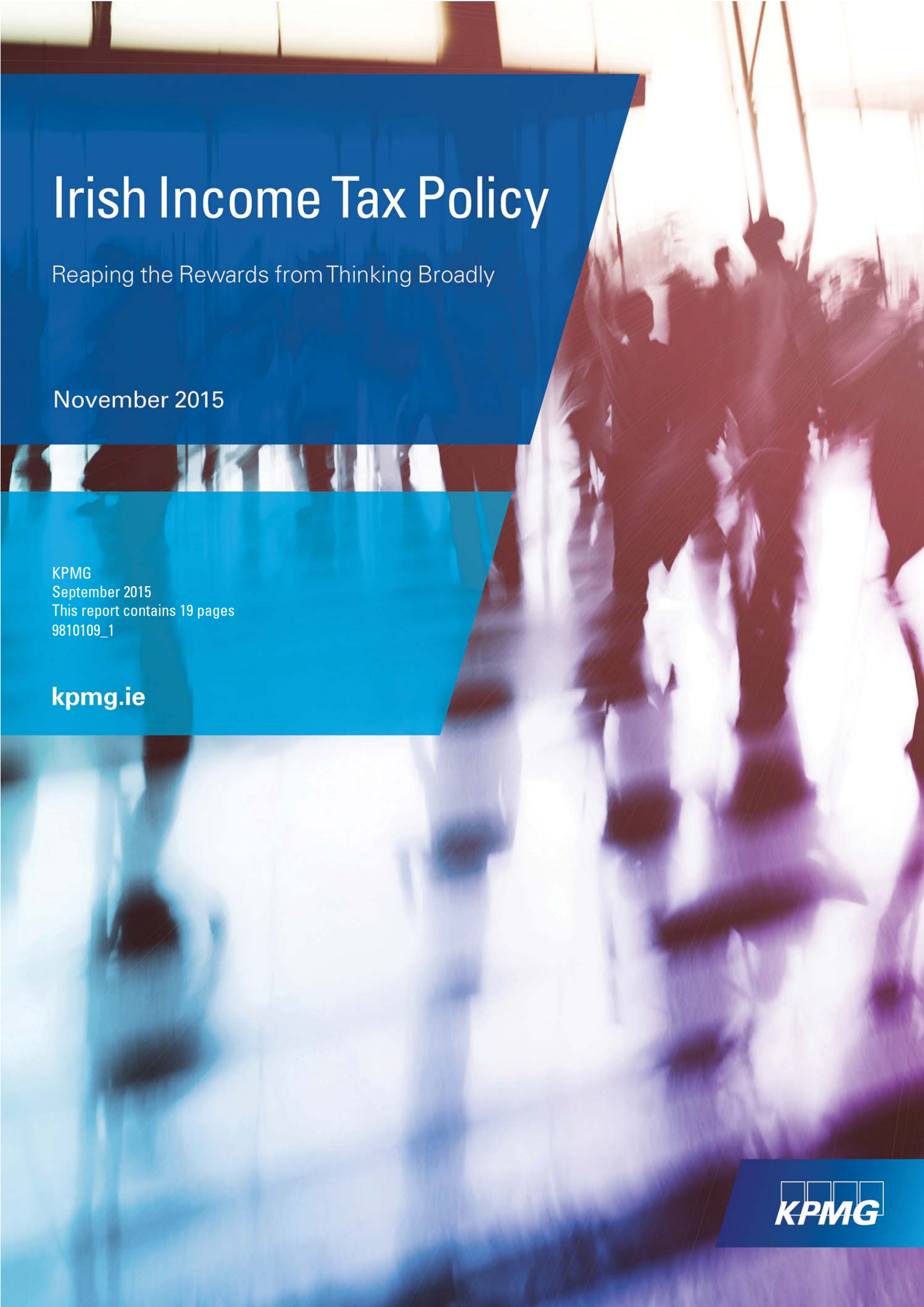

Irish Income Tax Policy

Reaping the Rewards from Thinking Broadly

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Contents

1 Background

The purpose of this paper is to analyse and discuss the possible effects of significant changes in marginal income tax rates in Ireland.

