

Data Visualisation Assignment 2

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Suicides by County, Ireland 2008 - 2019

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Introduction

This project is about suicides in each county in Ireland.

This presentation is aimed at government organizations that may fund suicide prevention programs. The problem we are working to present is which county would be the county most in need of such services.

The datasets are downloaded from the Ireland Central Statistics Office (CSO). I used datasets by codes E3003 for population from the census 2011 and 2016, and VSD30 for suicides yearly by county from 2008 to 2019. The CSO conveniently provides an R package to download the datasets directly to R.

Pre-processing

The first problem is how to compare counties with different populations. A high suicide number in one county could be explained by a high population in that county. Normalizing the suicide rates was done with a formula ($\text{countySuicide} / \text{countyPopulation} * 100000$), which gave a suicide rate per 100k population. This could be done accurately on the census data years, 2011 and 2016. The first 2 graphs are graphs of Male and Female suicide rates for each census year 2011 and 2016.

Taking the top 6 counties for suicides from these graphs, the data was sliced to these counties and the male/female suicide yearly totals were trended to give rising and falling trends. Since some counties have larger populations than others, these graphs should only be viewed to see the trends in rates of suicides over the years. Rising trends are highlighted in a bolder colour. Smoothing was used to create the trends graph, without the high spikes of individual years.

Finally, there are graphs for the population data for the top counties for suicide. This graph is mostly as a check to ensure that there are no number reason why there might be a falling trend in suicides, i.e. falling population → less suicides.

Graphs

Male suicides per 100k population by County (Ireland 2016)

Monaghan, Carlow, Cork City, Cavan, Offaly and Kerry had the highest suicide rates for males per 100k population in 2016. Despite larger populations such as Dublin City and South Dublin these had a smaller rate.



Figure 1: Male suicides per 100k population by County (Ireland 2016)

Male suicides per 100k population by County (Ireland map 2016)

