Analysis of Crime in counties surrounding London and why it matters to real estate

Executive Summary

This report conducts a comparative analysis, exploring the relationship between Gross Domestic Household Income (GDHI) and crime rates across four key commuter counties: Surrey, Kent, Bedfordshire, and Hertfordshire. The primary objective is to identify regional safety trends, thereby informing real estate strategy and providing data-driven recommendations for potential homebuyers. Our results indicate that a greater GDHI is correlated to a region being safer. This insight can be used to help advise homebuyers who have safety as a top priority when moving to a new area. Our detail revealed that GDHI is not the only deciding factor for how safe an area is- Bedfordshire reports lower crime rates than expected despite representing the lowest GDHI of the four counties examined. Further analysis required to uncover other trends/correlations that may provide us insights that can be used to improve advisory strategy.

Why is crime an important consideration?

There is a plethora of reasons for which people consider moving homes, often depending on age, financial circumstances and other factors. An often-mentioned consideration across the board would be how safe a location is, or in another words, the level of crime in a particular area. A small survey carried out by our team found that when people were asked to pick three different considerations they would make when moving to a new area, **36.7%** of respondents chose crime rates as one of their top 3 considerations- this is similar to the results from CBREs Residential Tenant Survey in 2022, which found that roughly a third of respondents considered safety as their top criteria when choosing a location for their recent move (Cabot, 2022).

When thinking of moving to a new area, which of the following considerations is the most important to you? Choose three options.
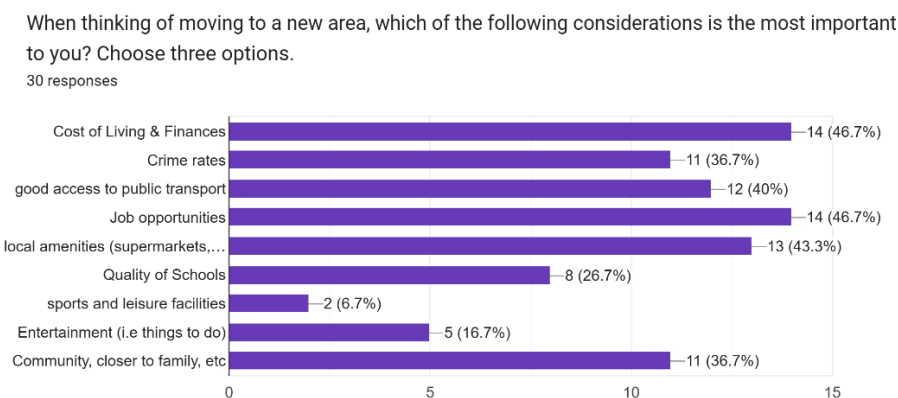30 responses

Figure 1: The results from the preliminary survey. Whilst we cannot make any statistical inferences using this (as we would need more responses), we can clearly see clear themes in what people consider.

Figure 1 shows that 'Cost of Living & Finances' and 'Job opportunities' characterise the strongest criteria. Similarly, in the same Residential Tenant Survey conducted by CBRE, when considering property features, 60% of respondents chose rental prices as their top priority (Cabot, 2022). Given this, it would be easy to think that crime rate ought not to be a top interest for the real estate business- however, this would be an erroneous

decision. The options listed on the survey (see figure 1) are interdependent on one another, as crime rate is often linked to higher levels of unemployment, greater economic inequalities, lack of access to resources, and more (Easy Sociology;, 2024). Thus, it is with this caveat that we intend to conduct a comparative analysis on crime rates in different regions close to London and see if there is a relationship between crime rates and GDHI (Gross Domestic Household Income).

Objectives

We chose four counties that were close to London (i.e. Surrey, Kent, Bedfordshire and Hertfordshire) as their proximity to London makes it possible for homebuyers/renters to commute and are at the same time more affordable than living in London (see table 1). As such, homes in these regions could present themselves to be a good potential market for the company to focus on. Another for why these counties were chosen was because they reflect different levels of wealth which we can somewhat already see reflected on table 1, which shows that the house prices have a range of more than 200,000 pounds.

Location/County	Average House price
London	£720,178
Surrey	£584,231
Hertfordshire	£530,357
Kent	£426,132
Bedfordshire	£370,134

Table 1: Average house prices over the last year. Data taken from Rightmove.co.uk (Rightmove, 2025).

Our objectives are to compare the crime levels in these four different counties by looking at how crime levels change each month over two years (to determine if there are seasonal trends) and to compare the proportion of different crime types across the different regions.

We also see if GDHI shares a correlation with the crime rate. GDHI is a KPI measure that gives an estimate of the average income a household in a particular region can use for spending or saving. We intend to use it to measure economic inequality across the different counties and the districts within the counties.