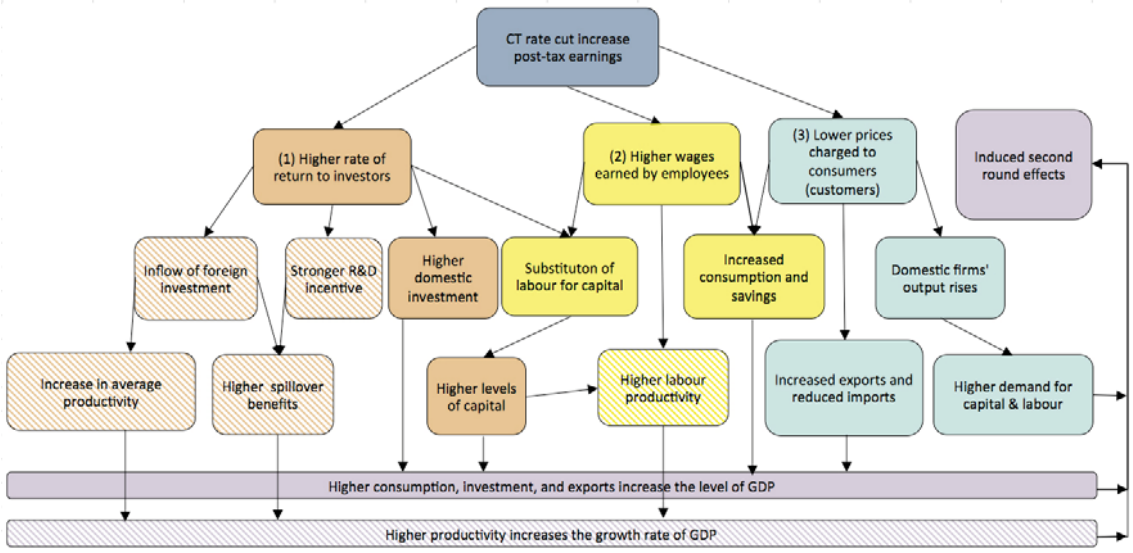
KPMG is Ireland's largest professional advisory firm, largest accountancy firm and largest taxation advisory firm. Consequently our insight into the critical drivers of business decisions is unrivalled. We believe that these insights can be of benefit to those formulating national tax policy in the national interest.

2 Broad and Dynamic Effects

A large amount of the debate in relation to income tax rates and policy assumes a linear relationship between income tax rates and income. However, it is clear that the relationship is not linear due to the broad and dynamic effects[1] of tax policy changes. Thus, when considering the effects of a taxation policy change on the Exchequer a full analysis ought to take account of all of the changes to economic behaviour that may result from the taxation policy change. The broad and dynamic effects of taxation policy changes are obvious, provable and well known to those dealing with inward investors - but they are hard to measure precisely. However, that does not mean that they do not exist, that they are not real or that the cost / benefit of them are any less expensive / valuable than statically measured and narrow costs. If one ignores them then one completely overestimates the cost and underestimates the benefit of pro enterprise taxation measures. Optimal policy choices will focus on taxation policy changes that minimise costs and maximise benefits on a dynamic and broad analysis

Many other countries use sophisticated dynamic models in taxation policy making. For example, in the UK the Revenue have been developing a Computable General Equilibrium ("GCE") model to try to capture dynamic effects[2]. Similar models are used by the non-partisan Congressional Budget Office in the US. The UK authorities have produced the diagram below which illustrates some of the dynamic effects resulting from a reduction in corporation tax rates. The solidly coloured boxes identify those effects captured by the UK's GCE model. The shaded boxes represent effects not captured by the GCE model meaning that the GCE's results are likely to underestimate the positive effects of tax reductions.

[1] The Appendices to this document provide an explanation and a summary of academic research on such broad and dynamic effects.
[2] See Analysis of the dynamic effects of Corporation Tax reductions joint UK Revenue and Treasury paper 5 December 2013.



There is risk involved in estimating broad and dynamic effects (i.e. the estimates may be wrong) but there is an even greater risk in not taking these effects into account or in taking them into account insufficiently. In general it is true that the risk of action is overestimated and the risk of inaction is underestimated. This is partially because the costs of inaction are often opportunity costs (e.g. jobs, investment and wealth lost to Ireland) which are largely invisible.

Countries which have pursued pro enterprise taxation policies (e.g. Singapore, Switzerland, Luxembourg and Ireland) have usually outperformed those that have not. We believe that this is because of the broad, dynamic and positive effects on those economies. We also believe that those broad and dynamic effects are most pronounced in small open economies such as Ireland. This belief is based on direct knowledge from experience in working with clients and is supported by empirical evidence (see Appendix 2 for further details).

3 Taxable Income Elasticity

In addition, a variety of studies[3] have been conducted on the dynamic effects of income tax changes on income by looking at the Taxable Income Elasticity ("TIE"). This is the ratio of changes of total taxable incomes in the economy to each 1% change in the Marginal Retention Rate ("MRR" = proportion of each €1 earned at the top rate which is kept by the taxpayer after all taxes are deducted).