Ireland County map showing suicides per 100k population for males

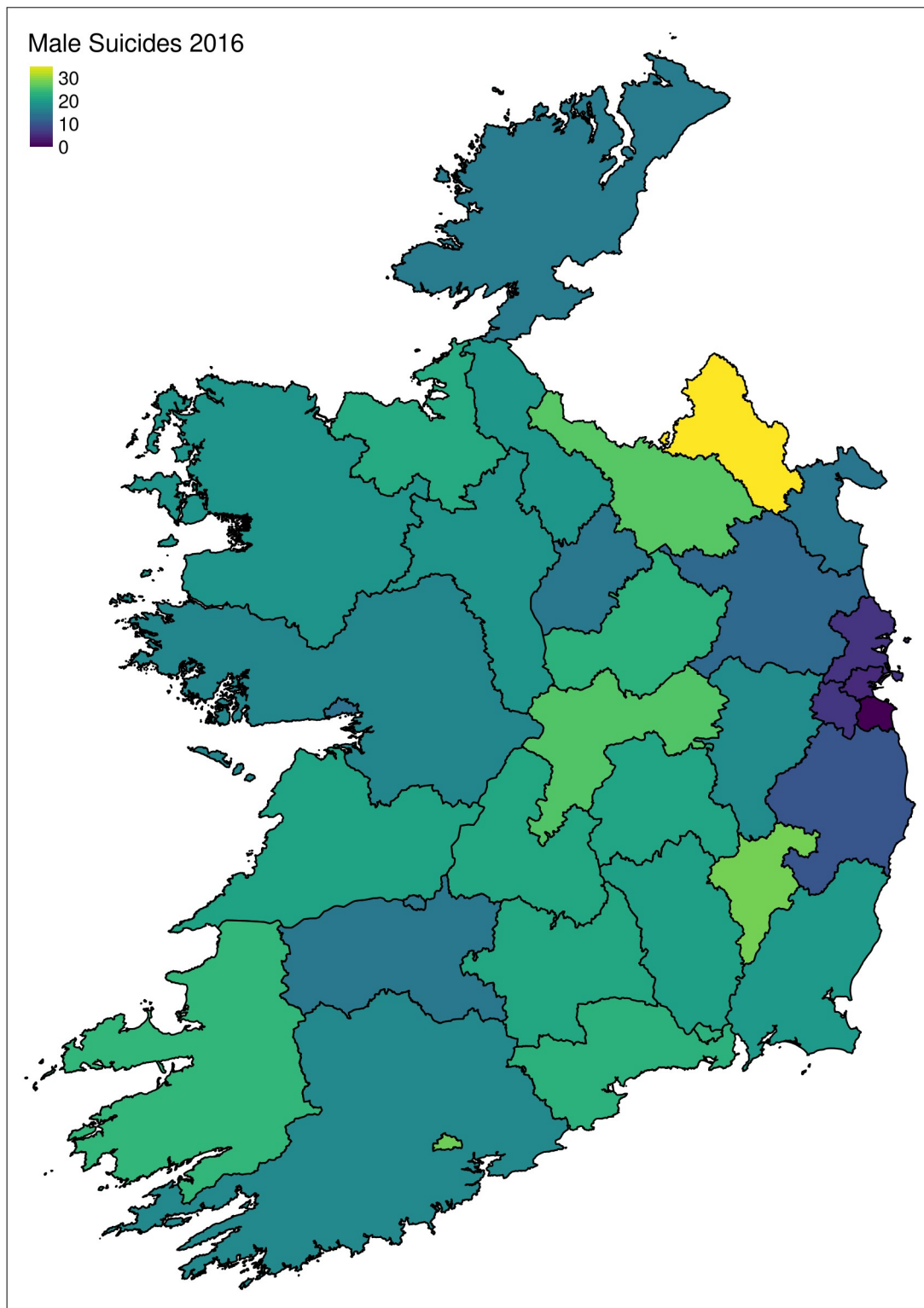


Figure 2: Male suicides per 100k population by County (Ireland County map 2016)

Female suicides per 100k population by County (Ireland 2016)

While females have a much reduced number of suicides compared with