



An Roinn Airgeadais
Department of Finance

Joint Research Programme on Taxation and the Macro-economy

Annual Report for 2015

The joint research programme between the Department of Finance, the Revenue Commissioners and the ESRI on *The Macro-economy and Taxation* began in January 2015 with the objective of undertaking research on a range of macroeconomic and taxation issues in Ireland. This report has been prepared on behalf of the Steering Committee for submission to the Secretary General of the Department of Finance and the Director of the ESRI to describe the work undertaken in the first year of the programme. It includes an overview of the projects initiated in the first year of the programme, details of finalised outputs and projected outputs for work in progress along with associated costs.

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1. Description and Progress of Research Topics:

Research Topic 1: Base Erosion and Profit Shifting (BEPS)

This research provided a conceptual and methodological framework for the analysis of the scale and economic implications of Base Erosion and Profit Shifting (BEPS) in the context of small open economies including Ireland. The research undertaken provided the following contributions:

1. Critically reviewed the approach taken by the OECD as well as other relevant research on the analysis of the magnitude and economic implications of BEPS;
2. Identified potential improvements to the proposed indicators and methodologies to track BEPS and consider how a fair and appropriate economic measure could be developed for a small open economy;
3. Identified issues for further in-depth analysis.

Research Topic 2: Implications for Ireland of UK Exit from EU

As part of the programme, an assessment of the potential impacts of a Brexit was completed with the final report being published in the ESRI Research Series on the 5th of November 2015. This study considered the impact of a changed relationship between the UK and the EU, in areas which might also impact on the relationship between the UK and Ireland. This focused on four areas: trade; foreign direct investment (FDI); energy and migration. In addition, as most analyses suggest that a Brexit will have negative implications for the UK economy, a simulation of reduced GDP in the UK in Ireland was also conducted.

The analysis of trade considered in detail the historic and current trade relationships between Ireland and the UK in the context of overall trade patterns, covering merchandise, services, as well as sectoral and product level breakdowns. This, along with the findings of the international literature, was used to identify the likely impacts of a Brexit (a UK outside of the EU and EEA but with a bilateral trade agreement in place with the EU).

The chapter on FDI assesses the current flows and stock of FDI into the UK and the location factors that might be affected by a Brexit. The potential impact of Brexit on new FDI projects in the UK and other EU member states is assessed using a formal econometric analysis.

The analysis on energy markets highlights the current connections particularly in relation to electricity and gas on the island of Ireland and between Ireland and Britain. It assessed the potential impacts of a Brexit in the context of wider EU policies on the environment and energy which would remain important for Ireland but would no longer be binding in the UK following a Brexit.

Finally the chapter on migration traces out the historical migration patterns between the UK and Ireland and their relationship with the labour market. The ESRI's Small Labour Market Model is then used to simulate the impact of changes in migration flows on the Irish labour market.

This report is a scoping study and is aimed at identifying issues and providing quantifications to the extent that this is possible. However, more detailed impact assessments would require additional new research. For example, in relation to trade, the possibility exists that Irish firms could capture market

share within the EU from UK firms. Alternatively, they could lose market share in the UK market to third-country firms. These issues are not considered here. While it is likely that the incidence of trade barriers following a Brexit is likely to be greater for smaller Irish firms, an assessment of the scale of the impact would require further research. In relation to FDI, further research is needed to assess whether Brexit would impact on the sectoral composition of FDI to Ireland, how changed FDI might impact on trade and whether there might be a switch from Greenfield FDI to more merger and acquisition activity.

Research Topic 3: Corporate Taxation and FDI - Implications for Tax Policy

This research examines the role and effects of corporate tax policy on the attractiveness of Ireland and other European countries to foreign direct investment. The following questions are addressed:

1. How does corporate tax policy impact on the location choice of FDI in Ireland and other EU countries?
2. How does corporate tax policy affect the size of FDI in Ireland and other EU countries?
3. How would changes in corporate tax policy affect Ireland's attractiveness to FDI?
4. How would changes in corporate tax policy affect the size of FDI in Ireland?

This analysis examines effects for FDI projects across all sectors as well as sector specific effects. Two research papers are due to be released on this topic early in 2016.

Research Topic 4: Tax Volatility

This project aims to provide estimates for the revenue long- and short- run elasticity of several taxation types with respect to changes in income in Ireland for the period 1984-2014. Estimates of the revenue elasticities of the majority of the types of taxation in Ireland are to be provided, i.e. income taxation, consumption/VAT taxation, customs, excise taxes, capital gain taxation, stamps, corporation taxation, motor duties, vehicle registration taxation, levies, capital acquisition taxation, and local property taxation.

In general estimates of revenue elasticities are an important input into the debate on changes in the burden of taxation. Tax revenue elasticity estimates are used by tax forecasting models, or macroeconomic models. Unambiguously, the knowledge upon tax revenue elasticities enables policy makers to identify how far tax revenue changes in a particular year arise from fiscal policy changes in the same year or they represent responses to other policy-induced or exogenous changes in the economy.

