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CITI LOGIK USES MOBILE DATA TO HELP THE DEPARTMENT FOR THE ECONOMY ASSESS THE IMPACT OF BREXIT ON TRADE BETWEEN NORTHERN IRELAND AND GREAT BRITAIN

a Citi Logik Case Study

When the UK leaves the EU, new trade agreements will come into force. Understanding what the new protocols will comprise is complex, especially in the case of Northern Ireland border controls.

To help inform the creation of new policy and procedures related to trading goods, the Department for the Economy (DfE) needed to obtain answers to a set of questions related to heavy goods vehicle (HGV) movement. These include:

- Where do goods come into and leave Northern Ireland for Great Britain?

- How much is routed via The Republic of Ireland

- What are the origins and destinations of goods?

- What are the goods in transit?

Establishing an answer to these questions is technically difficult. Though some port and ferry records can provide partial answers they are not sufficient to inform policy. They certainly do not record what types of goods are being moved because it's a free market, nor do they record where goods come from and go, or how they get there. Supermarket data would help in the case of food, but not in the case of textiles or building materials for example.

Having worked with Citi Logik on a similar study to determine people movement across the Northern Ireland and Republic of Ireland border, DfE turned to the mobile data specialist to help understand the trading dynamics.

The study comprised several elements; a geofenced area that included the major trading hubs and roads, Vodafone anonymised mobile phone data for a three month period from within this geofenced area, and data from official and credible sources of information such as the Department for Transport and the Irish Maritime Agency.

First of all, some assumptions had to be applied. The biggest assumption was that not all mobile data would be useful for the study, as some of it might be related to tourists, car journeys and public transport, so only thatwhich appeared at ports and on major transport links – such as arterial roads – would be included. This would narrow down the likelihood that the data used would be related to an HGV journey.

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Using this approach, and by taking mobile data from a three month period in 2019, Citi Logik was able to provide a representative view of the trade passing through borders between Great Britain to Northern Ireland, and via the Republic of Ireland. This provided a map that illustrated the main HGV transport routes as recorded by mobile devices.

To test the quality and accuracy of applying this methodology to data sets, the study cross checked movements with those recorded by ferries and ports and found there was a strong correlation. This 'data matching' allowed the study to extend the methodology to other parts of the geofenced area with reasonable confidence that the outcomes would be a near to true reflection of what was happening.

As a result of its work with Citi Logik the DfE now has a map of the origin and destinations zones for HGV crossings between NI and GB.

Andrew Doherty, an economist at DfE, said that the project has helped to answer some technically difficult questions: "Understanding trade is of extreme importance in the context of Brexit. We need to understand the trade routes between NI and GB so that decision makers have information on the potential impact of policies on people and businesses.

"Using mobile data in this way provides us with another layer of evidence to understand these trade flows and the impact it could have on trade andaccess to goods after Brexit. This additional analysis and insight have made a challenging task a little bit easier."

Andrew explains that the data has helped quantify the level of accompanied HGV traffic going to GB via ROI: "Industry stakeholders have long commented on the importance of Dublin Port as a route for goods from Northern Ireland sold into the British market. The research we have done with Citi Logik underlines this. The study indicates that 20% of the accompanied HGV traffic between Northern Ireland and Great Britain is routed via the Republic of Ireland, which would equate to around 80,000 accompanied HGV trips on an annual basis."

Andrew concludes that even though there have been limitations, the project has uncovered insight it didn't have before: "We've not been able to answer everything. It was clear that after the initial analysis of the data it would not be possible to infer which goods were moving between NI and GB by examining the final destination of the HGVs. However, it was important to explore the full potential for this type of analysis. There simply isn't the technology to overlay company location on maps to this precision."

A research report based on the findings of this work will be published in 2020 so that other organisations and bodies can use the data to inform their own planning and preparation for Brexit.

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