males, there are still counties with high rates. **Cavan, Cork City, Galway City, Westmeath, Leitrim and Kerry** all had higher suicide rates for females. Some counties had a zero rate, such as Waterford City and County, and Sligo.

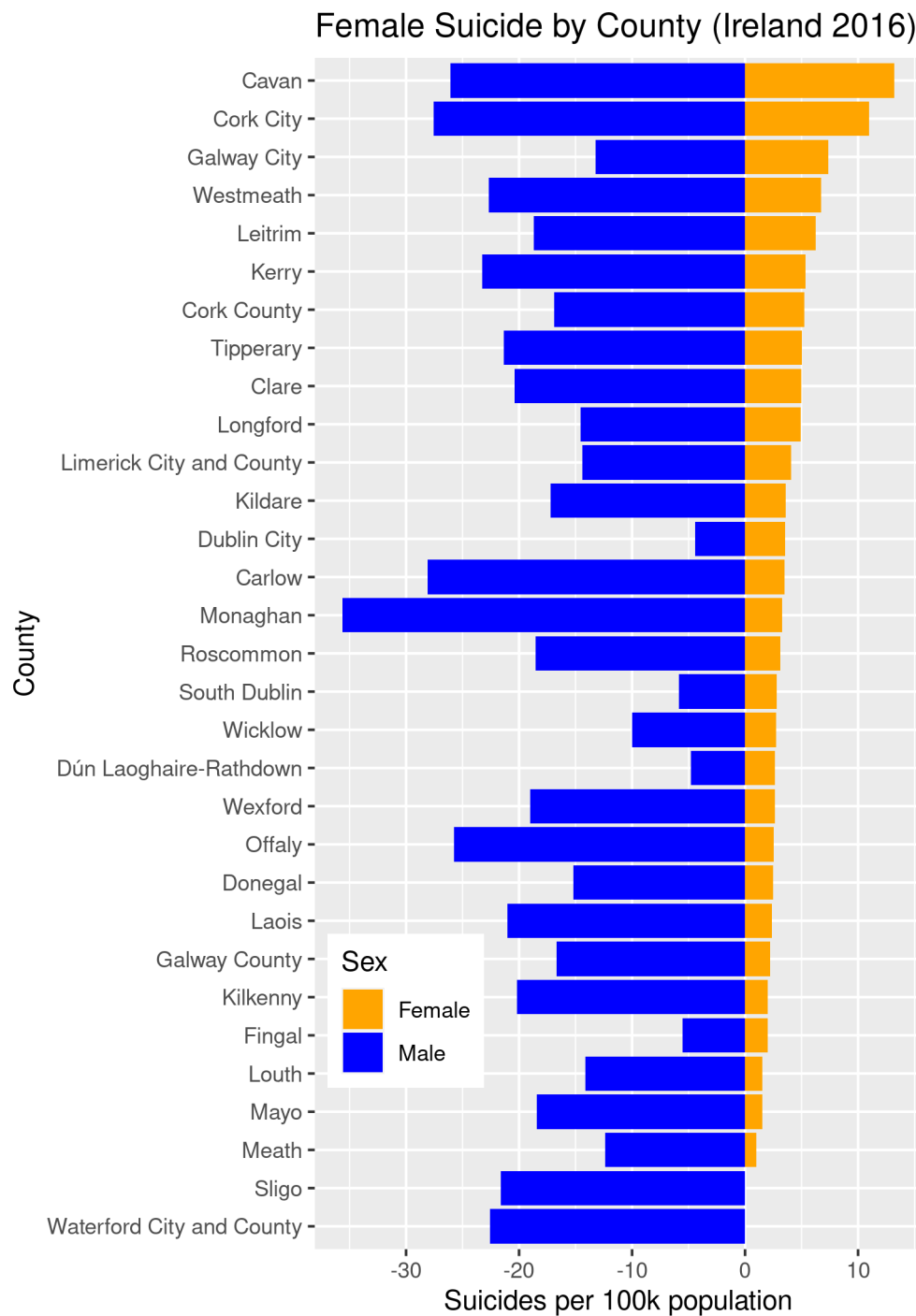
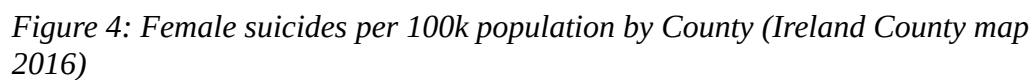