Until now we have:

- Hand-collected and created a very large database on the revenues from every type of taxation in Ireland for the period (1984-2014).
- Hand-collected and created a database based on the statistical reports for the number of cases, income distribution, and tax distribution of every tax category group in Ireland.

- Estimated the long-run total tax elasticity and the tax elasticity for every group (i.e. singles, widows, married couple with one earning, married couples with two earning).
- Estimated the short-run tax income elasticity.

Our work in progress and future work is concentrated on:

- Estimate elasticities for all types of taxation, better controlling for discretionary measures.
- Compare the elasticities for the different types of taxations to find a taxation rule with the least variability in terms of revenues. Compare the elasticities with other EU countries.
- With the data that we have we are now able to estimate the income taxation distributions for every range of income, for every category and compute the elasticities. Also we want to examine the impact of taxation on income inequality.
- Use an optimal portfolio approach to find the optimal rule for taxation policy in terms of minimum variance.
- Use the estimated elasticities in a macro model to examine the several macroeconomic effects of shocks in taxation. This can be considered as a taxation model that can easily be related to the COSMO model of the ESRI.

Research Topic 5: Study on Cross Border Fuel Tourism

With differential prices of motoring fuels between Ireland and Northern Ireland as well as exchange rate variations there is often an incentive to purchase motoring fuels across the Border. Over recent years the price differences have been favourable for motorists from Northern Ireland to purchase motoring fuel in Ireland. This study assesses the scale of this so called cross border fuel tourism using a unique new dataset that has been collected by the Revenue Commissioners under the Return of Oil Movements (the ROM1), which was introduced from 1st January 2013. This data consists of monthly returns on sales, purchases and stock of fuels by type for registered traders and distinguishes retailers from wholesalers. Importantly, the data includes the location of forecourts. This is being used to identify the distance from the Border along with other market measures such as market size and local competition.

The analysis consists of the estimation of econometric models, using simple panel data estimators in the first instance and subsequently stochastic frontier analysis to identify the level of sales of fuel (by type) across forecourts given the individual and market characteristics. This allows for the identification of greater sales along the border which can then be used to determine the level of fuel tourism.

Work to date has focused on data cleaning and variable generation and it is envisaged that estimation of models will begin by the end of the year.

Research Topic 6: Household Wealth and Wealth Tax Design

This project will analyse the newly available the CSO Household Finance and Consumption Survey. The Irish survey was undertaken as part of the Central Bank's and CSO's participation in the Household Finance and Consumption Network (HFCN) within the European System of Central Banks and data is available across fifteen countries.

The aim of the survey is to collect data on the distribution of assets and liabilities across households, to gather information on the importance of various wealth components and the types and extent of debt and the burden of debt service at the household level. Projected research topics that could be facilitated by this data include:

1. Distribution of household (net) wealth
2. Comparisons of wealth and income distributions
3. Contributions of inheritance and gifts to household wealth
4. Wealth tax design

Micro-data access applications are currently being arranged with the CSO for researchers in the ESRI and Department of Finance and detailed work on this project will begin in early 2016. An overview of the issues regarding household wealth and its use as a tax base in Ireland and internationally has been prepared as a chapter to be included in a book on the Irish tax system.

2. Outputs in 2015

Research Papers and Publications

- Ronald B. Davies and Iulia Siedschlag (2015). *Submission to the OECD Public Discussion Draft – BEPS Action 11: Improving the Analysis of BEPS*, ESRI Submission Series, 2015/5, 11 May 2015.
- Iulia Siedschlag : Notes/comments on documents prepared in relation to meetings of BEPS-related OECD Working Parties;
- Alan Barrett, Adele Bergin, John FitzGerald, Derek Lambert, Daire McCoy, Edgar Morgenroth, Iulia Siedschlag and Zuzanna Studnicka (2015). *Scoping the Possible Economic Implications of Brexit on Ireland*, ESRI Research Series No. 48.

Presentations, Conferences and Communications

Date	Item	Details
June	Briefing to Minister for Finance on Brexit	Alan Barret, Edgar Morgenroth and Iulia Siedschlag
October	Centre for Cross Border Studies, Brussels: “Economic Consequences of Brexit for Northern Ireland”	Edgar Morgenroth
November	Department of Finance Conference: A sustainable tax policy for Ireland. “Assessing the sustainable nature of housing related taxation receipts”	Kieran McQuinn (joint work with Diarmaid Addison-Smyth)

November	Department of the Taoiseach – briefing on Brexit	Alan Barret, Edgar Morgenroth and Iulia Siedschlag
November	Delegation of Permanent Secretaries from Northern Ireland to Department of the Taoiseach	Edgar Morgenroth
November	Briefing on Brexit for the German Ambassador	Edgar Morgenroth
November	Economist’s Group of the IIEA: “Brexit and Ireland”	Edgar Morgenroth