Methodology

Data sources

The police data which contains a report on information regarding reported crimes was obtained from: Data downloads | data.police.uk. From this website, we downloaded data from October 2022 to October 2024, selecting the following police forces:

- Bedfordshire police
- Hertfordshire Constabulary
- Kent Police
- Surrey Police

We also used the boundary data for local districts from Local Authority Districts (May 2024) Boundaries UK BGC | Open Geography Portal to plot the maps.

The data for GDHI (which contained the GDHI per for the different districts and also the population for each district) was obtained from: Gross disposable household income - Office for National Statistics. The latest update of this dataset is 2023.

Software used

Python on vscode was used to process and then explore/visualize the data. Report and all data/files will soon be uploaded to github.

 The survey was conducted on google forms (now closed): https://docs.google.com/forms/d/e/1FAIpQLSd_sWIy5lVxn8aoVu41ScAqangb9ZErIRlyNIBB2ZTt_8HS0Q/viewform?usp=sharing&ouid=106494359487284786408

Data pre-processing

Information on data pre-processing can be found on the 'Pre-processing_documentation' PDF file. This file also contains a flowchart which visually summarizes the data cleaning process.

Assumptions and Constraints

With regards to both the GDHI and police data, we assume that the information that is provided is accurate (in addition we assume that reported crimes give an accurate landscape of crimes in an area) and available to use at present. We also assume that anyone wishing to run the python files possess adequate computational power to do so without experiencing errors.

The main constraint was time limitations which prevent us from carrying out further analysis beyond crime rate and exploring relationships with GDHI. From a technical

perspective, we limit ourselves to two years' worth of data and four police stations as this was recognised as being manageable with the current computational limitations.

Another constrain was linked to the GDHI data- the latest update was 2023 meaning we do not have data on GDHI and population from 2024 and 2025. In addition, the police data (at the time of conducting this research) is limited to October 2022 to September 2025. Given both constraints, we have assumed that **the GDHI and population in 2023 for the different districts signify an accurate approximation for the GDHI and population from October 2022 to October 2024.**

We assume that GDHI is an accurate measure of wealth inequality.

Calculations

To calculate the crime rate over a period of two years, we take the crime count and divide it by the *population/1000* to obtain the crime rate per 1000 residents (ukcrimestats, n.d.). Crime rate is a more reliable metric than the number of crimes reported as it considers the population of the area.
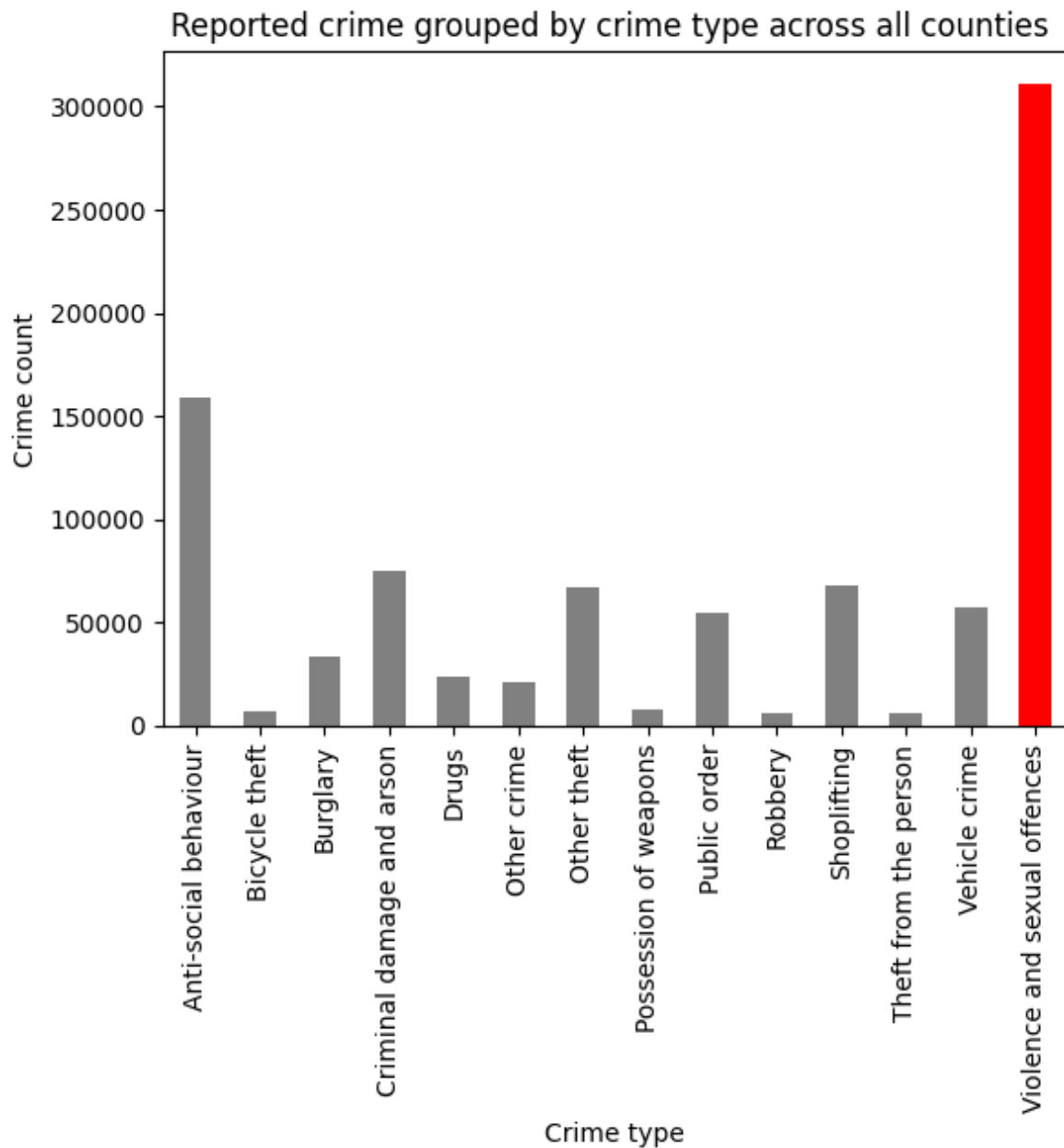
Results

