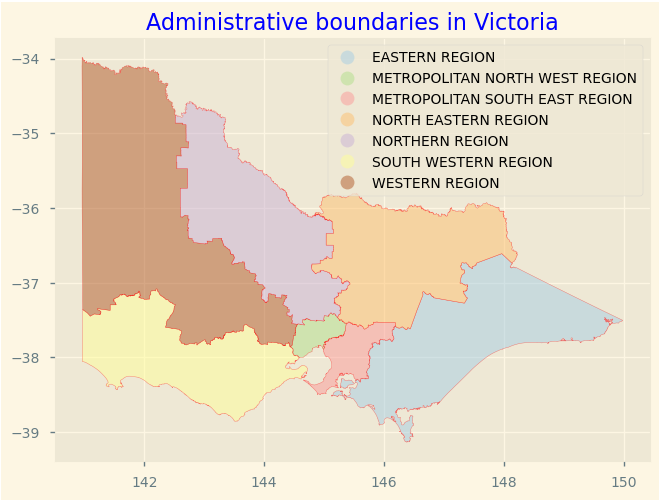
7. Police service area - incident charge status.

Local government areas (LGAs) in Victoria, are sorted into four POLICE regions.

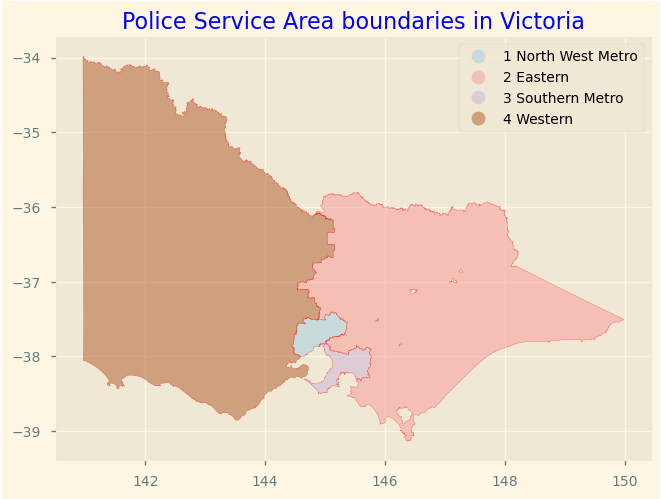
LGA’s are also referred to as municipalities, the 79 Victorian LGAs are classified as cities (34), shires (38), rural cities (6) and boroughs (1). In general, an urban or suburban LGA is called a city and is governed by a City Council, while a rural LGA covering a larger rural area is usually called a shire and is governed by a Shire Council.

Local councils have the same administrative functions and similar political structures, regardless of their classification.

There are too many LGA’s, those must be allocated into seven administrative regions for ease of referencing.



For more simplicity and better service, the police further group LGA into only four regions



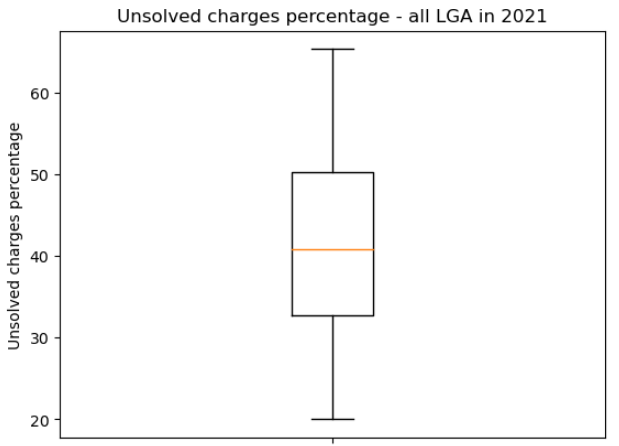
**7.1. The dataset**

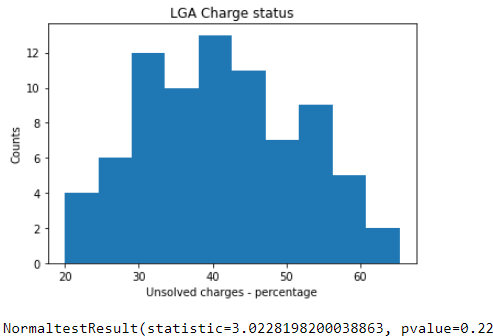
There were three categories for charge status:

* Charges Laid,
* No Charges Laid,
* Unsolved

For purpose of understanding progress of a criminal case, criminal charges statuses are grouped into two main categories, solved or unsolved.

We took a snapshot of criminal incident unsolved charge status in 2021 and concluded the data is normal distributed and there are no outliners.

Figure \*:



On average, a LGA has unsolved charges rate of 41.5% with a standard deviation of 10.4%.

