

# IMPROVING REGIONAL ECONOMIC INDICATORS: Interregional trade & Regional Supply & Use

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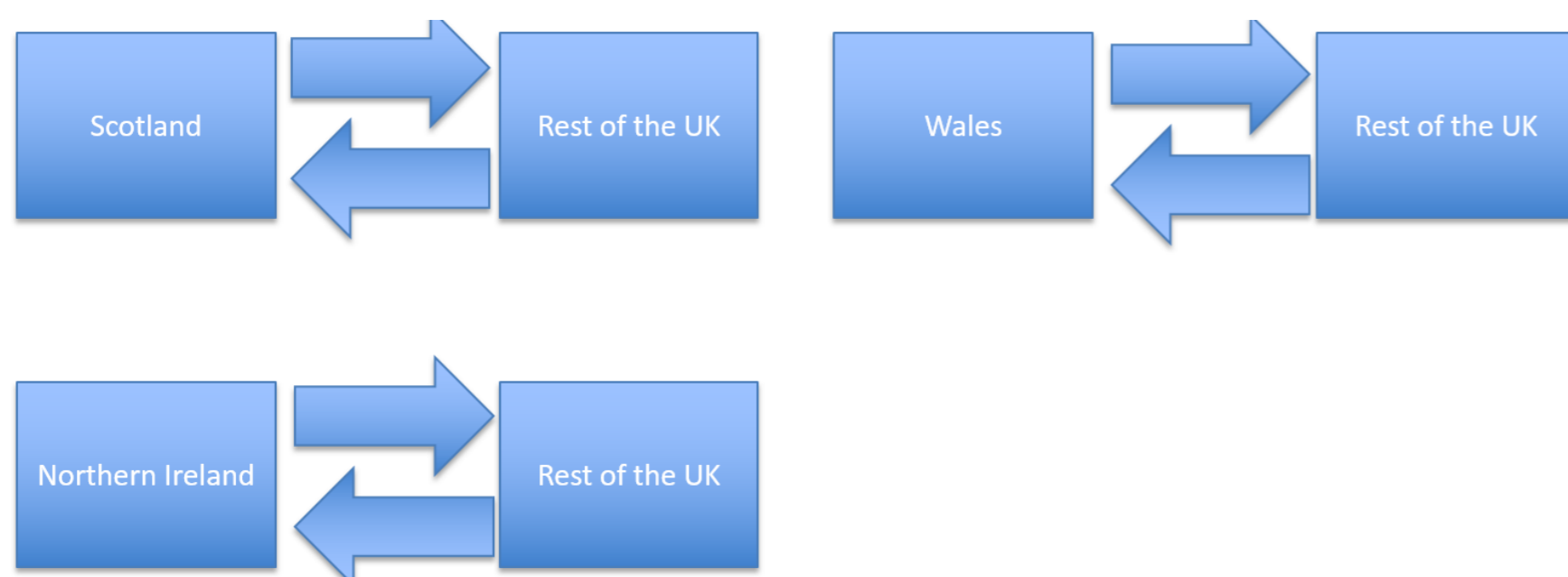
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## UK interregional trade estimation

COVID-19 and Brexit will together cause major disruption to UK supply chains. The impact of this disruption is likely to vary across different UK regions. Consequently, detailed regional statistics are needed to analyse differences in economic activity and inform region-specific policymaking and devolution. The production of UK interregional trade estimates at the sectoral level as part of this project raised several issues about the differential collection of trade data at the national and subnational level.