Figure 3: Female suicides per 100k population by County (Ireland 2016)

Ireland County map showing suicides per 100k population for females



Male suicides per 100k population by County (Ireland 2011)

The counties with high suicide rates are different in 2011 compared with 2016. **Wexford, Galway City, Cork County, Limerick City / County, Carlow and Kerry** are the top suicide counties. Only Carlow and Kerry feature in the top 6 counties in 2016.



Figure 5: Male suicides per 100k population by County (Ireland 2011)

Female suicide per 100k population by County (Ireland 2011)

Leitrim, Kerry, Galway County / City, Laois, Wexford are the top counties for female suicides in 2011.

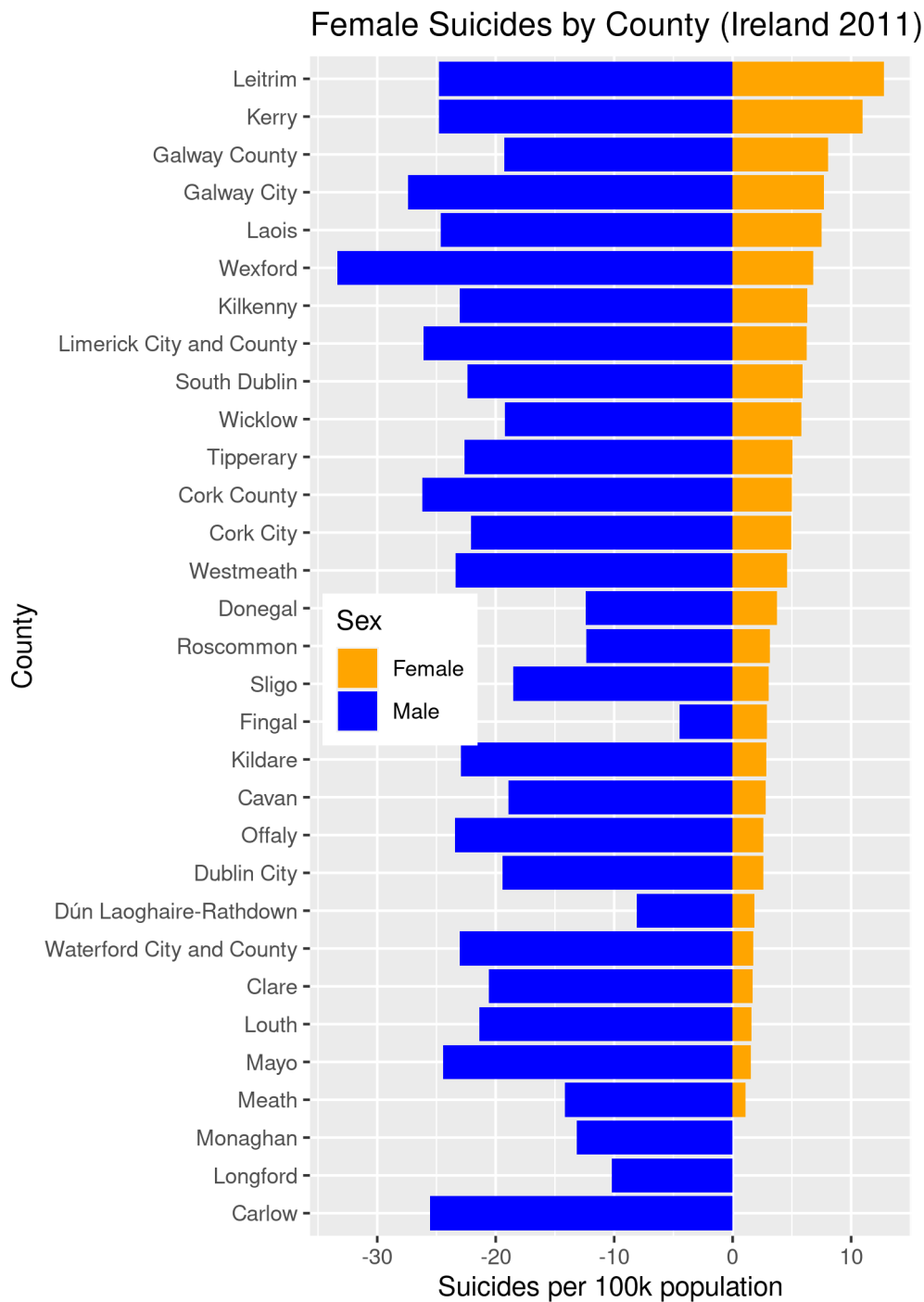


Figure 6: Female suicide per 100k population by County (Ireland 2011)

Male suicide trends per year in the counties with high rates of suicide (Ireland 2008 to 2019)

Cork County, Wexford, Kerry and Cavan all have trending upwards curves in the total numbers of suicides per year. All the others have roughly level or downward trends.