Media Coverage (selection November 5th and 6th, 2015)

Irishtimes.com	Arthur Beesley: Brexit warning adds to uncertainty for Ireland”
Irishtimes.com	Counting the costs of Brexit 06-Nov-2015 3
Irish Times Business	Dire Brexit warning can only add to uncertainty in Ireland
Irish Times	Preparing for the worst
Irish Times	Letters to the Editor: Counting the costs of Brexit
Irish Examiner	Brexit talk reveals challenges for farmers
Irishtimes.com	Brexit could lead to major trade losses for Republic, ESRI warns
Irishtimes.com	Brexit anxieties are justified
nationalist.ie	Brexit would cost Ireland billions'
irishexaminer.com	Brexit 'would slash Irish-UK trade by 20%'
Independent.ie	Brexit' would cut Irish-UK trade by a fifth: ESRI
Irish Independent	'Brexit' would cut Irish-UK trade by a fifth: ESRI
Irish Times	Kenny to make case for EU as ESRI warns on 'Brexit'
Irish Times Business	Irish anxieties over Brexit risk are warranted
Irish Examiner	Brexit 'would slash Irish-UK trade by 20%'
todayfm.com	Brexit will cost us €3 Billion - ESRI
Irishtimes.com	What 'Brexit' would mean for Ireland: Lower wages, higher prices and trade losses - ESRI
breakingnews.ie	Brexit could cost Ireland €3bn a year: ESRI
newstalk.ie	A Brexit could cost us €3 billion a year
Rte.ie	Britain leaving EU would cost Ireland 'billions'
irishexaminer.com	Brexit could cost Ireland €3bn a year: ESRI
RTE Radio 1	Britain leaving EU would cost Ireland 'billions'
sundayworld.com	A British withdrawal from the EU 'would cost Ireland billions'
thejournal.ie	Britain leaving the EU could cost Ireland €3 billion a year
tippfm.com	UK exit from EU would hit Ireland to the tune of 3 billion
RTE Radio 1	Discussion about Britain leaving EU costs Ireland billions
q102.ie	UK EU Exit Could Cost This Country Dearly
Irishtimes.com	'Brexit' could see major trade losses in Republic - ESRI
businessworld.ie	"Brexit" could cut Irish/UK trade by 20%
utv.ie	Brexit would cut UK trade with Ireland by 20% – ESRI
kfmradio.com	ESRI: Brexit Could Cut Ireland/UK Trade By 20%.
Businessandfinance.ie	Brexit is bad news for Ireland, reports a new ESRI study

ibec.ie	Ibec reacts to ESRI report - economic consequences of Brexit
thesun.ie	Brexit could cost Ireland €3bn per year in lost trade
bizplus.ie	ESRI Counts Cost Of 'Brexit' For Ireland
sinnfein.ie	Social and economic woes in store for Ireland if Britain leaves European Union
sinnfein.ie	ESRI confirms that lost trade and hiked energy costs must be central to Brexit debate
highlandradio.com	ESRI: Donegal could be a big loser with UK 'Brexit'
irishmirror.ie	Brexit: Eight things Britain leaving the EU would mean for Ireland
farmersjournal.ie	Brexit could hit food exports and energy supply, ESRI warns
Irish Sun	Britain leaving the EU could cost Ireland €3 billion a year
Irishtimes.com	Taoiseach to stress Europe stronger with Britain in EU, British exit from union could decrease bilateral trade with Ireland by €10bn, says ESRI

3. Work in Progress / Outputs Expected in 2016

- Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka, *Corporate Taxation and Foreign Direct Investment: Implications for Tax Policy in Ireland*, forthcoming February 2016
- Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka, *Corporate Taxation and Foreign Direct Investment in Europe: Empirical Analysis of Extensive and Intensive Margins Investment Decisions*, forthcoming March 2016
- Martina Lawless, "Taxing Wealth: A Challenge for Policy-makers", forthcoming chapter in Gary Tobin and Cora O'Brien (eds) *Irish Tax Policy in Perspective*, Irish Tax Institute 2016
- Yota Deli, Derek Lambert, Kieran McQuinn and Edgar Morgenroth, *Elasticity of Income Taxation in Ireland*
- Edgar Morgenroth, Sean Kennedy, Sean Lyons and Keith Walsh, *Cross-Border Fuel Tourism*
- Martina Lawless and Donal Lynch, *Distribution of Household Wealth in Ireland and Scenarios for a Tax on Net Wealth*

This is a non-exhaustive list as additional outputs are anticipated, particularly in relation to the workstream on tax elasticity and volatility. These will be discussed and agreed with the Steering Committee over the course of 2016.

4. Budget 2015

Project	Cost
Scoping impact of Brexit	€67,125
BEPS assessment	€24,645
Corporate Tax and FDI	€73,301
Fuel Tourism	€8,731
Tax Volatility	€63,516
Household Wealth	€6,188
Miscellaneous Expenses	€313
Total	€243,819