JOINT RESEARCH PROGRAMME ON THE MACROECONOMY AND TAXATION

Tax Strategy Group – TSG 17/10

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Joint Research Programme on The Macroeconomy and Taxation

Contents

Introduction

1. This paper provides a short overview of the joint research programme between the Department of Finance and the Economic and Social Research Institute (ESRI) on *The Macroeconomy and Taxation.* It will outline the objectives of the programme, its governance structure and will provide a brief summary of its outputs to date.

2. The Department originally engaged in a two year joint research programme with the ESRI beginning in 2015. In late 2016, the Department approved an extension for a further year. The Revenue Commissioners also provide a financial contribution to the programme.

Objectives of the research programme

3. The Department has sought to improve the evidence base available to it on macroeconomic and tax policy changes with a view to improving the quality of its policy advice. To this end, a joint research programme on *The Macroeconomy and Taxation* was agreed with the ESRI in early 2015.

4. The key objectives of the joint research programme are, firstly, to produce high-quality and policy-relevant research on issues related to taxation and the macroeconomy that would be publically available and, secondly, to enhance co-operation and skill transfer between the ESRI and the Department through collaborative research work.

Governance

5. The research programme is governed by a Steering Committee comprising an independent chair and two senior staff members from both the ESRI and the Department. A representative from the Revenue Commissioners also participates. The Steering Committee meets on a quarterly basis and is responsible for deciding the work-plan for the programme including research topics and timelines and for overall programme oversight. Other officials from the Department and the Revenue Commissioners may attend Steering Committee meetings on an ad hoc basis, when a research area of particular policy relevance is discussed. As part of its programme oversight function, the Steering Committee adopts an annual report which is submitted to the Secretary General of the Department and the ESRI Director. The Department provides the secretariat for the Committee while the ERSI provides a Programme Coordinator who is responsible for managing the research projects under the programme and reporting to the Steering Committee.

Programme outputs

6. While the research programme covers topics relating to both taxation and macroeconomic issues, this TSG paper only provides detail on the tax-related research outputs. For information, Table 1 contains a full list of all outputs published under the research programme thus far.

TABLE 1: PUBLISHED OUTPUTS FROM THE JOINT RESEARCH PROGRAMME

2015 publications
Tax
No publications in first year.
Macroeconomy
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.
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.
2016 publications
Tax
Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka (2016). *Corporate Taxation and Foreign Direct Investment in EU Countries: Policy Implications for Ireland*. Quarterly Economic Commentary Special Article, 14 June 2016.
Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka (2016). *The Impact of Taxes on the Extensive and Intensive Margins of FDI.* ESRI Working Paper No. 537.
Kieran McQuinn and Maurice Roche (2016). *Efficient Frontiers and Fiscal Stability: An Ex-ante and Ex-post Application to the Irish Public Finances.* ESRI Working Paper No. 538.
Yota Deli, Derek Lambert, Martina Lawless, Kieran McQuinn and Edgar Morgenroth (2016). *How Sensitive is Irish Income Tax Revenue to Underlying Economic Activity?* ESRI Working Paper No. 540.
Martina Lawless and Donal Lynch (2016). *Scenarios and Distributional Implications of a Household Wealth Tax in Ireland*, ESRI Working Paper No. 549
Macroeconomy
Adele Bergin, Abian Garcia Rodriguez, Niall McInerney, Edgar Morgenroth and Donal Smith (2016). *Modelling the Medium to Long Term Potential Macroeconomic Impact of Brexit on Ireland,* ESRI Working Paper No. 548.

2017 publications
Tax
Sean Kennedy, Sean Lyons, Edgar Morgenroth and Keith Walsh (2017). *Assessing the Level of Cross-Border Fuel Tourism* MPRA Working Paper No. 76961, February 2017.
Jean Acheson, Yota Deli, Derek Lambert and Edgar Morgenroth (2017). *Income Tax Revenue Elasticities in Ireland: An Analytical Approach*. ESRI Research Series No.59.