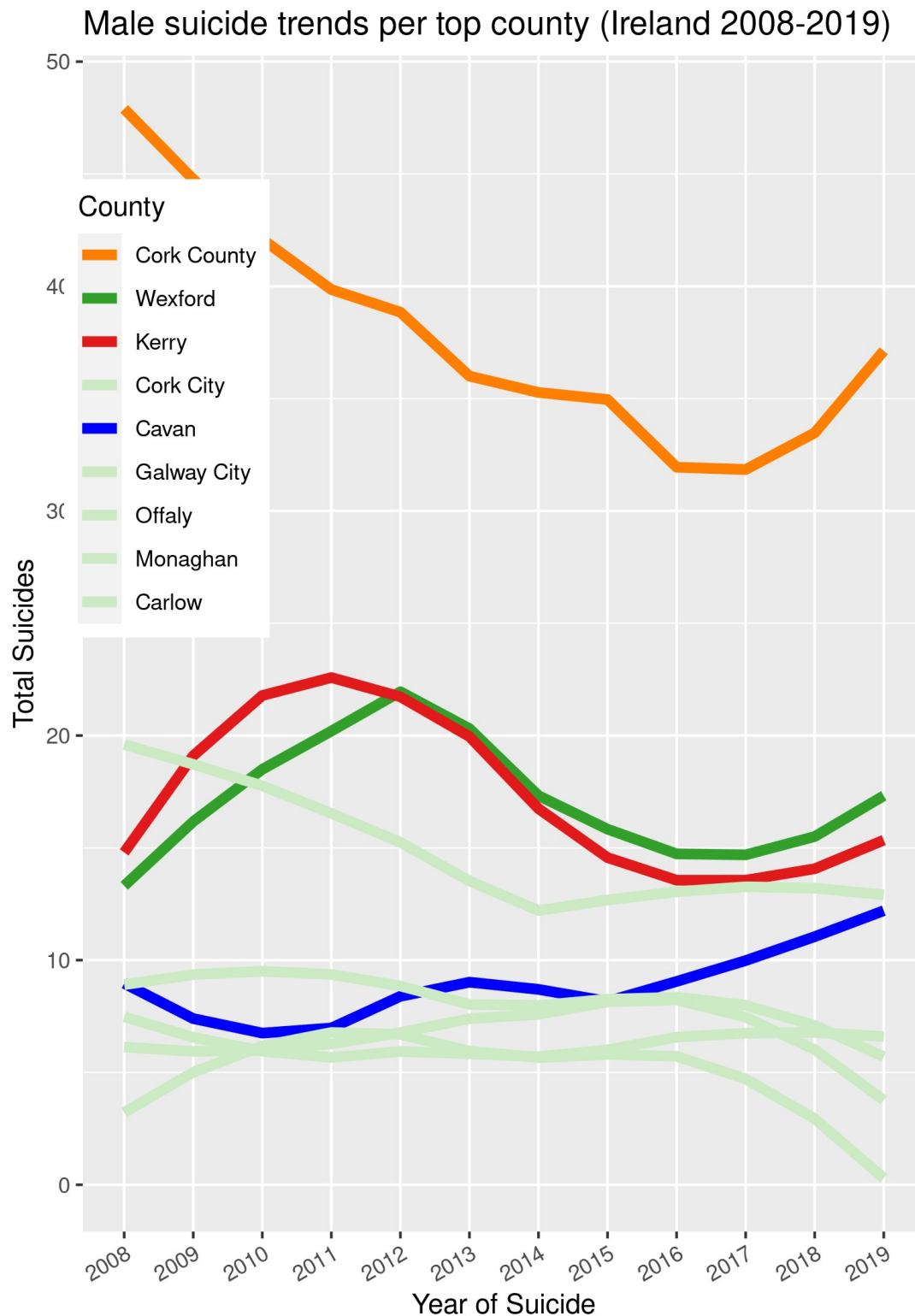


Figure 7: Male Suicide Trends by top county (Ireland 2008 - 2019)

Female suicide trends per year in the counties with high rates of suicide (Ireland 2008 to 2019)

Kerry, Galway County and City, and Cavan all have upward trends in female suicides. The total numbers are still in the single digits for the most part.

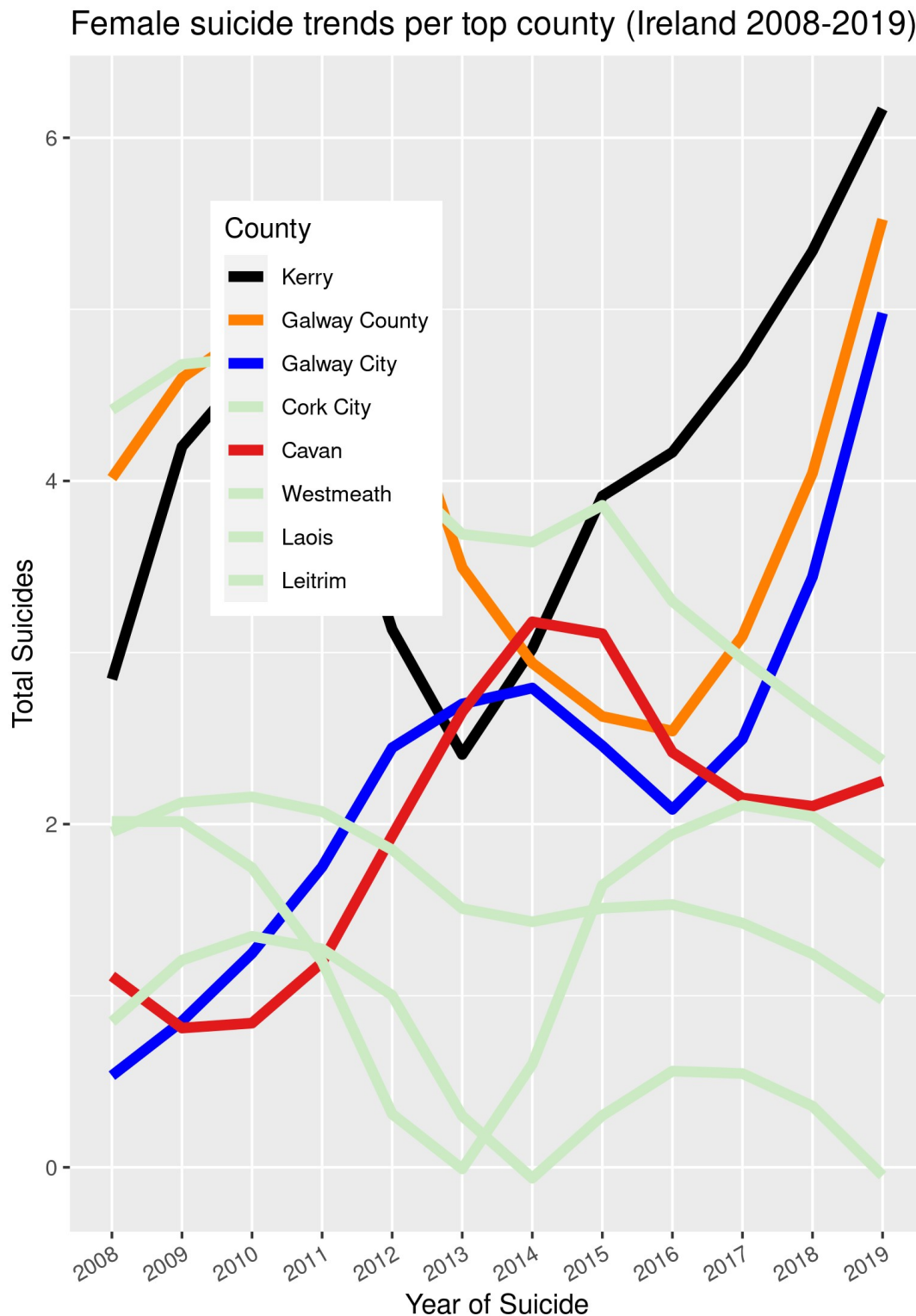


Figure 8: Female Suicide Trends by top County (Ireland 2008 - 2019)

County and City population census results for counties with higher suicide rates for both male and female populations (Ireland 2011 and 2016)

While there is a larger variance in the populations between the counties, no population area is decreasing. The male to female ratio is roughly even across all counties.