The US studies outlined[4], on average, conclude remarkably high TIEs for high earners – consistently between 0.5 and 0.7 for those earning over US$100,000 and as high as 0.8 for those earning over US$200,000. This would mean that tax increases for these

[3] See Appendix 3.
[4] See Appendix 3.

groups would likely reduce rather than increase government revenues bearing out the Laffer curve theory[5].

Research conducted by Karel Martens[6] on US tax data over a 60 year period has used refined methodologies to isolate the pure tax rate impact on incomes from other statistical noise. This research found a 1.3 TIE for the top 1% on income earners and a 1.1 TIE for the bottom 99%. The research also found that a tax cut for the top 1% of earners would not only increase the incomes of the top 1% but would also increase incomes of the other 99% and increase real GDP.

The TIEs are remarkably high for US high earners when one considers that US citizens are less "tax mobile" than almost any taxpayers in the world as unusually they remain largely[7] subject to US Federal tax even if they reside outside the US. It ought to be the case therefore that (i) the TIE for Irish taxpayers is higher given that they are more tax mobile and given the higher propensity of Irish people to emigrate (ii) Irish marginal tax rates are already significantly higher than US marginal tax rates and TIE is likely to increase as marginal rates increase and pass people's "tipping point" and (ii) the TIE should be higher again for potential Irish taxpayers who are non-domiciled and therefore by definition have no roots in Ireland. When one adds to this the broad effects[8] of tax rates changes on non-domiciled persons in particular then the case is compelling that high personal taxes for these individuals will have a negative impact on the State's revenue along with negative effects for jobs, investment and economic growth.

4 Social Justice

There is no doubt that there are divergent views on the wider societal implications of income tax policy. Whether or not a flatter income tax system would be more or less fair is an ideological matter on which we have no view. However, we believe it is self-evidently irrational and contrary to the national interest to increase personal taxes to the point that behavioural effects mean that government revenues, as measured on a broad and dynamic basis, are reduced rather than increased. On the other hand, it is rational and in the national interest to reduce personal taxes where such reductions increase overall government revenues having taken account of dynamic and broad effects, even if this enriches some private individuals as a result.

A pro-growth income tax policy can benefit all by lifting economic activity, creating employment opportunities, enhancing government revenues and thereby increasing the State's capacity to spend on social programs. Economic growth can reduce disadvantage in Irish society as we return to full employment which will, inter alia, increase the bargaining power of workers for wage growth.

[5] The Laffer curve theory is that beyond a certain point tax rate increases reduce rather than increase total government revenues.
[6] Karel Mertens, August 2013, Marginal Tax Rates and Income: New Time Series Evidence (Cornell University, NBER, CEPR).
[7] but not entirely.
[8] i.e. impact of lost spend, investment and associated other jobs in the economy because such persons do not reside in Ireland.

5 Policy Options

The existing income tax systems of Western Europe are varied. There are various systems of graduated rate schedules with a various number of brackets ranging from 3 (UK) to 19 (Luxembourg) and the highest marginal tax rates from 40% (Luxembourg) to about 55% (Finland, state and local rate combined). Some systems include a general basic allowance only or a general tax credit only or both. Capital income (and property income) is taxed separately in some countries. Countries also differ in the unit of assessment from allowing joint assessment to requiring single assessment. Additional examples include progression adjustments in Austria and Germany, income taxation both at the state and the local level in Finland, and an integrated schedule of social insurance contributions and income tax in the Netherlands. Thus, if one was to start with a blank page in writing an income tax policy, there would be various options.

However looking at the matter from the viewpoint of jobs and growth creation then we can see from OECD research[9], and from experience in countries similar to Ireland, that the shape of an income tax system that would be most growth driven would include the following features:

- Lower marginal rates and a flatter progression in rates.
- An earned income tax credit ("EITC") targeted at families on low incomes along the lines of the UK and US systems.

6 Flat Tax Policy

The term "Flat tax" as we know it now is mainly associated with Hall and Rabuska's publications in 1983 and 1985 on a flat tax.[10] They set out a proposed tax structure based on a combination of a cash flow tax on business income and a tax on workers income, both levied at the same, single rate. However, our reference to flat tax is one which is used only to refer to personal taxation. In order to protect the position of lower earners, in any flat tax system, there is usually an Earned Income Tax Credit ("EITC") which is of the same value for all individuals whether high or low earners.