7. In addition to dissemination through published papers online, the Department also showcased some of the outputs of the research programme at the 2016 Tax Policy Conference, held in Dublin Castle in November 2016. The conference theme was *Enhancing Tax Policy with Evidence* and the topics presented and debated at the conference were: (i) tax revenue volatility; (ii) the influence of corporation tax on FDI decisions; and (iii) the implications of a wealth tax.

8. Table 2 provides a brief description of all the tax-related papers published so far.

TABLE 2: SUMMARY OF TAX-RELATED RESEARCH

Title	Paper description
Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka (2016). *Corporate Taxation and Foreign Direct Investment in EU Countries: Policy Implications for Ireland.* Quarterly Economic Commentary Special Article, 14 June 2016.	This paper examines the attractiveness of EU countries for FDI using firm-level data. Its modelling approach allows for EU countries to be viewed as alternative investment locations by investors (i.e. the concept of opportunity cost is embedded in the analysis). The paper finds that, all else being equal, lower corporate tax rates increase the attractiveness of EU countries to FDI. However, other factors are important including market size, production costs and access to the European Single Market. Policy analysis based on the results indicate that the sensitivity of Ireland's attractiveness to FDI with respect to changes in its corporate tax rate is the highest among all EU countries in the case of FDI projects by investors from outside the EU. The research also finds that Ireland and the UK are perceived to be similar as alternative locations for FDI, in particular by investors from outside the EU and for FDI in the services sector.
Ronald Davies, Iulia Siedschlag and Zuzanna Studnicka (2016). *The Impact of Taxes on the Extensive and Intensive*	The second paper concerning corporation tax and FDI broadened the analysis to examine both the location decision – the 'extensive margin' - and the size of new investment projects initiated by multinationals – the 'intensive margin'. Using firm-level data for Europe, the research find that taxes affect both margins, particularly for firms that invest only once, with 92 percent of tax-induced

Margins of FDI. ESRI Working Paper No. 537.	changes in aggregate inbound FDI driven by movements at the extensive margin. In addition, the paper finds significant effects of both home country and parent firm characteristics, pointing towards the granularity of investment decisions and the importance of non-tax factors in that mix.
Kieran McQuinn and Maurice Roche (2016). *Efficient Frontiers and Fiscal Stability: An Ex-ante and Ex-post Application to the Irish Public Finances.* ESRI Working Paper No. 538.	The paper examines the optimal mix of taxes that will provide the lowest level of risk to the Exchequer for a given expected return. In other words, it determines what tax head shares will achieve a given level of aggregate revenue, while minimising both the volatility of each tax head over time and minimising each tax head's co-movement with other tax heads (which is risky, particularly in a recession). The outcome obtained is known as the 'efficient frontier', from the investment literature where the methodology first evolved. The research finds that if income tax's share of total revenue had been larger over the time period 1985-2015, there would have been less volatility in public finances (for a given return to the Exchequer). This result is accentuated when looking at a shorter period (2007-2015), likely due to the fact that this period is associated with a volatile housing market and associated volatile VAT and property-related receipts.
Yota Deli, Derek Lambert, Martina Lawless, Kieran McQuinn and Edgar Morgenroth (2016). *How Sensitive is Irish Income Tax Revenue to Underlying Economic Activity?* ESRI Working Paper No. 540.	The paper uses an econometric estimation to examine how income tax revenues change with aggregate economic activity (GDP or GNP) over time, and whether particular macroeconomic variables, such as the output gap or private sector credit, affect this relationship. Relying on macroeconomic data from 1984-2013, the research finds that income tax revenues typically increase by 1.11% for every 1% increase in nominal GDP, and 1.17% for every 1% increase in nominal GNP. This sensitivity captures both the automatic growth potential of the tax system as economic activity expands and also the impact of discretionary tax policy on revenues (in other words the estimates capture tax buoyancy).
Martina Lawless and Donal Lynch (2016). *Scenarios and Distributional Implications of a Household Wealth Tax*	The paper uses the CSO's Household Finance and Consumption Survey (HFCS) to examine the distribution of wealth in Ireland and the potential implications of a wealth tax. The paper presents results on the composition of wealth across both the wealth and income distributions (i.e. asset categories such as housing and current account holdings for each decile). A number of wealth tax scenarios