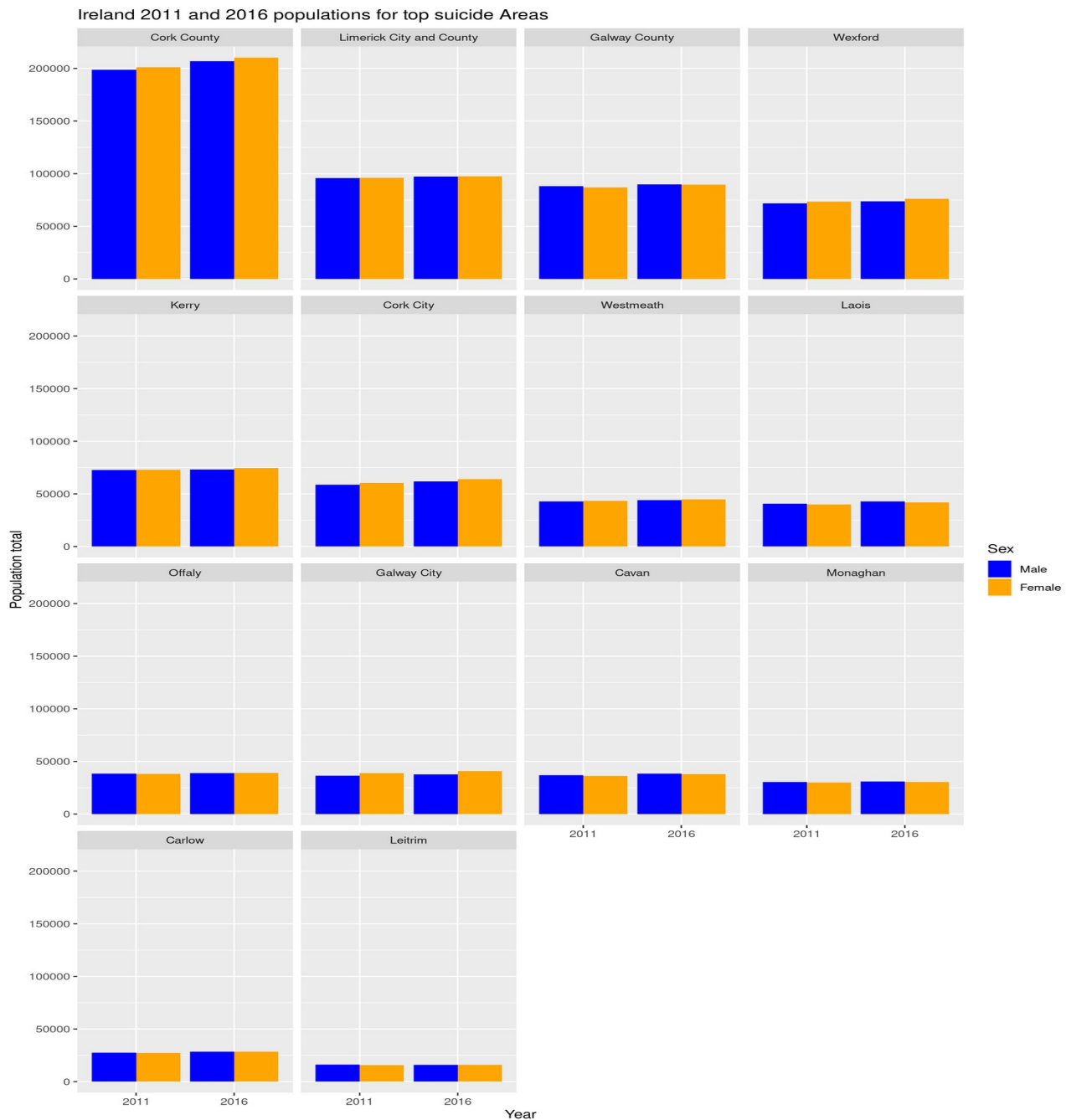


Figure 9: County and City population census results for counties with higher suicide rates for both male and female populations (Ireland 2011 and 2016)

Summary

This report is for finding out the counties that could benefit most from suicide prevention funding.