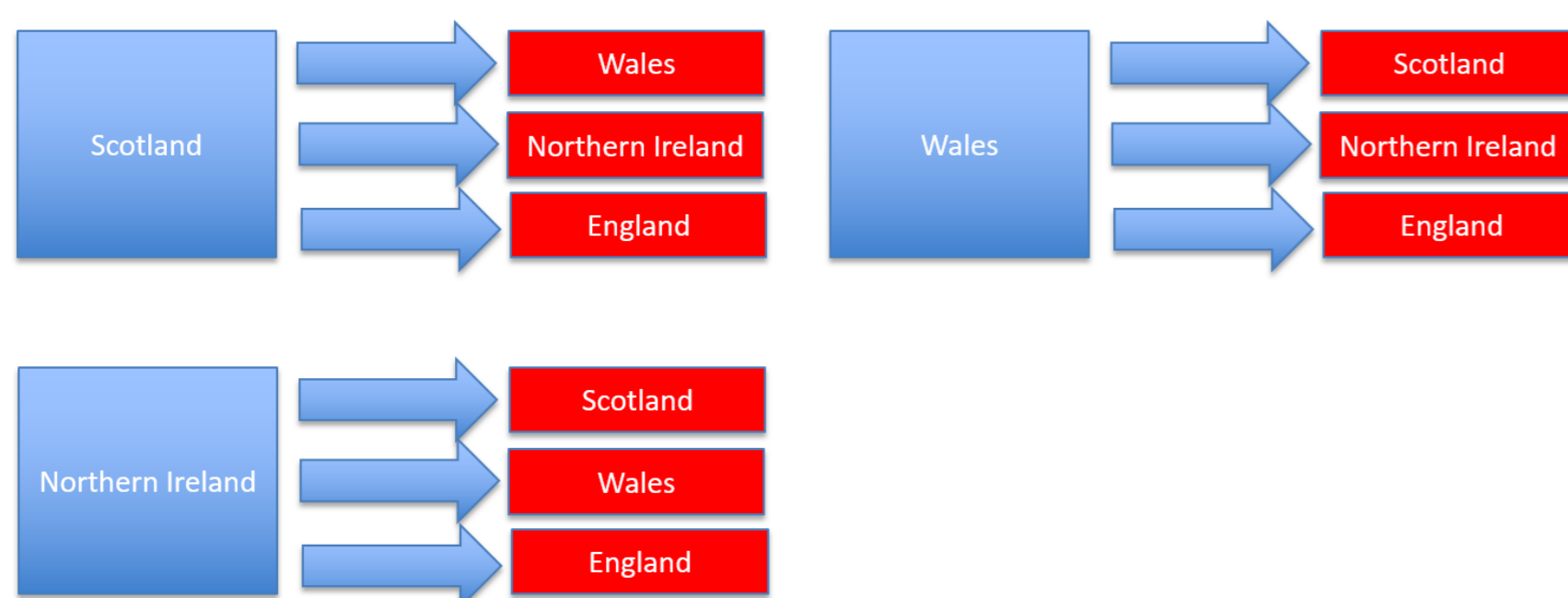
We use aspects of the method introduced by Thissen et al. (2013, 2019) to estimate European regional trade flows. However, our approach is tailored to the unique UK data landscape which reflects different levels of devolution. Our first step is summarised in Figure 1. We start with existing estimates of exports from Scotland and Northern Ireland to the rest of the UK. These are obtained from regional Supply and Use Tables. For Wales and England, no official data on trade with the rest of the UK exist. For Wales, we use the 2007 Welsh Economic Research Unit Combined Use Table (Jones et al., 2010), rebasing to 2015.

Figure 1: Existing Export flows to Rest of UK recorded in Regional Supply & Use Tables



Our second step is summarised in Figure 2. Additional data is used to split the rest of UK flows shown in Figure 1 into flows to each devolved nation. We use different sources of additional data depending on the sector considered. An important example is freight data, capturing goods transported by road or sea across the UK.

Figure 2: Derived Export Flows to Each Devolved Nation



It is now straightforward to obtain English export flows. If, for example, we wish to obtain English export flows to NI, we start with exports from the rest of the UK to NI recorded in the regional SUT. We then subtract the derived Scottish and Welsh exports to NI shown in Figure 2. The remainder or 'residual' reflects English exports to NI.

