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| Geographical Info Systems  Assignment 2 – Report  Census Data 2011-2016: Geographical Analysis | |
| Module code : CMPU4032: 2022-23 | |
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# Assignment Overview

## High Level Description – Census Data Analysis (2011-2016)

This document covers the design, implementation, and observations on all parts of the November 2022 CA(2) for the GIS module (TU060 – DS – Year 2).

The geographical focus of this report in on the central and northern Electoral Divisions in Dublin County. The *central* areas also cover the Electoral Divisions in the Dublin South-Central and South-East constituencies.

The purpose in limiting the scope to these areas is to concentrate more on the perceived ‘east-west’ socio-economic divide in north and central Dublin, as opposed to the more traditional ‘north v south’ narrative.

Section 2 displays a series of maps highlighting the following data points from the 2011 and 2016 Irish census data;

* How Employment rates have changes in the EDs from 2011 to 2016.
* Distribution of Education Levels across EDs, and how this relates to Employment Levels
* The impact of Education Levels on Socio-Economic groups in north Dublin EDs.
* The relationship of Occupation types to Education within the selected EDs.

# Data and Maps

## Changes in Unemployment Rates Between 2011 and 2016

The maps below compare the change in unemployment rates across the central and north Dublin Electoral Divisions between the 2011 and 2016 Census readings.

*Figure – 2011 Unemployment Rates*

Map

Description automatically generated

*Figure – 2016 Unemployment Rates*

Map

Description automatically generated

The unemployment rates are noticeably lower in the 2016 data. It will be interesting to determine if this trend continues to improve when the 2022 census data becomes available.

This 2016 visualisation of unemployment rates in the region will be a touchpoint reference for the analysis of other 2016 data points in the following sub-sections.

## Correlation of Education Levels to Unemployment

The distribution of education levels in the 2016 Irish Census data for the chosen Electoral Divisions generates the visualisation below.

*Figure – 2016 Rates of Higher Education*

Map

Description automatically generated

The census data has been collated to group together all individuals who have qualified at a third level institution with an ordinary bachelor degree/national diploma or higher.

## Correlation of Education Level to Socio-Economic Group

With reference to the map visualisation in Section 2.2, the figure below shows the distribution of Socio-Economic groups in the Electoral Divisions in our study.

*Figure – 2016 Population Rate in the A or B Socio-Economic Group*

Map

Description automatically generated

The % of the population of each Electoral Divisions who classify themselves as belonging to Socio-Economic groups A (*Employers and Managers*) and B (*Higher Professional*) are grouped together. This size of this A+B group is compared against all other Socio-Economic groups in each Electoral Division.

## Geographical Comparison 2 – Based on Stated Problem

Examples in class;

* Education v Income in different areas.

Techniques in class;

* Layer symbols over each other like Choropleth first and then a graduated symbol. (Income v Education).

Correlation between education and employment is key theme of assignment.

Geographical area should be at least ED (Electoral divisions) – 3440 of these.

# Insights and Conclusions

## Changing Patterns in Rates in Employment

It is clear that employment rates have significantly improved in the period since the 2011 economic collapse, particularly in EDs in the Dublin North constituency.

However, stubborn pockets of higher unemployment remain in areas such as Mulhuddart, Finglas, and Ballymum, highlighting the challenges which persist in these areas.

## Relation of Education to Unemployment

A comparison of the distribution of education levels in our Electoral Division focus area against the 2016 Unemployment map in Section 2.1 shows a clear correlation.

Areas of persistent unemployment in the 2011 and 2016 Census data, such as Ballymun and Finglas, have the lowest figures in terms of population with a third level qualification. There will obviously be a multitude of factors effecting unemployment rates, but lack of access to higher education is clearly and issue in some sections of North Dublin.

The hypothesis that populations with higher academic qualifications are inordinately concentrated in certain areas appears to be validated by the map in Section 2.2. As an example, there is a clear cluster of Electoral Divisions in the Clontarf area with strong rates of higher education (dark blue), in contrast to the lighter ‘less affluent’ neighbouring Divisions.

## Socio-Economic Groups and Education

The positive correlation between those who identify as members of the A or B Socio-Economic Group and their rates of third level education is present, but it is not as striking as the observations discussed in Section 3.2 above.

One notable observation is the clear preference for Dublin’s ‘elite’ to live in the fashionable Electoral Divisions in Howth.