CASE STUDY ON THE APPLICATION OF GIS TO ASSESS SPATIAL DISTRIBUTION OF ECONOMIC ACTIVITY AND OPPORTUNITIES IN IRELAND

Research Title: Dublin’s Role in the Irish and Global Economy, 2012

Scope of the Research: To examine the role that the Dublin city region has in the national context and its value to Ireland as a global city of scale. The process through which this was achieved was firstly by examining available data and then by using this data to produce a spatial analytical assessment of Dublin’s role. This was followed by structured discussions with key policy makers and stakeholders.

Research group: Dr Brendan William, Dr Harutyun Shahumyan, Dr Walter Foley, UCD School of Geography, Planning and Environmental Policy

Overview

The suggested approaches are designed to support existing research on the spatial distribution of economic activity in Ireland and to provide a renewed evidence base for decisions on location for investment. The key aim, therefore, is to support the existing evidence base and provide answers to critical policy questions such as

1. Where are the best locations nationally and regionally to ensure best return for investment of scarce fiscal resources?
2. What geographic areas are exhibiting clustering effects which may assist further viable business formation and the growth of a knowledge economy?
3. Where should future ancillary services such as in the areas of health, education and transport be located based on current patterns of development and opportunity?
4. What are the benefits that Dublin brings to other regions in Ireland?

Spatial patterns of selected socio-economic indicators were studied using GIS. These include indicators such as population distribution, density and change, age dependency ratio, unemployment rate, spatial distribution of jobs, household vacancy rates, bus service coverage areas, etc.

Density mapping and Hot Spot analyses were carried out across broad economic sectors with a strong indication that Dublin is the dominant player in almost all key sectors. Moreover, the dominance and importance of the main gateway settlements of Cork, Galway and Limerick is clearly evident across most sectors. This analysis indicates a general pattern of continuing urbanisation and the benefits of clustering effects and add to the strong evidence base supporting further investment in a small number of selected Gateways and Hubs. Additionally companies with Foreign Direct Investment were mapped based on the IDA Ireland database. This also confirmed international research findings that Dublin is the most attractive region in Ireland for foreign investment.
The importance of Dublin as an investment location is supported also by the Opportunity Mapping analysis carried out in this research. This is a new approach for presenting spatial distribution of economic, educational and neighbourhood opportunities in the country and thus the more appropriate locations for economic investment in a national context. These maps combine series of variables into a single measurement which indicates the level of opportunity for economic and social progression within neighbourhoods as summarised by ED level.

**Findings**

The results of this study show the statistically proven significance of the main Gateways and Hubs as key centres for the main sectors of business in Ireland. In the case of the Comprehensive Map of Opportunity (see below) a clear pattern emerged whereby Dublin and the other Gateways across the State were the centres which represent those broad geographic areas of greatest opportunity to maximise return for investment on enterprise development.
Density and hot spot analysis in particular reinforces the absolute importance of Dublin as a location with a critical mass of business across all sectors except agriculture and food. In the case of the latter there is an argument to investigate the potential to improve the quantum and distribution of specialist food products and services. The consequence of this result is to reinforce existing literature in this area regarding the importance of developing a few key growth centres across the State in which investment resources can be maximised to their fullest potential. This analysis similarly points up the importance of the key Gateways and Hubs and in particular the GDA in terms of statistically significant clustering of key economic sectors: Financial Services; ICT; Professional, Scientific and Technical Services, Construction; Retail and Wholesale Trade; Food and Accommodation and Services.

Density and Clusters (Hot Spots) maps of agriculture, forestry and fishing organisations in RoI in 2011.
Clusters of Professional, Scientific & Technical Service Organisations in RoI in 2011

Clusters of IDA supported companies in RoI in 2012

**Highlights**

The research shows the statistically proven significance of the main Gateways and Hubs and in particular Dublin as key centres for the main sectors of business in Ireland. In the case of cluster analysis and opportunity mapping a clear pattern emerged whereby Dublin and the other Gateways across the State were the centres representing those broad geographic areas of greatest opportunity in the country.

While Dublin is both the global economic focal point for Ireland and the key component of a broader spatial distribution of Gateways and Hubs nationally the results can also be viewed in the context of Dublin and other key Gateways having a combined critical mass of business occurrence across key economic sectors which may be attractive to inward investment.

*For further information: harutyun.shahumyan@ucd.ie*