- The current system of income tax results in a net yield of €15,837.80 million after payment of €1,506.66 million in Child Benefit and €261.76 million in Family Income Supplement
- The introduction of a flat rate of income tax at 23% with no tax credits or basic income allowances, would on a purely narrow and static analysis result in a net yield after payment of Child Benefit and Family Income Supplement of €15,580.58 million. It is clear, in our view that the broad and dynamic effects over time would lead to a much higher yield.
- We have estimated the broad and dynamic effects as €4,686.67 million. This assumes conservative broad and dynamic effects i.e.;
    - 0% TIE applied to those earning income below the standard rate cut off point.

[9] See Appendix 2.
[10] Keen M, Kim Y & Varsano R, 2006, The "Flat Tax(es)" : Principles and Evidence. IMF Working Paper WP/06/218.

  - 0.5 TIE applied to those earning income above the standard rate cut off point.
  - A broad effect of the increased net income calculated from TIE above such that Revenue would receive 20% of the after tax element of this back through indirect taxes etc.

- It would be possible to soften the impact of a flat tax on middle class earners with the introduction of a tax allowance or EITC[11].
- On the other hand, an even lower flat rate of taxation could be introduced to "turbo charge" the broad and dynamic effects.

Taxation Policy	Net Yield (€'m)
Current System	15,837.80
Basic Flat Rate Tax of 23%- *Narrow & Static Analysis*	15,580.58[12]
Basic Flat Rate Tax of 23%- *Conservative Broad & Dynamic Analysis*	20,267.25[13]

7 Benefits of Flat Tax

The following benefits have been associated with flat tax systems.

There is a wealth of evidence[14] that reducing high marginal income tax rates can, in some cases, increase rather than reduce government revenues.

Hall and Rabushka[15] state that a major argument put forward by advocates of a flat tax reform is the effect that such a reform would have on economic growth, due to its supposed effects on work, saving, entrepreneurial activity and capital formation. Flatter / less progressive income tax schedules are better for growth. Where the flat rate on income is set at a lower rate than the current marginal rate, this could act as an incentive to promote employment generation as individuals would retain a higher percentage of

[11] A proposal has been floated of a flat tax based on a "Graduated Basic Income" of €2,500 for each dependant up to taxable income equal to the minimum wage estimated as €17,992, thereafter decreasing linearly per dependant as taxable incomes increases until taxable income reaches the basic income threshold of €70,000. This Graduated Basic Income would replace child benefit and family income supplement. We estimate that, on a narrow and static basis, and depending on the assumptions used such a policy would have a breakeven Exchequer yield at a tax rate of 23%-29%.

[12] Total tax yield, less child benefit and family income supplement.

[13] This assumes conservative broad and dynamic effects i.e;

- 0% TIE applied to those earning income below the standard rate cut off point.
- 0.5 TIE applied to those earning income above the standard rate cut off, which results in a 30.21% (0.5*(77%-48%)/48%) increase in net income for this cohort.
- A broad effect of the increased net income calculated from TIE above such that Revenue would receive 20% of the after tax element of this back through indirect taxes etc.

[14] See Appendix 2, Appendix 3.

[15] Hall, Robert E., and Alvin Rabushka, 2007, The Flat Tax (2nd Edition), CA: Hoover Institution Press

after-tax income from earnings. This could incentivise an employer by allowing the employer to deliver higher amounts of net pay to employees for lower gross payroll cost or could incentivise employees to return to work.

The design of these systems suggests that they should offer efficiencies arising from the simplicity of the system and could also potentially increase tax compliance and reduce tax evasion.

Estonia introduced a flat rate income tax system in 1994, Within a decade, several other countries in Eastern and Central Europe had followed suit (Latvia, Lithuania, Russia, Serbia, Slovak Republic, and Ukraine), and there are now more than 30 jurisdictions around the world with some form of a flat income tax, including in Latin America and the Caribbean (Grenada, Belize, Paraguay and Trinidad and Tobago) and in Asia (Iraq, Mongolia, Timore Leste). Adhikari and Alm[16] find positive and statistically significant impacts of tax reform in Estonia, Russia, Slovak Republic, Ukraine, Georgia, Romania and Turkmenistan. In their more recent research,[17] they estimate that Latvia's GDP per capita was $1,526 higher and growth rate was 3.81 percentage points higher on average than countries in the same region that had not adopted a flat tax policy (Armenia, Bulgaria, Croatia, Czech Republic, Hungary, Poland and Slovenia). Blumkin et al[18], point out that after Russia's introduction of a flat tax, tax revenues had increased by 46% and relates this to increased behavioural effect on tax compliance and tax evasion.