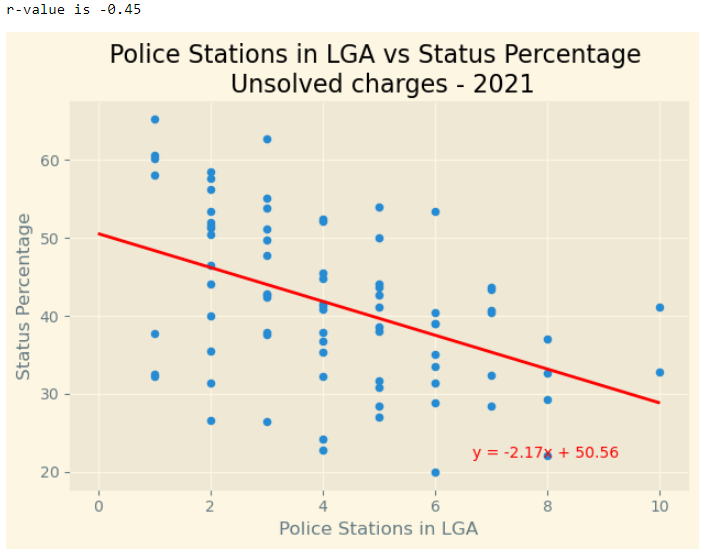
68% of LGA has unsolved charge percentage between 31.1% and 51.9%   
95% of LGA has unsolved charge percentage between 20.7% and 62.3%   
99.7% of LGA has unsolved charge percentage between 10.3% and 72.7%

Top vs bottom 5 LGA’s in 2021:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Ranking** | **Local Government Area** | **Incidents Recorded** | **Total Incidents** | **Unsolved Status Percentage** |
| **1** | Swan Hill | 362 | 1810 | 20.00 |
| **2** | Southern Grampians | 172 | 780 | 22.05 |
| **3** | Ararat | 259 | 1134 | 22.84 |
| **4** | Wangaratta | 395 | 1631 | 24.22 |
| **5** | Northern Grampians | 233 | 879 | 26.51 |
| **...** | ... | ... | ... | ... |
| **75** | Bayside | 2007 | 3435 | 58.43 |
| **76** | Glen Eira | 3276 | 5440 | 60.22 |
| **77** | Maribyrnong | 4180 | 6903 | 60.55 |
| **78** | Boroondara | 3473 | 5535 | 62.75 |
| **79** | Queenscliffe | 47 | 72 | 65.28 |

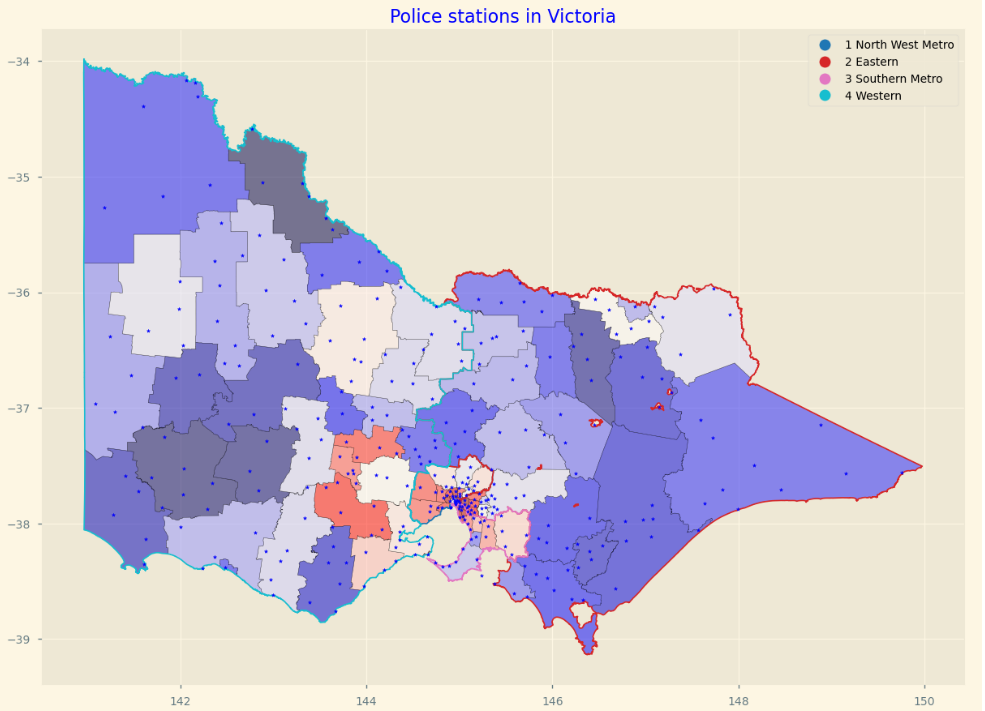
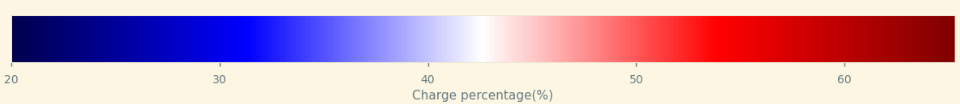
**7.2. Number of police stations and charge status**

In 2021, there’s a medium negative correlation between number of police station in each LGA and percentage of unsolved charge (r-value is -0.45). The more police station a LGA has, the less is charge status percentage. The relationship is depicted with equation y = -2.17 x + 50.56, whereas y is status percentage, x is number of police station in LGA