The report reviewed the suicide rate per 100k population for years 2011 and 2016 to find candidate counties for further investigation. The candidate counties were then trended to find which candidate counties had a rising suicide rate in the last 3 years.

From the latest 2018 increasing trending top counties for suicides are as follows:

Males: **Cork County, Wexford.**

Females: **Galway County / City**

Both sexes: **Kerry and Cavan**

Alternative graphs

Ireland top counties for suicides ordered by total suicides

While this graph is technically accurate, it doesn't produce a clean graph. Suicide prevention programs work better when targeted at particular groups.

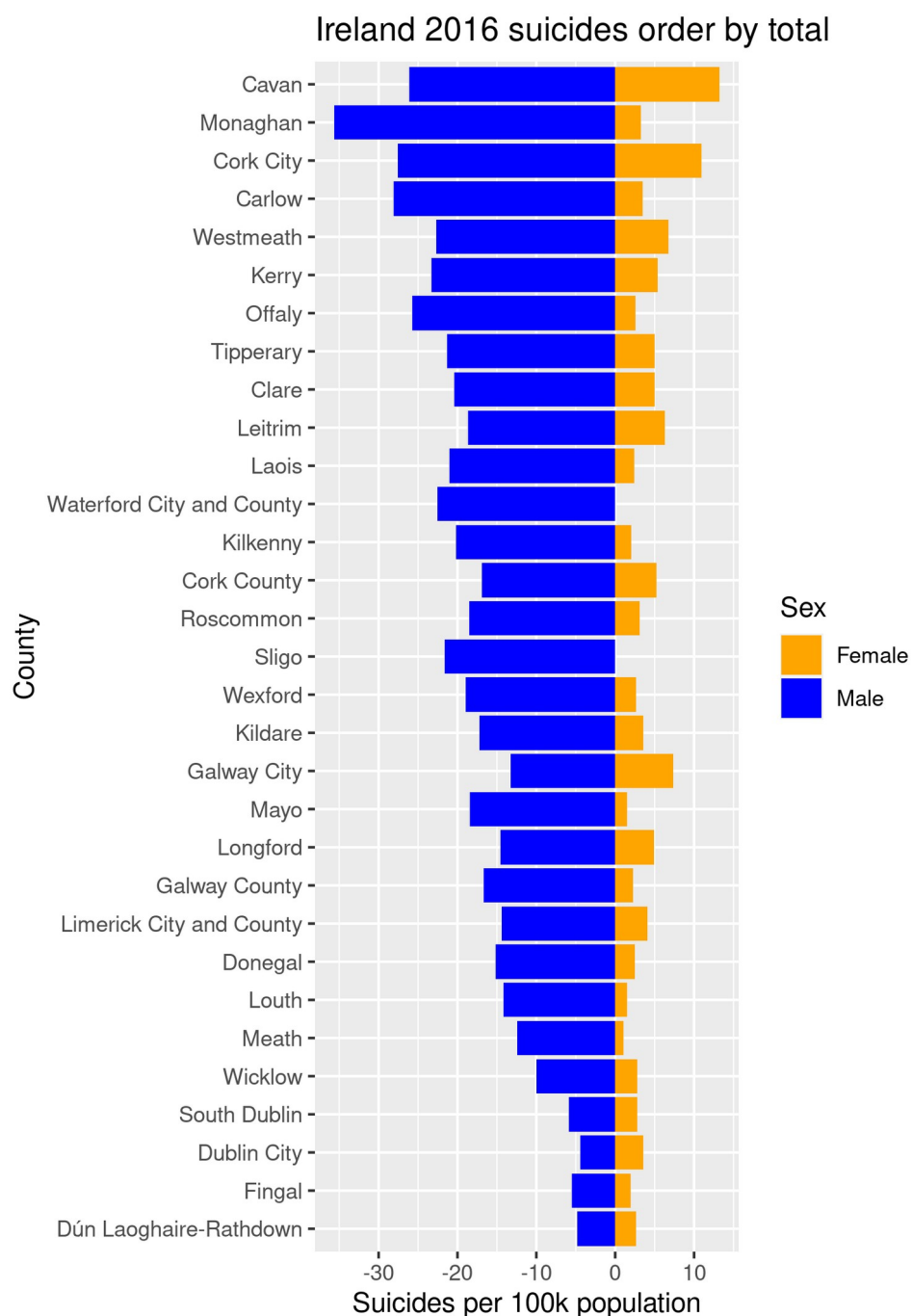


Figure 10: Rejected: Suicides by County by Suicide Totals (Ireland 2016)

Ireland all counties Male suicides

Rejected due to too many colours, a confusion of lines at the bottom, too hard to see which counties are trending high or low. But how to figure out which are the at risk counties. For that, I used normalization.