8 Overcoming inequality

An argument often made against flat taxes is that they increase the tax burden for low to middle-income earners, resulting in a widening of the distribution of after-tax income. However, we believe that an EITC ought to lift the relative position of the most vulnerable group of workers (i.e. those on low wages with children to support[19]). This can create a "win win" by reducing inequality, reducing poverty, increasing incentives to work and driving economic growth.

9 "BEPS"

Importantly, we believe that a flat tax could serve to better align Ireland's personal tax regime with the wider tax policy need to ensure the presence in Ireland of senior executives who exercise management and oversight of business with overseas jurisdictions at the most senior level.

The ongoing OECD project on Base Erosion and Profit Shifting (BEPS) has underscored the importance of aligning taxable profits with substance and activity and with attributing taxable profits to locations where key risks and functions are undertaken. For a small economy with a large export sector, this means that Ireland must both attract and retain

[16] Adhikari, Bibek, and James Alm, 2014, Evaluating the Economic Effects of Flat Tax Reforms Using Synthetic Control Methods, Department of Economics Working Paper, Tulane University, New Orleans, LA.
[17] Adhikari, Bibek, and James Alm, 2015, Did Latvia's Flat Tax Reform Improve Growth?, Department of Economics Working Paper, Tulane University, New Orleans, LA.
[18] Blumkin, Tomer, Efraim Sadka, Yotam Shem- Tov, 2011, Labour Migration and the Case for Flat Tax, CESIFO Working Paper.
[19] Social Justice Ireland, (July 2014) Poverty and Income Distribution states that "16% of Ireland's adults who live below the poverty line are employed – these are the working poor."

individuals with the skill sets and executive authority to take key decisions and to exercise executive oversight from an Irish base.

10 Conclusion

Taxation policy choices have enormous impacts on jobs, growth, inward investment, government revenues and opportunity in our society. We believe that any possible income tax policy should be analysed on a broad and dynamic basis and that when this is done it is clear that a flat rate of income tax may well have many positive benefits for Ireland.

A.1 Cost / benefit analysis of taxation policy changes

There are a number of ways in which the cost / benefit of taxation law changes can be measured. We have outlined some of these below and used a basic example to illustrate.

Static vs. Dynamic and Narrow vs. Broad analysis – a basic illustration

Assume the following:

- There are currently 1,000 high net worth ("HNW") individuals working in Ireland paid €100,000 pa paying tax at a 50% rate (€50,000 pa each) who would qualify for a tax reduction of 20% if a particular taxation law was changed.
- 50 of the individuals referred to above will leave Ireland in the medium term if the taxation law change is not made but will stay in Ireland if the law is changed.
- If the taxation law change is made the individuals will devote more energy to income generation and will, on average, generate 10% more income each.
- 2,000 individuals will come to Ireland in the medium term if the taxation law change is made but will not come if the law is not changed. They will each earn €110,000.
- On average the individuals above create 3 jobs at €25,000 each.
- The jobs created above each generate €5,000 in income tax for the Exchequer and save the Exchequer €12,500 pa in social welfare payments and benefits.
- On average each HNW in Ireland brings corporate activity[20] with them which generates an average of, say, €50,000 pa in corporate taxes.
- Each HNW and the persons they employ above spend money in the local economy which creates further employment in restaurants / shops etc., thereby increasing Exchequer income tax and PRSI yields and reducing social welfare payments. This spending also increases VAT yields. The persons employed in the restaurants and shops also spend money in the economy generating further jobs, income tax, reductions in social welfare and VAT receipts and so on. We assume this multiplier effect is circa 50% of each HNW and employees after tax income.
- The corporate activity referred to above results in local spend (rent, light and heat, fees to advisors) which creates employment, income tax, reductions in social welfare contributions (e.g. because of jobs created in service providers) and VAT receipts. This is assumed to average €50,000 per HNW.

One might analyse the cost / benefit of the tax reduction outlined above in a number of ways:

[20] It is reasonable to assume that if key people move to Ireland that lines of business are also being moved and that some of these businesses will generate substantial taxable profits.

(a) Static models

Under a completely static model you would ignore all changes in behaviour that were caused by the change in law. There might be different versions of this e.g.:

(i) Static model – historic cost

One might multiply the number of current taxpayers who could avail of the tax reduction and multiply this by the amount of the tax reduction to get a total cost. In the example above this would calculate a total Exchequer cost of the taxation law change of €20 million (i.e. 1,000 taxpayers with a €20,000 tax reduction).

(ii) Static model – projected cost

One might simply project how many people in the future might avail of the tax reduction and multiply this by the amount of the tax reduction to get a total cost. In the example above this would calculate a total Exchequer cost of the taxation law change of €60 million (i.e. 3,000 taxpayers with a €20,000 tax reduction).