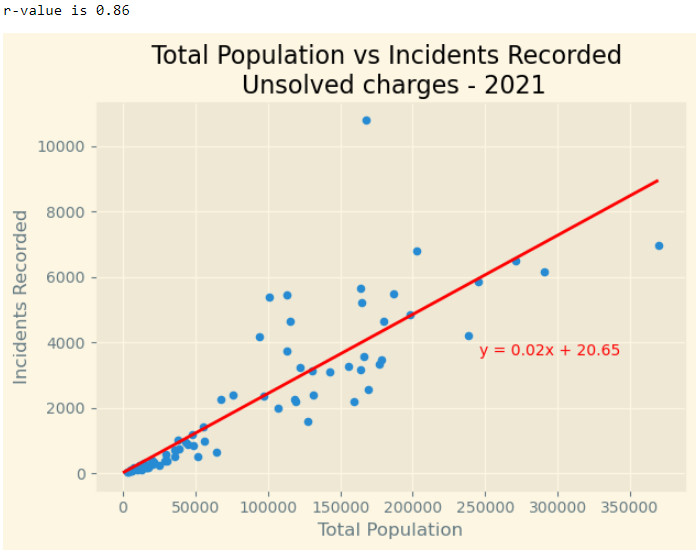
However, number of police stations only explain the how high is the charge status percentage by only 20.25% (r-square)

As per figure below, it shows that building more polices closer to the center metropolitan might improve the charge status.

****

**7.3. Population and charge status:**

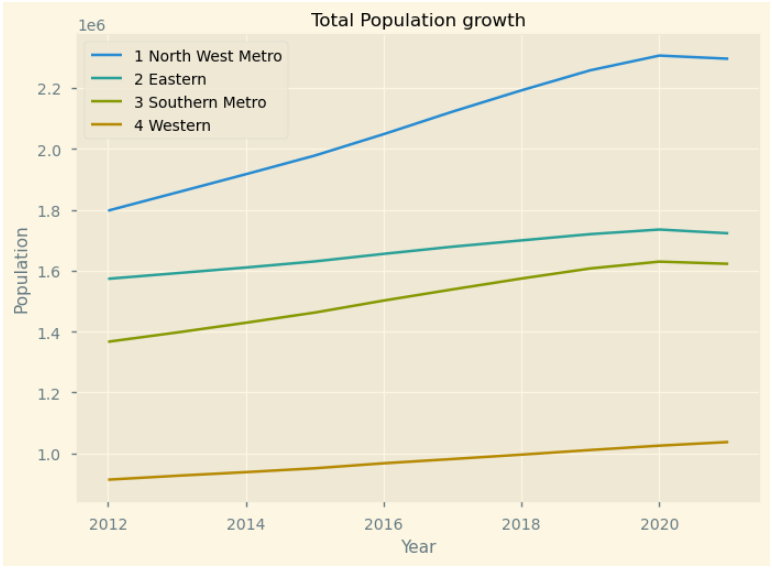
Population is another factor that influence the unsolved charge status. The more population a LGA has, the higher the percentage of unsolved charges (r value is 0.86)



**7.4. Timeseries analysis on unsolved charge:**

LGAs dataset are grouped into four PSA regions for this analysis.

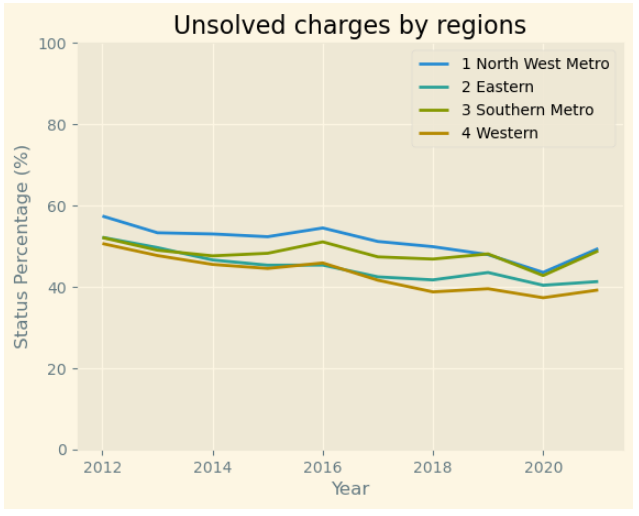
Population for North West metropolitan region was highest in term of growth rate, followed by Southern metropolitan region. Although Eastern region has higher population compared to Southern metropolitan region, the growth rate is more steadily



In for each region, unsolved charge percentage, however, showed decreased in trend despite the increase in population.

Especially for North West metropolitan region, the population growth rate was higher, but the unsolved charge percentage reduced at a little higher rate compared to other regions.

On the other hand, Southern metropolitan with lower population growth rate compared to North Western metropolitan, but the unsolved charge percentage reached to equivalent level in last three years.



**7.5. Conclusion:**

Overall, Victoria police is doing in solving criminal incident. However, they may have to focus more on crime in Southern metropolitan area.