### A Strategic Approach

The final report outlines a strategic approach to interregional trade data collection and estimation within the UK. To summarise, our recommendations involve:

- introducing an English trade survey, a survey of all GB reporting units, or additional questions to the Annual Business Survey to capture trade flows between England and the remaining 3 nations;
- conducting streamlined trade surveys across the 4 nations annually with an in-depth trade collection exercise taking place every 5 years bringing the UK in line with international practise;
- having consistent treatment of oil and gas extracted from the UK Continental Shelf; focussing on industry flows and firms' sales rather than commodity flows and firms' purchases; and the four nations adopting a consistent approach to sample size and stratification.

Our recommendations also point towards leveraging additional data sources where possible and suggest that data collection exercises relating to transport data, wholesalers, and firms' service purchases may prove beneficial.

## Development of Regional Supply & Use Tables

Regional Supply Use Tables (SUTs) provide devolved administrations with a disaggregated insight into the structure of a given region. Regional Input-Output Tables (IOTs) derived from the SUT facilitate analysis of the effects of regional and national policies on different regions.

Only Scotland and Northern Ireland currently produce their own SUTs and IOTs on a regular basis. In this project, we have developed a strategic framework for the production of SUTs across the four UK nations.

We have examined the methods for producing regional SUTs and IOTs. Bottom-up approaches involve detailed data collection at the regional level: more accurate, but resource intensive with several practical, statistical and conceptual challenges. Top-down approaches involve regionalising the national table using an indicator variable.

A key part of this project is to examine how SUTs and IOTs are compiled in the UK, Scotland and NI. Importantly, Scotland and NI both adopt a hybrid approach, using a combination of regionalised UK data and nation-specific data sources. They also constrain their totals to the Regional Accounts, although Scotland has chosen to break away in some sectors in some years.

We have also demonstrated how regional IOTs for the four nations can be produced by regionalising the UK IOT using Location Quotients. While producing regional IOTs from the published UK IOT is possible, there are some significant differences between our IOT and those produced using the bottom-up approach.

In our recommendations for compiling regional SUTs for the UK nations we consider two scenarios. The first scenario sets out how four SUTs for Scotland, Northern Ireland, Wales and England could be constructed using a predominately bottom-up approach. While this scenario is ambitious, it is also pragmatic and sets out how a bottom-up approach could be developed using the existing sampling frame, the interdepartmental business register, and existing business surveys administered by the ONS and DAs.

The second scenario is more modest and sets out how four SUTs could be constructed using a hybrid approach. This would involve using the Scottish and NI approaches as a starting point to develop a framework to produce SUTs for the four nations. Ultimately, this approach would allow users' to understand the production structure of a given nation but accuracy declines perhaps rendering comparisons across the SUTs of different nations more problematic.

To address these two scenarios we have a number of recommendations:

- First, when collecting data on Scottish, Welsh and English activity the feasibility of asking GB RUs to report on the activity of their Scottish, Welsh and English LUs should be investigated further given that this approach has proved successful in the pilot Trade Survey for Wales.
- Second, surveys issued by the ONS such as the Annual Business Survey and Annual Purchases Survey should have sample sizes which facilitate the estimation of statistics for the four UK nations as well as the UK as a whole.
- Fourth, we recommend that the Canadian approach to allocating central government and head office output be investigated in relation to the UK again to prevent distortions of regional activity.
- Fifth, recognising that for some industries a top-down approach to regionalisation will be required, we recommend strengthening existing data sources by: exploring the possibility of developing regional GVA to output intensities using ABS microdata; mapping household consumption to industries; and collecting data on internal trade and regional exports, building on existing data collection by the SG and NISRA.
- Sixth, we would recommend that the four nations publish SUTs annually following a common timeline and agreeing on the minimum number of industries and products to include in their respective published SUTs. That said, each nation could choose to compile a more detailed regional SUT for their own use.
- Seventh, bottom-up data should, where possible, gradually replace the Regional Accounts produced using top-down methods. Where this is not possible, a reconciliation process should take place between the regional SUTs, UK Regional Accounts and UK SUTs with the devolved administrations identifying where Regional Accounts estimates are inappropriate.
- Last, we recommend that all four nations also produce industry by industry IOTs annually since these tables are a crucial input for regional economic modelling.