Figure 2: Bar graph comparing the occurrence of different crime types over the two-year period for all counties.

Figure 2 shows that when considering all reported crimes, that violence and sexual offences categories as the most dominant crime type, representing 35% of all crimes that have occurred over the two-year period. The over representation of this crime type is probably due to how broad the category is compared to the other crime types such as 'Bicycle theft' which is a niche type of crime and as such has a very low reported crime

count. Another limitation with the crime type data could be the fact that a particular crime could linked to different crime types.
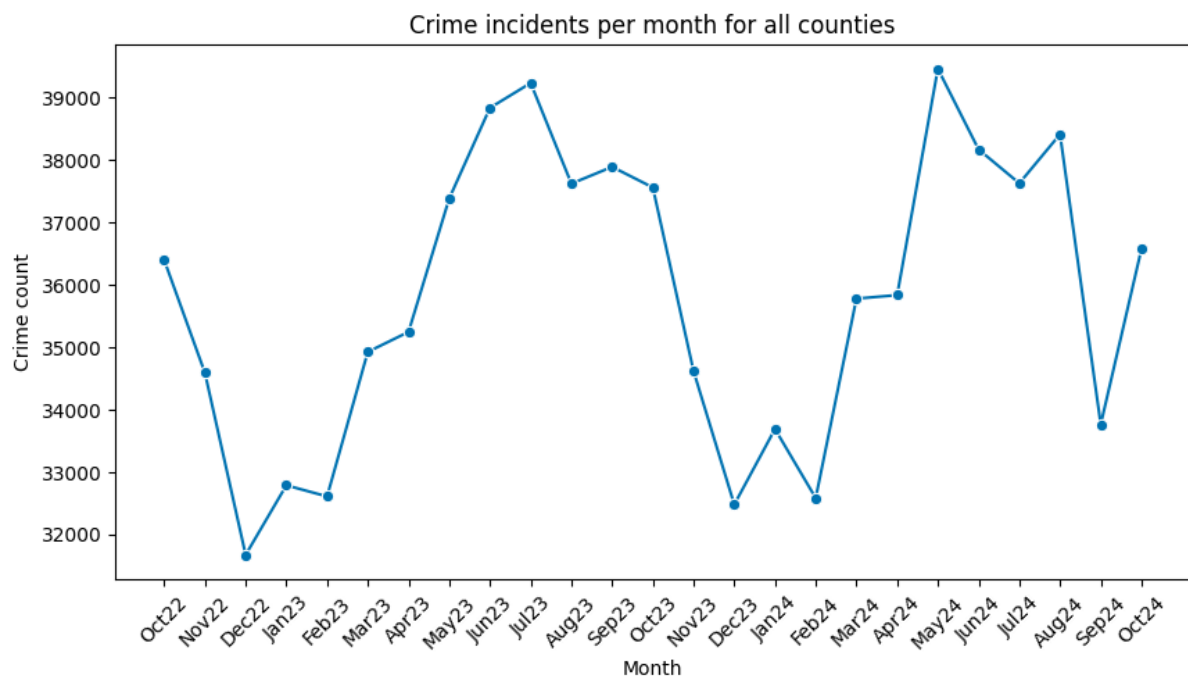

Figure 3: Line graph showing the crime count for all counties each month.