(b) Dynamic models

In a dynamic model one would take account of the changes in behaviour caused by the change in law. There are several ways in which one could do this. One could look at changes in a narrow sense such as only looking at the change of behaviour of those directly affected by the taxation law change or one could look more broadly at all the changes in the economy resulting from the taxation law change.

(i) Dynamic model – narrow version

In the above example one would calculate that in the absence of a change in law the total tax collected from the type of HNW affected would be €47,500,000 (of the current 1,000 taxpayers 50 would leave giving a total of 950 at €50,000 each). If the change in law took place the total tax collected from the type of HNW affected would be €99,000,000 (i.e. 3,000 people earning €110,000 each at a tax rate of 30%). Therefore the Exchequer benefit of the taxation law change is calculated as €51,500,000 (i.e. €99m - €47.5m).

(ii) Dynamic model – broad version

In this example one would attempt to take account of all of the effects in the economy of changes in behaviour resulting from the taxation law change. This would be as follows:

Narrow dynamic effect (as at 1 above)	+€51.5m

Benefit from employment created by HNWs	+€105m[21]
Corporate taxes increase	+100m[22]
Multiplier effect from HNWs and their employees	+137m[23]
Multiplier effect from corporate spend	+100m[24]
Total Exchequer effect	+€493.5m

[21] 2,000 X 3 X (5,000 + 12,500).
[22] 2,000 X 50,000.
[23] (2,000 X (110,000 X .7) X 50%) + (2,000 X 3 X (25,000 – 5,000) X 50%).
[24] 2,000 X 50,000.

A.2 Evidence for dynamic effects resulting from taxation policy decisions

There is a wealth of academic research and empirical evidence showing the dynamic effects of taxation policy decisions.

(i) OECD 2010 paper

The OECD published a paper in 2010 titled *Tax Policy Reform and Economic Growth.* This was the fruit of several years of research by leading economists at the OECD and among its findings were:

- Broadly taxes can be broken into four categories in terms of their impact on growth. The tax that has most impact on economic growth is corporation tax followed by personal income taxes. Indirect taxes such as VAT have a lesser effect. Recurring (as distinct from transactional) property taxes have the least effect of all on growth.
- "Personal income taxes can influence workers, particularly those who are highly paid, in the choice of country in which they work."
- "It is generally assumed that choices related to corporation taxation are most affected by globalisation because of the ease with which multinational enterprises can move the location of at least some of their activities. However, highly skilled workers are also becoming more mobile and some countries are taking this into account in designing their personal tax systems. In contrast, the taxation of lower skilled workers and of consumption is seen as being less affected by globalisation because these tax bases are less mobile. Finally, the taxation of immovable property is seen as the least affected by globalisation."
- "There is evidence that flattening the tax schedule[25] could be beneficial for GDP per capita". For example an OECD study[26] found, based on detailed empirical research that "a stronger progressivity of personal income taxes seems to be associated with lower long-run GDP per capita".
- "One of the most marked changes in taxation over the last 25 years[27] has been the steep decline in the top rates of personal income tax in OECD countries. The OECD unweighted average has fallen from 67 per cent in 1981 to 49 per cent in 1994 and 41 per cent in 2009."

(ii) Observations from other countries

[25] i.e. fewer and lower rates.
[26] Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries (OECD Economics Department Working Papers No. 643).
[27] Paper produced in 2010.

The OECD 2010 paper describes the flat tax experiments in Estonia and Slovakia which commenced in 1994 and 2004 respectively with rates around the 20% mark. Both countries are comparable in many respects to Ireland i.e. small EU Member States with relatively few natural resources. Subsequent to introducing top personal tax rates of circa 20% Estonia and Slovakia became two of the highest economic performers in the EU with two of the highest GDP growth rates and lowest debt to GDP ratios.

Other countries which are in many respects comparable to Ireland in terms of size and extent of natural resources are Switzerland, Singapore and Hong Kong. All have top personal income tax rates of circa 20%, generally they have no personal capital gains tax at all and they have all outperformed Ireland in terms of economic growth, government debt to GDP ratio and unemployment in recent years.

The UK Government estimated that the increase in the marginal rate of income tax from 40% to 50% in 2009 did not raise the £7 billion expected. Instead it raised at most £1billion and in fact may have had a negative effect on government revenue.