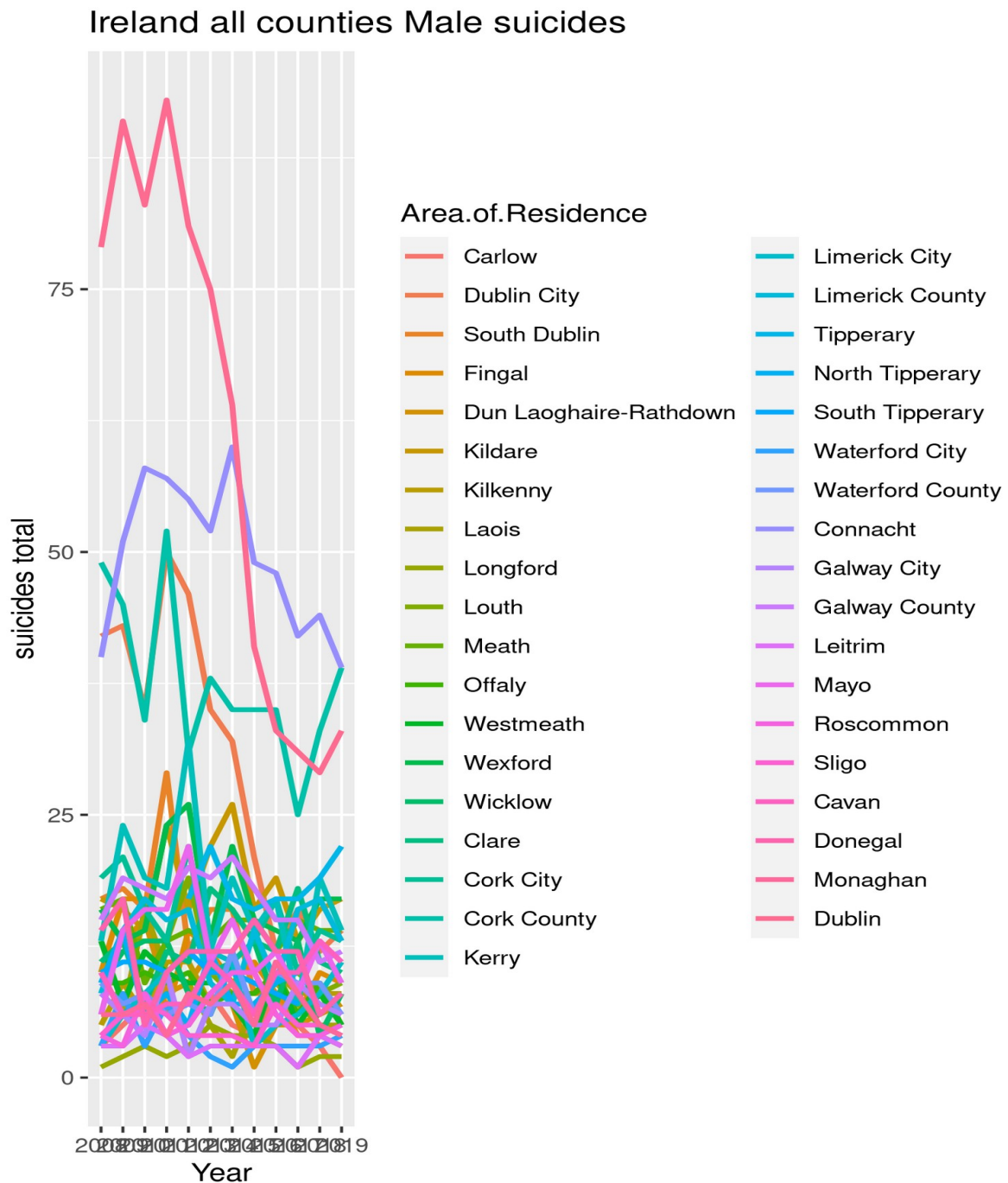


Figure 11: Rejected - Male total suicides by County (Ireland 2008 - 2019)

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References

Central Statistics Office, Ireland

<https://www.cso.ie/en/index.html>

R package

<https://www.cso.ie/en/databases/databasetools/pxstatrpackagecsodata/>

Datasets source

E3003

<https://data.cso.ie/table/E3003>

<https://data.gov.ie/dataset/population-2011-to-2016-number-by-sex-single-year-of-age-censusyear-and-county-and-city>

VSD30

<https://data.cso.ie/table/VSD30>

<https://data.gov.ie/dataset/suicides-number-by-area-of-residence-year-and-sex>