In this line chart, we can clearly see that there is a seasonal trend in crime, in which the summer months are report roughly a third of more crimes compared to the winter months.
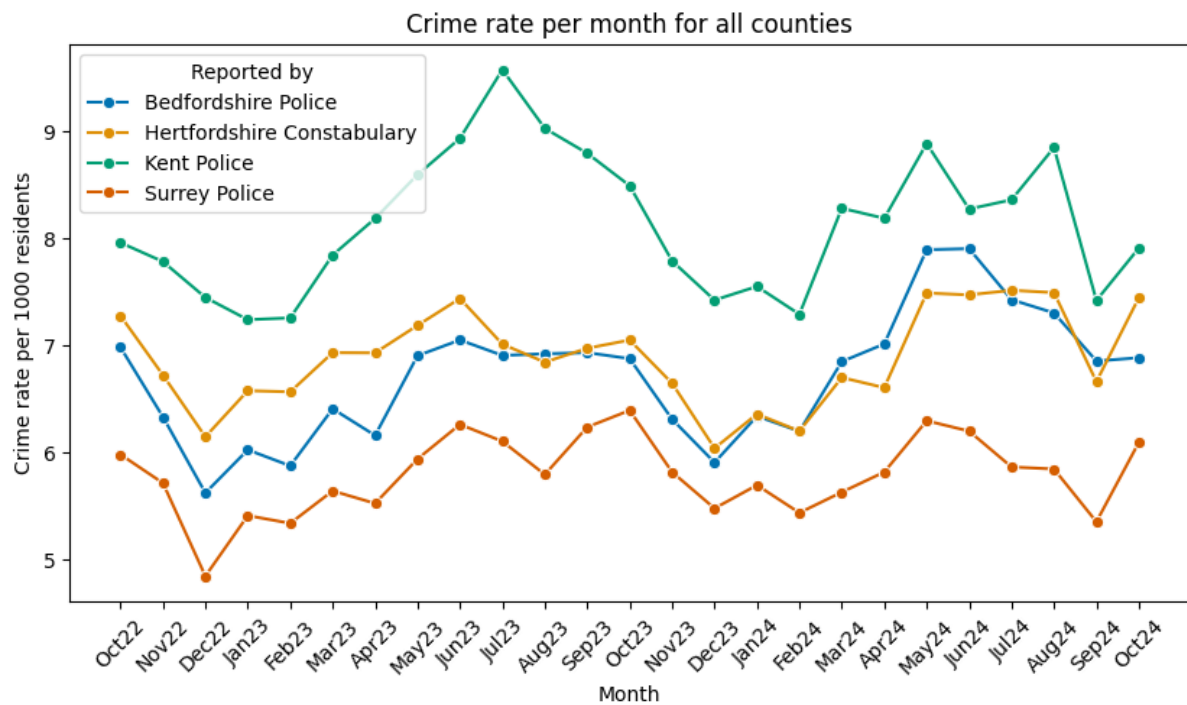
Figure 4: Plotting the crime rate each month for each county.

We can see in figure 4 a hint of the seasonal trend as seen in figure 3. Moreover, we immediately notice that Kent has considerably larger crime rate across all months, with a spike in July 2023 resulting in a crime rate above 9. When comparing this to table 1 (which shows the average house prices), we see that as the average house price decreases*, the crime rate increases- except for Bedfordshire, which seemingly matches with Hertfordshire in crime rate consistently despite having the lowest average house price.

*For this comparison, I assume that the average house prices are closely similar to the time period of 2022 to 2024.
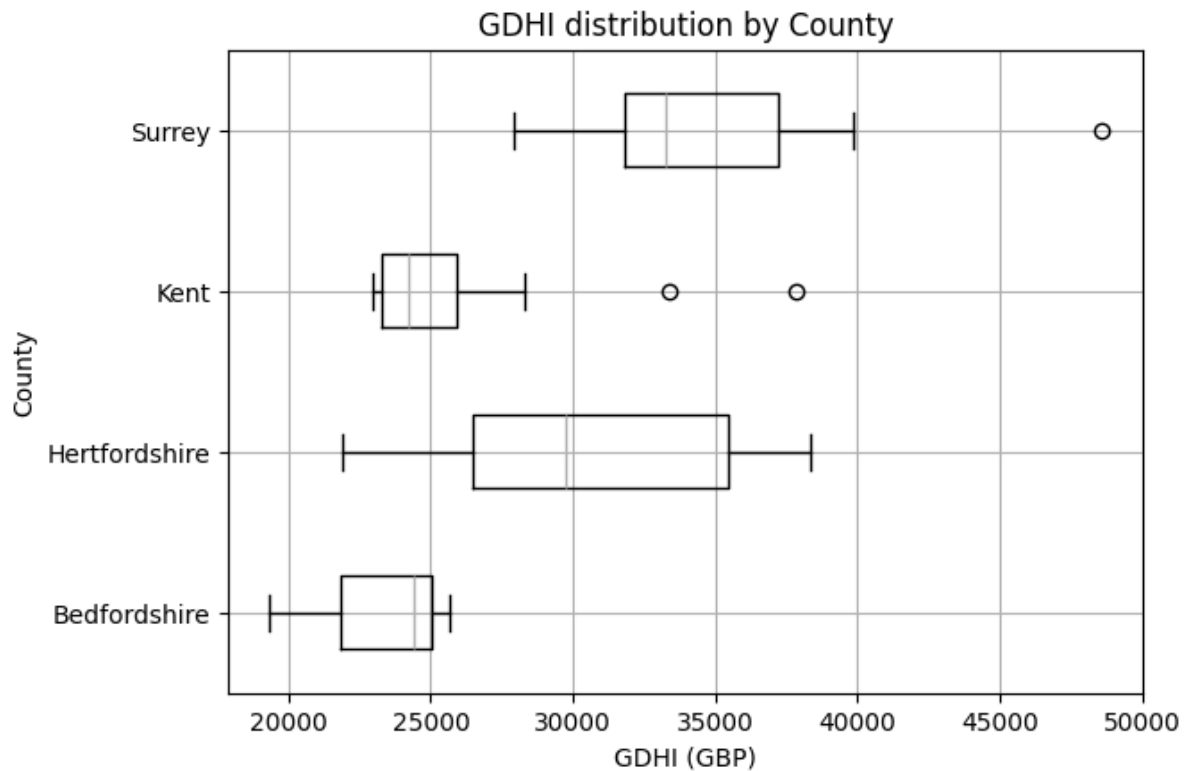
Figure 5: Boxplot showing the GDHI distribution by county and district.