in Ireland, ESRI Working Paper No. 549	are then applied to the Irish data (wealth tax regimes from other jurisdictions in Europe and hypothetical scenarios). In each case, the associated tax bases and revenue yields, the number of liable households, and the characteristics of the households affected are outlined. One finding of the paper is that, due to the imperfect correlation between income and wealth, a non-negligible proportion of the tax would be collected from households in the lowest income deciles in all but the most narrowly targeted tax scenario. It also finds that the treatment of the main residence is an important driver of the level of average tax payment (as it is the largest asset for most households).
Sean Kennedy, Sean Lyons, Edgar Morgenroth and Keith Walsh (2017). *Assessing the Level of Cross-Border Fuel Tourism* MPRA Working Paper No. 76961, February 2017.	This paper estimates the impact on tax revenue and greenhouse gas emissions of purchases of diesel and petrol by consumers from Northern Ireland (so-called 'fuel tourism'). It does so by examining the determinants of fuel sales at Irish forecourts close to the border with Northern Ireland using a unique new dataset that has been collected by the Revenue Commissioners under the Return of Oil Movements (the ROM1). The combined Excise Duty, Carbon Tax and VAT contribution to the Irish Exchequer associated with fuel tourism is estimated at €202 million for diesel and €28 million for petrol, based on 2015 levels. CO2 emissions from these cross-border sales are about 1.17 million tonnes per annum, or 2% of Ireland's national GHG emissions.
Jean Acheson, Yota Deli, Derek Lambert and Edgar Morgenroth (2017). *Income Tax Revenue Elasticities in Ireland: An Analytical Approach*. ESRI Research Series No.59.	This paper estimates tax revenue elasticities, which measure the sensitivity of income tax revenues to changes in taxable income absent any discretionary tax policy changes. The elasticities represent a 'no discretionary policy change' baseline which is useful for policymakers when assessing the tax system. The paper estimates these elasticities at different income levels and for different taxpayer categories. The key results are that, for a 1 percent increase in income, total income tax revenues will automatically increase by 2.0 percent while USC revenues will rise by 1.2 per cent. This implies that income tax revenues are more sensitive (i.e. volatile) than USC revenues. However, the tax revenue elasticity is also an indicator of progressivity, so the results also imply that there is a policy trade-off between progressivity and volatility. The central explanation for the

	different results between the two different forms of direct taxation is the use of tax credits in the income tax system.

Current research

9. There are a number of new tax-related research projects underway in 2017. These are:

   (i) The estimation of VAT revenue elasticities for households – using a similar methodological approach to the 2016 research on income tax elasticities, this project will enhance understanding on how factors such as expenditure composition or the income tax system can influence VAT revenue volatility.
   (ii) The excess burden of taxation - the aim of this research is to provide an analysis and estimate of the additional cost on society due to the impact of taxation on relative prices which results in a deadweight loss (also referred to as the excess burden of taxation).
   (iii) Brexit and customs implications – this research will examine the volumes of trade arriving from the UK and its characteristics (for example mode of transport). It will perform scenarios for how these trade levels might be affected by the introduction of tariffs.

Programme benefits

10. The programme has been effective in terms of enhancing the evidence base on key macroeconomic and tax policy issues through the production of high quality, policy relevant research.

11. In particular, the research on income tax elasticities contributed to a re-evaluation of the parameters used in the Department's revenue forecasting methodology. These parameters were subsequently changed in light of the research.

12. Research outputs from the programme are published which allows all interested parties to use and benefit from the research (rather than exclusively the Department).

13. The Programme has also brought significant benefits to the Department in improving the skills and research capacity of the economists who have participated in joint work with ESRI researchers. Similarly, Department officials have shared their policy expertise with ESRI researchers in order to enhance the final research outputs.

Members of the Tax Strategy Group are asked to note this paper.