I think it was a typo, either could be 24 or 12, it is set as 124 years old which is impossible, so for this reason it was removed from the data we are using.

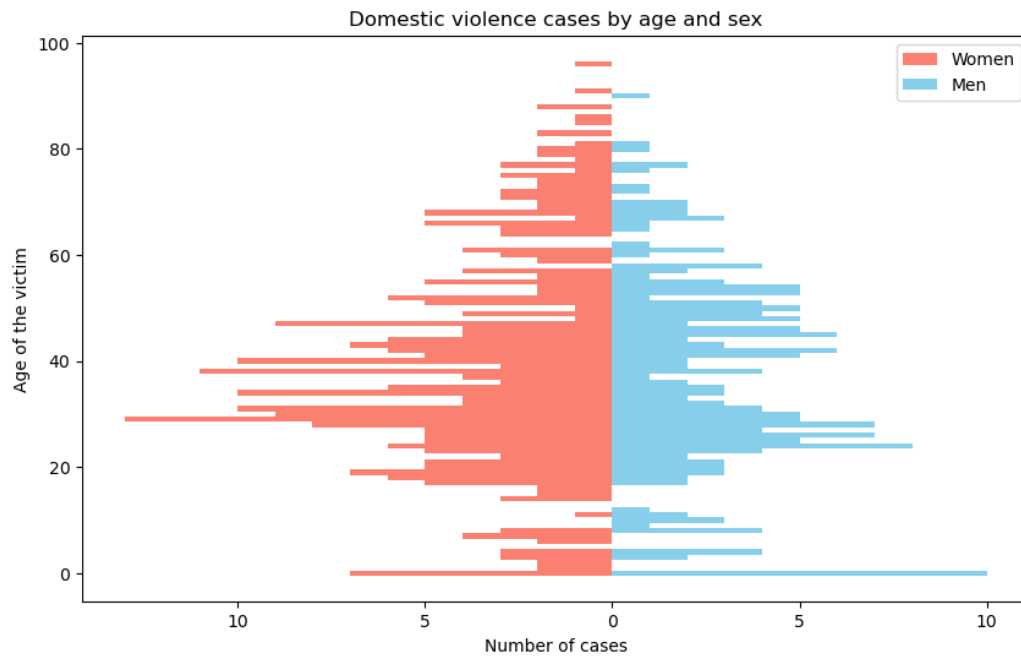


Fig 8. Age/Sex pyramid from victims of domestic violence

We can see on the graph above that there is a wide range of women in her 30s that are killed due to domestic violence.

Most of the victims tend to be women in all ages past the 20s, but if we look down, we can see that there is a wide difference in male kids that get killed due to domestic violence.

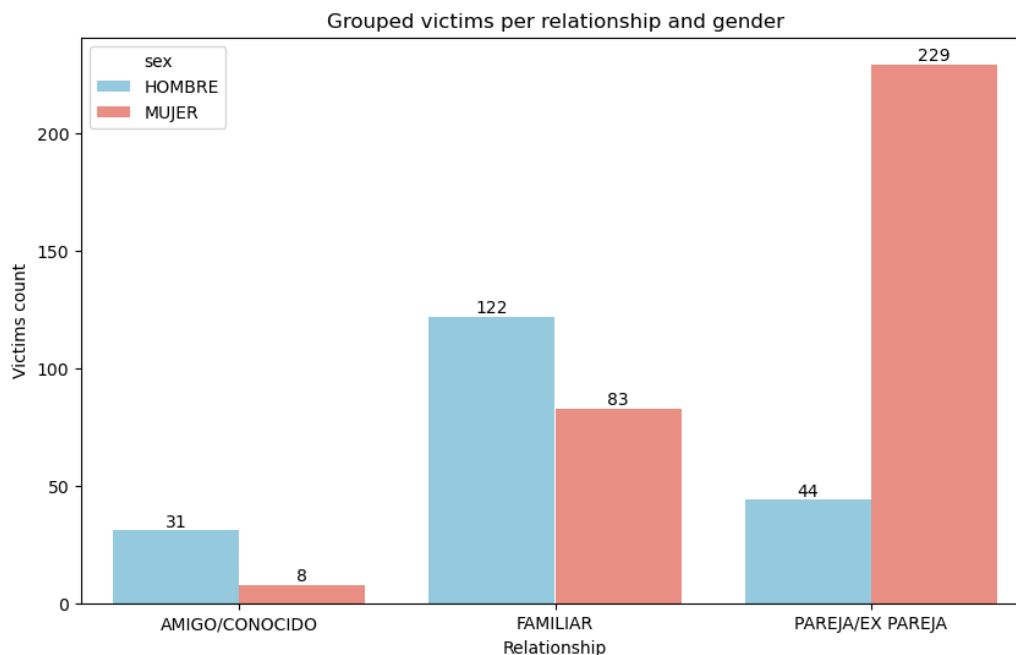


Fig 9. Bar chart for victims grouped by relationship with their killer.

From the data in the graph above, we can assure that not only is more common type of homicide in women, but it takes place way more common for a couple than it happens in a familiar environment. It is great to note that in other cases, like friends, known people or family members it's more common to happen to a man than to a woman.

The numbers are still alarming since domestic violence takes the third place in causes for homicides in Uruguay, being just below spontaneous conflicts.

3.3 Conclusions of this part:

The homicides that take place in Uruguay, are not that common to be caused by minors and it seems to be less and less common in frequent years.

Keep in mind that this is something that may blow up from one year to another due to an extremely volatility and variability in what we have seen, anyways they always seem to be around the 25 homicides per year in hands of a minor.

When we approach to domestic violence, we can depict that most deaths happen to woman when the relationship with their perpetrator is their couple.

Also it's bold to note that there are 117 homicides more against woman than man, and it is more common to happen in a familiar relationship than to a couple in men's cause.

3.4 Final conclusion

This analysis of crime data between 2013 and 2025 from Uruguay reveals an interesting view. Where an important spike took place on 2018-2019 and the effects the pandemic may have had in the reports.

The most critical find is the trend in crimes and how there is a high volume of theft and mugging and while they are decreasing, a very important and difficult type of crime is rising and keeping an increase at a constant and stable pace, the domestic violence.

This is not only alarming for the uruguayan people but if we then take place and compare to the homicides that take place around where aproximatelly 1 in 700 reports end in a homicide, it seems like a small number but it is bigger when you think about the quantity of reports that happen every day.

I found that the childs are currently being victims of domestic violence to the point they parents or close partners kill them, specially on male infants in the lowest ages.

While general crime metrics suggest that there has been an stabilization and decrease since the 2018 peak, the data sound clear alarm of the crisis of domestic violence in Uruguay and should be taken care of.