The box plots above shows that the mean GDHI for the different districts in each of county compares well with the average house prices stated in table 1, in that Surrey for example, with the highest house prices also has the typically higher GDHI. We notice that Surrey has the strongest outlier district which had a GDHI of £48,500 (Elmbridge). On the other hand, the district with the lowest GDHI (£19,300) is Luton- the only GDHI below £20000. The Hertfordshire box plot shows a broad variability, with its higher end values competing with Surrey and its lower end reaching numbers similar to Bedfordshire- this indicates that Hertfordshire as a region contains pockets of wealth and poverty.
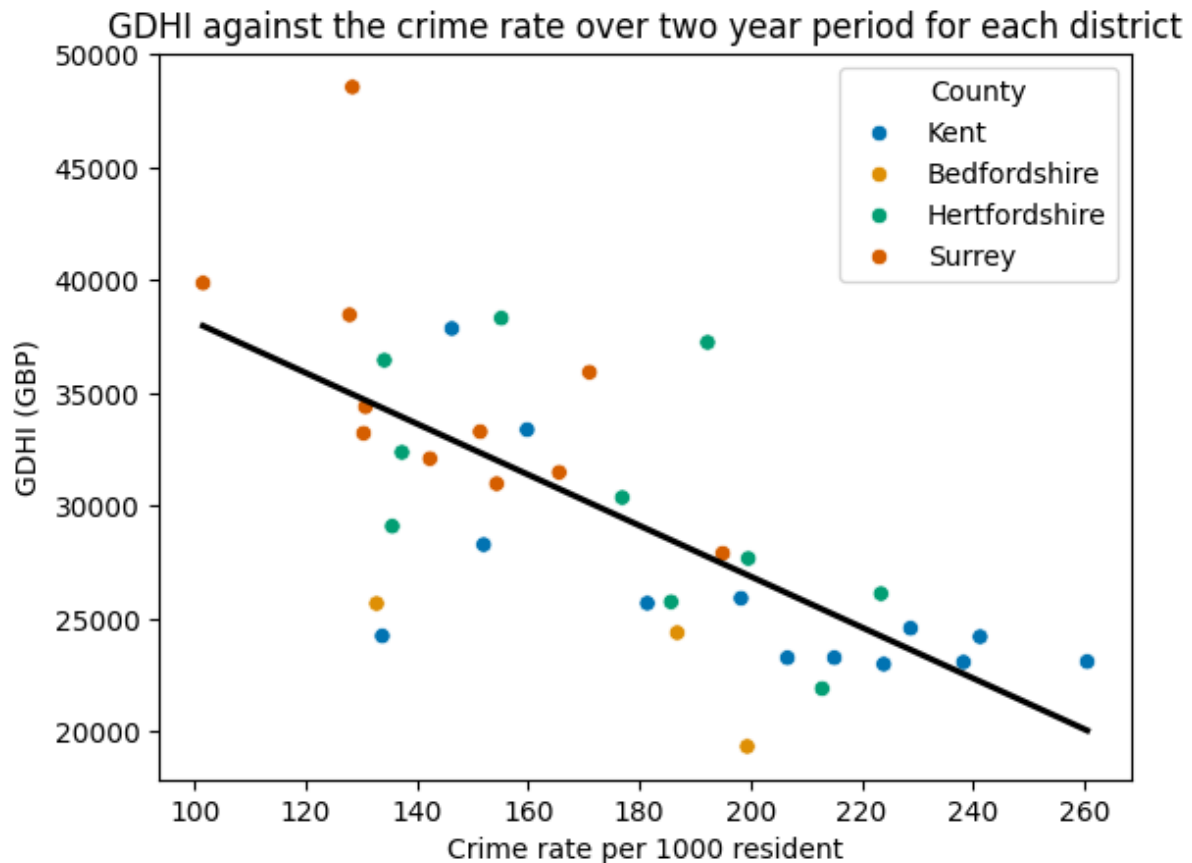
Figure 6: Plotting the GDHI against crime rates in the different districts. R value is: -0.69

