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ABSTRACT

Households contribute to financing the exchequer in a number of ways. Household's direct tax contributions from earnings, through income taxes, USC and social insurance, are apparent; albeit that we tend to have greater knowledge of benchmark taxation rates (both effective and marginal) than the actual rates households pay taking account of entitlements to tax expenditures. Household indirect taxation contributions, through VAT, excise duties, levies, local taxes and charges, are less apparent.

Using data from the most recent Household Budget Survey, this paper estimates both the direct and indirect taxation contributions of households. The paper examines, singly and collectively, the direct and indirect tax paid by households across the income deciles, alongside the overall average household contributions. In establishing these estimates, the paper aims to provide a more comprehensive understanding of the distribution and composition of household tax contributions.

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INTRODUCTION AND CONTEXT

Too often considerations of Ireland's taxation system are focused on income taxes, or income related taxes like social insurance; a narrow perspective given the composition of taxation revenue received by the exchequer. Indeed, the oft-cited phrase 'taxpayers' is generally taken to mean income taxpayers rather than its more appropriate meaning of all those paying taxes – whether from income, expenditure or other contributions. The most recent projections for taxation revenue, incorporated in Budget 2014 (see Table A1 in the appendix), suggest that just over €50 billion will be collected across all taxation categories during 2014. While corporations and other businesses contribute a sizeable proportion of this sum (principally through profit taxes, local authority charges and employer PRSI) the largest proportion flows from households.

Households contribute to financing the exchequer in a number of ways. Household's direct tax contributions from earnings, through income taxes, USC and social insurance, are apparent; albeit that we tend to have greater knowledge of benchmark taxation rates (both effective and marginal) than the actual rates households pay taking account of entitlements to tax expenditures. Household indirect taxation contributions, through VAT, excise duties, levies, local taxes and charges, are less apparent.

Using data from the most recent Household Budget Survey (HBS), this paper estimates both the direct and indirect taxation contributions of households. As the HBS is only undertaken every five years, the opportunity to examine the composition of household expenditure, and the associated indirect taxes experienced by individuals or households, is infrequent. Using the latest data, published in 2012 for the period 2009-2010 (detailed later), it is possible to establish estimates of the overall tax contributions made by households. The paper examines, singly and collectively, the direct and indirect tax paid by households across the income deciles, alongside the overall average household contribution. In establishing these estimates, the paper aims to provide a more comprehensive understanding of the distribution and composition of household tax contributions.

Understanding the overall shape of household tax contributions offers a firmer basis for considerations of policy options, or critiques of previous policy changes. Limitations in this understanding have been obvious in recent policy considerations, most particularly given the limited assessment of the Budget 2012 VAT standard-rate increase (from 21% to 23%) – only Callan et al (2012) and Social Justice Ireland (2011) made any detailed empirical based comment, with only the latter challenging the assertion by Government that the increase was progressive.

Similarly, there has been limited consideration of who gains or loses from increases to excise duties, amendments to insurance levies or extensions of various indirect tax changes. While this paper does address each of these issues, in establishing an up-to-date baseline understanding of

the total tax contribution distribution, it provides a basis and context to begin to consider these issues.[1] Such a framework should also assist in the inevitable future considerations of where tax reductions for individuals/households might best be targeted. Perspectives on such choices are likely to be different when judged across overall household tax contributions rather than solely on income taxation.

The remainder of this paper is structured as follows. The next section overviews previous research in this area, including that undertaken by the CSO in the 80s and 90s. We then outline the data used in this paper and detail the assumptions we made in compiling the indirect taxation estimated presented later. Following this, we present our findings for direct taxation contributions and then indirect taxation contributions. In the latter we examine household's contributions through VAT, excises, levies and other indirect taxes. The concluding section of the paper draws these results together to establish the shape of overall household tax contributions and considers some implications of these findings.

PREVIOUS RESEARCH

DATA AND ASSUMPTIONS

This paper uses data from the CSO's 2009-2010 Household Budget Survey (HBS), the seventh such national survey since 1973.[2] The survey occurred over the period from August 2009 to September 2010 collecting data from a representative sample of 5,891 households throughout the state. For the purposes of the HBS, the CSO consider a household to be a single person or group of people who regularly reside together in the same accommodation and who share the same catering arrangements; household members are not necessarily related by blood or by marriage (CSO, 2012a:133). As part of the survey, each participating household completed a detailed household questionnaire which included questions on tenure status, household appliances, household facilities and housing costs (e.g. mortgage, rent). In addition, each household member aged 16 years and over completed a personal questionnaire which included questions on income, education, work status and other demographic related questions. To assess expenditure patterns, all household members aged 16 and over completed a paper diary over a two week period, detailing all their expenditure throughout that period (CSO, 2012a:133). The CSO published their report from the HBS 2009-10 in March 2012.

Table 1 summarises the key income and expenditure data from the 2009-10 HBS. The data is decomposed using deciles of gross household income which have been compiled by ordering all households from lowest to highest gross income and splitting them into ten equally sized groups. Consequently, the bottom decile represents the 10% of households with the lowest gross income and the top decile the 10% with the highest income. Gross income measures

[1] Future papers will examine the distributive effect of the increase in the standard VAT rate (from 21% to 23%), the household impact of the introduction and retention of the special 9% VAT level for certain sectors and the retention of the zero-rate and exempted rate for certain goods.
[2] Earlier urban-only expenditure surveys occurred in 1951-52 and 1965-66.

income after direct income (various earnings) plus transfers.[3] These decile categories are used later in the analysis to examine the distributive nature of indirect taxes.