(iii) Other academic research

In addition to the academic research contained within and summarised in the OECD 2010 paper there is a large body of other academic research describing the dynamic effects of taxation policy choices. For example each of the following separate studies, conducted from data in a variety of countries, found statistically significant investment and / or tax revenue dynamic impacts of corporation tax changes:

- Cummins and Hubbard (1996)[28]
- Barnes, Price and Sebastia- Barriel (2008)[29]
- Smith (2008)[30]
- Djankov et al. (2008)[31]
- Wallis (2012)[32]

[28] Cummins, J. G., Hassett, K. A. and Hubbard, G. (1996). Tax Reforms and Investment: A Cross-Country Comparison (Journal of Public Economics, Volume 62, No. 2. 237-273).
[29] Barnes, S., Price, S. and Sebastia-Barriel, M. (2008). The elasticity of substitution: evidence from a UK firm level data set (Bank of England Working Paper, No. 348).
[30] Smith, J. (2008). That elusive elasticity and the ubiquitous bias: is panel data a panacea? (Bank of England Working Paper, No. 342).
[31] Djankov, Ganser, McLiesh, Ramalho, Shleifer, (2008) The Effect of Corporate Taxes on Investment and Entrepreneurship (American Law & Economics Association Annual Meetings, paper 80).
[32] Wallis, G.E; (2012) Essays in understanding investment (Doctoral thesis, University College London).

- Mankiw and Weinzeri (2006)[33]
- Trabandt and Uhlig (2010)[34]
- Strulik and Trimborn (2012)[35]
- Varney (2007)[36]

Djankov et al (2006)[37] modelled impacts of various items on FDI based on data from 85 countries and found that a high marginal rate of income tax had a significant negative impact on FDI (though not as significant as the corporation tax rate).

[33] N. Gregory Mankiw and Matthew Weinzierl, (2006) Dynamic scoring: A back-of-the-envelope guide (Journal of Public Economics, Volume 90, Issues 8–9, Pages 1415-1433).
[34] Trabandt, M. and H. Uhlig, (2010), How far are we from the slippery slope? The Laffer curve Revisited, (Discussion paper, European Central Bank).
[35] Holger Strulik, Timo Trimborn, (2012) Laffer strikes again: Dynamic scoring of capital taxes (European Economic Review, Volume 56, Issue 6, Pages 1180-1199).
[36] Sir David Varney (2007), Review of Tax Policy in Northern Ireland.
[37] The Effect of Corporate Taxes on Investment and Entrepreneurship, Djankov, Ganser, McLiesh, Ramalho and Shleifer, (NBER Working Paper 13756, http://www.nber.org/papers/w13756).

A.3 Studies on Taxable Income Elasticity ("TIE")

Summarised below are studies which calculate the Taxable Income Elasticity ("TIE") in various cases.

Author(s)	Country	TIE estimate	Comments
Lindsey (1987)[38]	USA	Central view 1.75, but as high as 2.75.	May overstate the TIE as does not control from income trends, so may attribute rising income inequality to tax rate changes.
Long (1999)[39]	USA	Net-of-tax elasticities, by income group: 0-$50,000 = 0.1-0.8 $50,000 – $100,000 = 0.6-0.8 $100,000 – $150,000= 0.7-0.8 $150,000 – $200,000 = 0.7-0.8	High income taxpayers are found to be more responsive to rate changes than lower-income individuals, thought to be primarily due to access to reliefs and deductions.
Goolsbee (2000)[40]	USA	Short run: 1 Long Run: 0.1-0.33 >$1m = 0.56	Focuses on a very high income group only, corporate executives most of which have incomes greater than $150,000. Short-run forestalling response – income shifting into the low-tax period. Among different income sources, stock options are the most responsive to tax rate changes.
Gruber and Saez (2002)[41]	USA	Average all incomes = 0.4 $10,000 to $50,000 = 0.2-0.3 $50,000 to $100,000 = 0.1 -0.3 $100,000 and above= 0.5-0.7	Use three-year intervals to focus on longer-term response, recognizing and controls for mean reversion and exogenous trends in income. Very comprehensive study. Estimates vary over the different income groups.
Aarbu and Thoresen (2001)[42]	Norway	Min:-0.6 Max: 0.2	Norwegian tax reform of 1992 included tax increases for high–income earners. Estimates are lower than similar studies in the U.S.