In this scatter plot, we that there is a strong negative correlation between the GDHI and crime rate (correlation coefficient of -0.69). This indicates that as the GDHI decreases, crime rate also decreases, which suggests that poverty has a strong influence on the crime rate in an area. In a similar case to figure 4, we see that districts of Bedfordshire do not align as strongly to the best fit line compared to the other districts- we can see for instance Central Bedfordshire, with a GDHI of £25,700 sharing a similar crime rate to the richer districts of Surrey. Luton, with a GDHI of £19,300 has a crime rate noticeably lower than the 'poorest' districts of Hertfordshire and Kent.

Conclusion

Insights

Violent and sexual crimes represent the largest crime type; 35%. It's noteworthy to mention that violent crimes are also the type of crime that worry people when considering moving (see figure b in appendix).

The seasonality of criminal activity is most likely due to the sociological response to the summer season (i.e. people are more active during the summer).

We can say with confidence that crime rates are higher when GDHI is lower. However, the fact that the crime rate for districts in Bedfordshire is noticeably distanced from the cluster in figure 6 (coupled with the fact that in figure 4 the crime rates in Bedfordshire are similar to Hertfordshire, a wealthier county) indicates that Wealth/poverty do not always necessarily correspond to a low/high crime rate.

Recommendations

For potential buyers looking to buy a home in an area close to London, and who emphasise safety as one of their priorities, we should hence forth advice them to look at areas with higher GDHI. For buyers who have affordability as a greater priority (which typically categorises young buyers), we may suggest areas such as Bedfordshire, as they show lower crime rate than what we would expect, hence making it a great property investment.

Future areas of research

For confirmation that districts in Bedfordshire deviate from the regression line, a hypothesis test can be conducted. Furthermore, it would be insightful to explore if there are other factors that influence the crime rate- perhaps districts in Bedfordshire, despite their greater poverty have stronger community bonds, thereby reducing crime rates. Or it may be that there is stronger presence of law enforcement*. This is something that can be looked in as we have access to crime outcomes- we can calculate the success rate of resolving crimes and see if it has a relation to the crime rate. *Effective law enforcement that are not only efficient but also community driven can drive down crime rates* (Easy Sociology;, 2024)

Another of area of interest to investigate further would be to see how crime rate for 'burglary' fluctuates seasonally as it is known to increase during the winter (ukcrimecheck, 2025). Burglary is a homeowner's worst nightmare and so by looking at areas which have higher burglary rates, we can better advise customers on which areas are worst hit by this type of crime.

References

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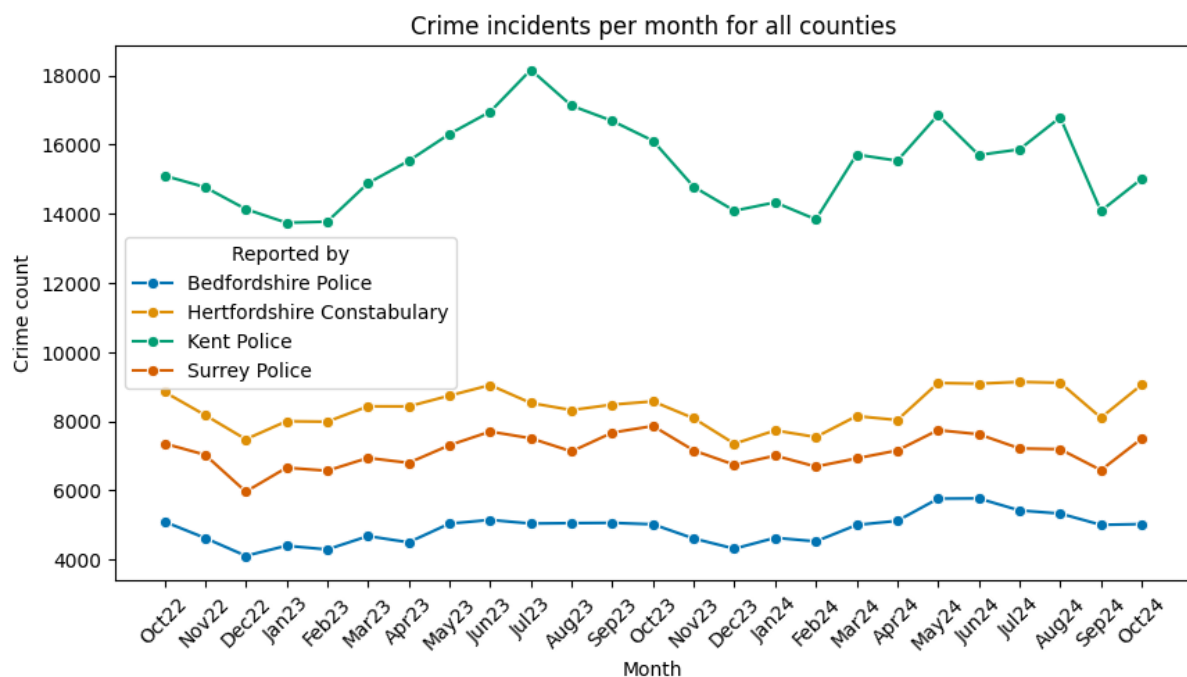
Appendix

Figure a: Line graph which shows the crime count/incidents that occurred every month for each of the counties.

Figure a proves the importance of comparing with crime rate as opposed to crime count. Without considering population, one may easily take Bedfordshire to be safer than Surrey which is would be mistaken.

When considering crime, is there a particular type that concerns you most when it comes to moving to a new area?
30 responses

Crime type	Count
Violent crime	20 (66.7%)
Theft/Property crime	7 (23.3%)
Antisocial crime	3 (10%)

What age bracket do you belong to?
30 responses

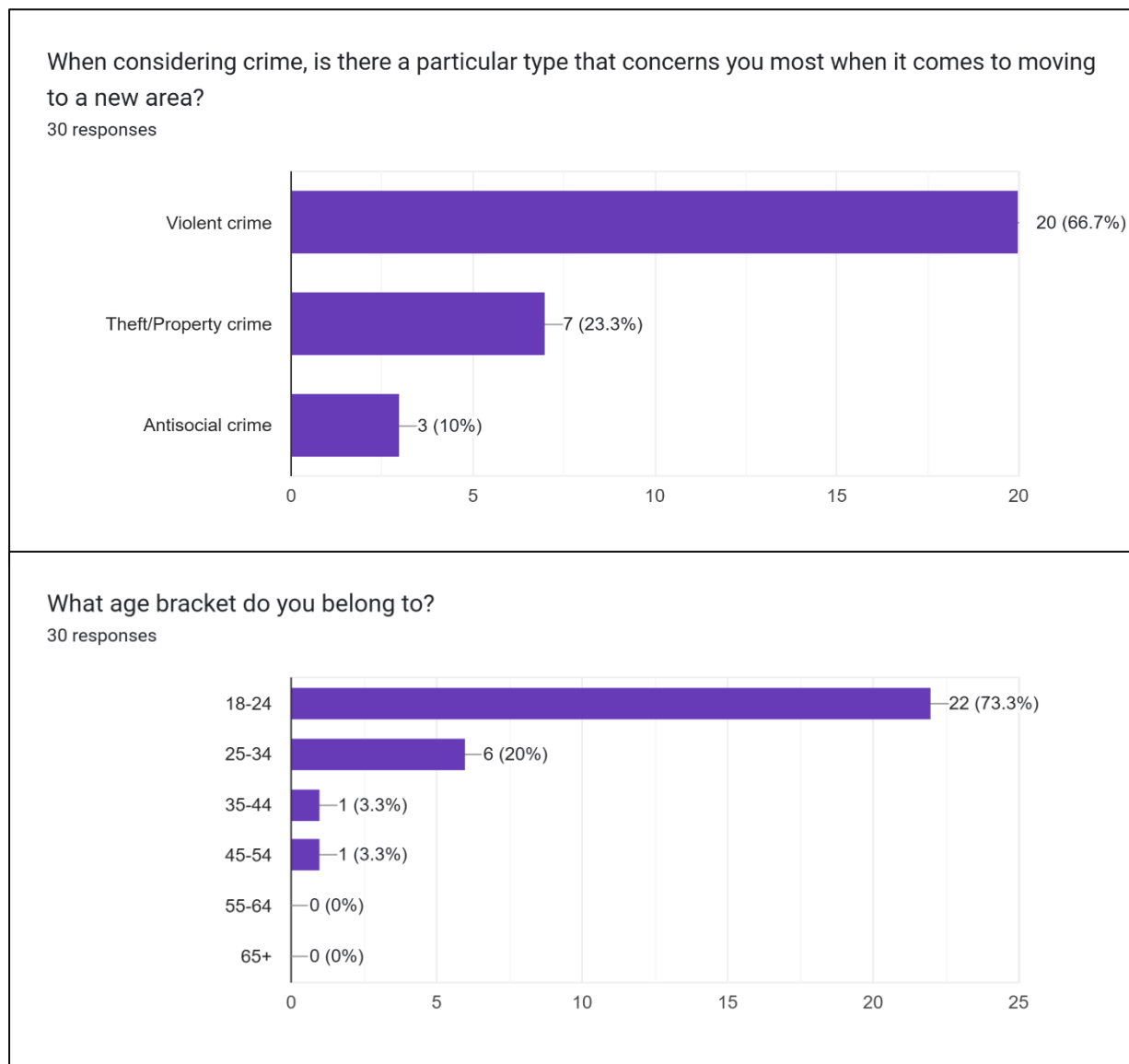| Age bracket	Count
18-24	22 (73.3%)
25-34	6 (20%)
35-44	1 (3.3%)
45-54	1 (3.3%)
55-64	0 (0%)
65+	0 (0%)