[38] Lindsey, Lawrence. 1987. Individual Taxpayer Response to Tax Cuts: 1982-1984, with Implications for the Revenue Maximizing Tax Rate" (Journal of Public Economics, 33(2): 173-61 206).
[39] Long, J E. (1999). The Impact of Marginal Tax Rates on Taxable Income: Evidence from State Income Tax Differentials (Southern Economic Journal 65(4): 855-869.).
[40] Goolsbee, A., (2000) What happens when you tax the rich? Evidence from executive compensation (Journal of Political Economy 108(2), 352-378).
[41] Gruber, Jon, and Saez, Emmanuel, 2002. The Elasticity of Taxable Income: Evidence and Implications (Journal of Public Economics, 84, 1-32).
[42] Aarbu, Karl and Thor Thoreson. 2001. Income Responses to Tax Changes: Evidence from the Norwegian Tax Reform (National Tax Journal, 54(2): 319-334).

Selén (2002)[43]	Sweden	Central view: 0.4-0.5	Using the 1990s tax reform in Sweden. The preferred elasticity estimates fall in the range of 0.4 to 0.5, similar to US studies.
Blow and Preston (2002)[44]	UK	Range of results (1.4-2.8), but self-employed shown to be more responsive.	Focus on the self-employed, suggests taxable income can respond positively to cuts in tax rates. Income is very sensitive potentially due to reporting and evasion. Looks at different occupational groups and regions of the UK, but not specifically those on high incomes.
Saez (2004)[45]	USA	Top 1% = 0.5 - 0.71	Considers data from 1960 to 2000. Only the top 1% incomes show evidence of behavioural response to taxation.
Kopczuk (2005)[46]	USA	Using the same data as Gruber and Saez (2000), finds a TIE of 0.21 when using the full sample (includes taxpayers with less than $10,000). Comparable result for high earners is still 0.57.	Highlights the uncertainty around any one TIE estimate. Results very sensitive to the model specification and sample.
Brewer, Saez, and Shephard (2008 - 2010) [47]	UK	Estimate of 0.46 for high earners (top 1%), (some estimates as high as 0.7 without controls).	Considers the reforms in the UK in the 1970 and 1980s. Difference-in-differences framework, comparing the top 1 per cent to income groups just below.
Cheety et al (2011) [48]	Denmark	Lower bound of 0:34 (all income groups).	Looking at behavioural responses using bunching around kink-points in data from Danish tax records rather than discrete policy changes.

(i) Irish experience following 2006 changes to the remittance basis of taxation

[43] Selen, J (2002). Taxable income response to tax changes: Evidence from the 1990/91 Swedish Tax Reform (FIEF Working Paper No. 177).
[44] Blow, Laura and Ian Preston, 2002. Deadweight Loss and Taxation of Earned Income: Evidence from Tax Records of the UK Self-Employed, (IFS Working Paper No. 02/15).
[45] Saez, E. (2004), Reported Incomes and Marginal Tax Rates, 1960-2000:Evidence and Policy Implications, (NBER Working Paper No.10273, National Bureau of Economic Research).
[46] Kopczuk, W. 2005. Tax Bases, Tax Rates and the Elasticity of Reported Income (Journal of Public Economics, 89(11-12): 2093-2119).
[47] Brewer, M, Saez E and Shephard A 2010. Means-testing and Tax Rates on Earnings (The Mirrlees Review: Reforming the Tax System for the 21st Century, Institute for Fiscal Studies).
[48] Chetty, Raj, John Friedman, Tore Olsen, and Luigi Pistaferri. 2011. Adjustment Costs, Firm Responses, and Micro vs. Macro Labour Supply Elasticities: Evidence from Danish Tax Records (Quarterly Journal of Economics 126 (2): 749–804).

In 2006 Ireland altered the income tax treatment of non domiciled persons so that their salaries would be fully subject to tax. Prior to that, for the entire history of the State, it was only that part of the salary brought into Ireland that was taxable. It is known that a number of front office operations with highly paid employees left Ireland as a direct result and that others that were due to come to Ireland were cancelled and that other jobs and projects have been lost to Ireland as a direct result since[49].

We do not believe that anyone seriously suggests that Ireland has had a flood of extra taxes paid by non domiciled persons since 2006 sufficient to compensate for the known lost local economy spend, investment, employment and broad and dynamic negative effects on government revenue of the tax changes then introduced. That being the case the corollary ought to hold i.e. that the increased local economy spend, investment, employment and broad and dynamic positive effects on government revenue resulting from reducing personal taxes on non domiciled persons in particular ought to outweigh the risk of any reduction in narrowly / statically measured government tax revenue.

(ii) Irish experience of cutting CGT rate from 40% to 20% between 1995 and 2000

Between 1995 and 2000 the Irish CGT rate was halved from 40% to 20%. On a static analysis the Irish Exchequer's CGT yield ought to have fallen by 50% - instead the yield increased more than twelve fold (over 1,200%) in real terms over that five year period.

[49] KPMG Ireland has direct knowledge of this.