Figure b: The survey results for the other two question

We can see from question 2, the trend that violent crime is the most concerning type of crime with respect to moving to a new area. Question 3, which asks for the age brackets shows the survey is biased towards younger adults, which as well as only reaching 30 respondents, is why at most we can get insight into basic trends and should not extrapolate further insight from the survey.
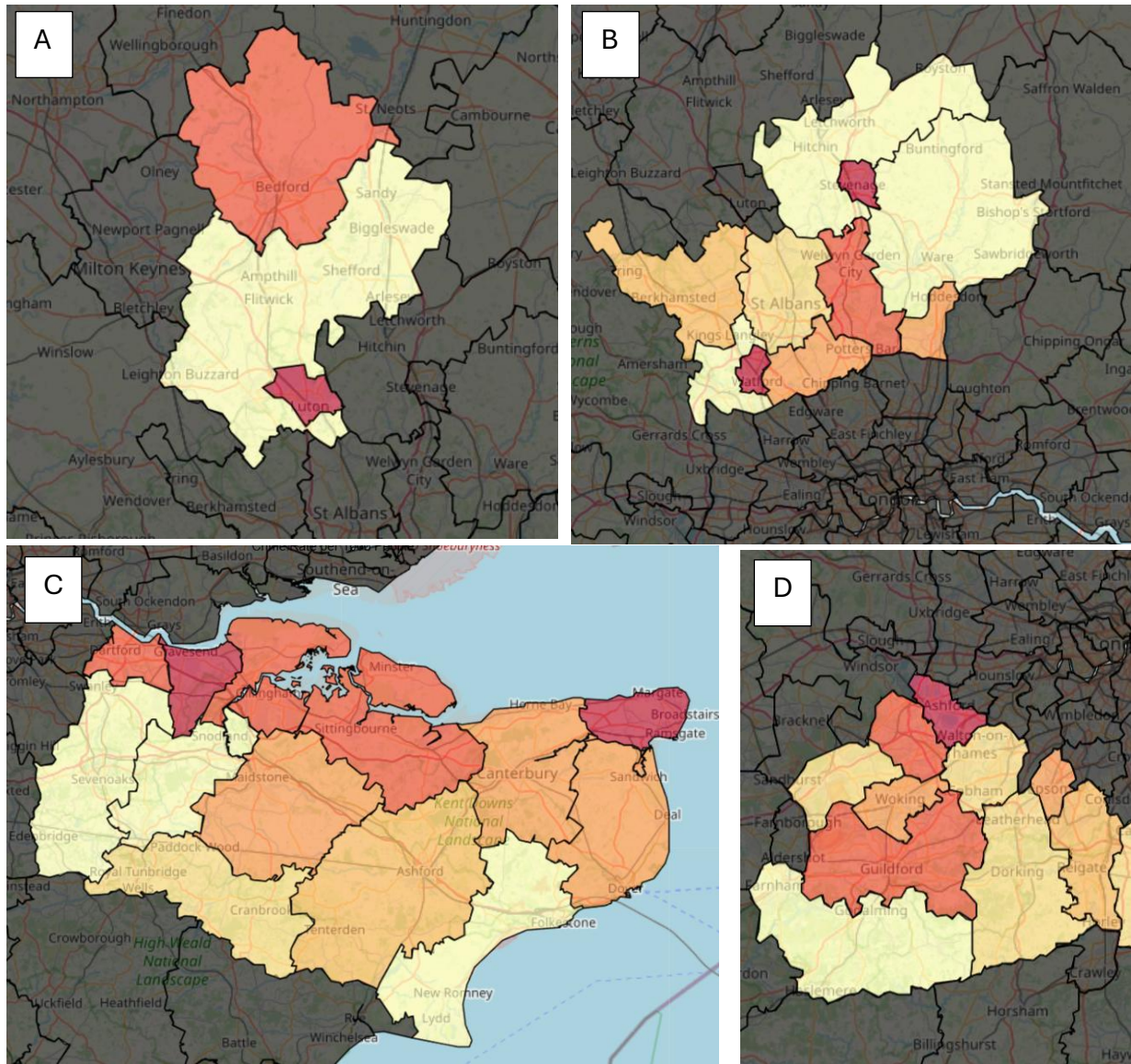
Figure c: Choropleth map showing the crime rate in the different districts across the two-year period. A shows a map of Bedfordshire, B shows a map of Hertfordshire, C is a map of Kent and D is a map of Surrey

Figure c provides a visual representation of the crime rate on a street map. All counties seem to have a 'safer' side and a more crime ridden area. A notable characteristic of Kent is that there is a high crime rate band near the northern coast of the county.