Table 1 shows that on average Irish households had a gross income of just over €53,500 in the year covered by the survey. Households' disposable income, calculated as gross income minus income taxes (including USC) and social insurance contributions averaged €46,217 while average household expenditure was just over €42,000 during that year.

As the table shows, there are pronounced differences in average incomes across the deciles – a feature explored in more detail elsewhere by Collins (2013a, 2013b) and Social Justice Ireland (2013) among others. It also reveals that expenditure exceeds disposable income for the bottom four deciles reflecting both the composition of these households (for example pensioners who may also be living on past savings) and their difficulties in making ends meet. Overall, the distribution of expenditure across the income deciles is progressive although the variations, like those of the average income levels, are marked.

Table 1: Average Gross Income, Disposable Income and Expenditure, by decile 2009/10

Decile	Average Gross Income €	Average Disposable Income €	Average Expenditure €
Bottom	9,887.07	9,857.32	18,459.15
2	15,827.24	15,705.14	20,039.78
3	22,778.14	22,504.19	24,926.24
4	29,453.52	28,657.26	30,043.78
5	36,642.36	34,932.42	34,236.05
6	45,789.52	41,877.58	40,638.61
7	57,111.53	50,720.53	46,718.03
8	71,410.42	61,771.73	54,874.23
9	92,095.61	76,843.40	63,563.14
Top	154,966.77	119,459.85	89,563.37
State	**53,576.86**	**46,216.82**	**42,297.63**

Source: Calculated from CSO, 2012b.

Expenditure across a total of 538 items (white bread, hairdryers etc) or good-groups (garden tools, legal fees etc) is recorded for all household groups in the HBS. These are classified into the nine consumption categories listed below with the overall average proportion of total expenditure spent on items in these categories presented in parentheses. Tables A2 and A3 in the appendix provide a more detailed decomposition of expenditure across these categories for each of the decile groups.[4]

[3] For more information see CSO (2012a: 138) and Collins and Kavanagh (2006).
[4] The CSO's HBS 2009-2010 reports (Volumes 1 and 2) provide a more detailed discussion and comparison over time of these expenditure levels (2012a, 2012b)

- Food (16.2%)
- Alcoholic drink and tobacco (4.9%)
- Clothing and footwear (4.9%)
- Fuel and light (4.4%)
- Housing (18.2%)
- Household non-durables (2.0%)
- Household durables (3.7%)
- Transport (14.3%)
- Miscellaneous, services and other (31.3%)[5]

While the HBS provides the only comprehensive source of household expenditure data, it, like all survey based data sources, is far from a perfect measure. While the sample controls for under-representation and non-response, it is dependent on the accuracy and reliability of the information provided by participating individuals and households in the survey. Where reported/recorded consumption differs from actual consumption the results have the potential to under or over state true patterns (most likely to former). Traditionally, consumption surveys experience difficulties with consumption figures for alcoholic drink and tobacco – which are generally underreported; implying the overall average 4.9% of all consumption recorded for this category may be an underestimate.[6]

Using this expenditure data to facilitate the identification of data on indirect taxes requires a number of steps and assumptions. As with any tax measure, the rate of tax is applied to the base price of a product or service; that is before indirect taxes are added. Consequently, as part of the analysis the HBS expenditure values were adjusted to remove these indirect tax effects.

Dealing with value added tax (VAT), the analysis first established a VAT classification for each of the expenditure items; where necessary a representative product was used as a proxy for all expenditure classified under this item. This VAT classification drew on the comprehensive database available on the Revenue Commissioners website and was accessed in mid-2013. Expenditure items were recorded as having one of five VAT classifications: 0%, exempt (0%), the reduced rate (13.5%), the standard rate and non-applicable. The analysis was required to make an assumption on the standard rate of VAT. The HBS data for the 2009-2010 was collected between August 2009 and September 2010, inclusive of those two months, 14 months in total (CSO, 2012a). During that time which included two National Budget periods, two separate standard VAT rates were applied, 21.5% (2009) and 21% (2010). As the HBS survey does not indicate when expenditure occurred we have assumed the expenditure is distributed evenly across the period and therefore assumed that 36% of the spending took place when the standard rate was 21.5% and 64% when the rate was 21%.[7] Table A4 in the appendix summarises these rates. In the case of children's clothes, the HBS data reports expenditure on clothing for those 'aged 5-15 years' and we have assumed that 6/11^{ths} of this is tax free and the remaining 5/11^{ths} is at the standard rate.

Indirect taxes in the form of excise duties arise for expenditure on alcohol, tobacco and fuel and also required a number of analytical assumptions. In the case of excise on alcohol, the two budgetary periods result in two different rates of excise applying during the HBS period. The first in place up to the midnight on the day Budget 2010 was announced and the second for the remainder of the period (131 days and 295 days; 31% and 69% of the time period). The rates

[5] This category includes: betting and lotteries, charitable donations, education and training, holidays, medical, sports and leisure activities, telephone, television and a list of other un-categorised items.
[6] See CSO (2012a:5) where these response and accuracy issues are discussed further.
[7] These percentages are based on the number of days in the two periods.

coupled with a series of technical assumptions on the alcoholic volume and classification of certain drink types are outline in/with table A5 in the appendix.

The alcohol calculations also required the analysis to assume a representative price for a number of categories of alcoholic beverages. As the HBS only presents expenditure amounts, rather than quantities, an assumption regarding an average/representative price was needed to determine likely consumption quantities and calculate representative figures for the amount of pure alcohol consumed – as some excise duties are levied in this way. These representative prices, in price per litre terms, and assumptions on the percentage proof of alcohol products are outlined in table A6 in the appendix. The alcohol content of the products (proof) has been assumed based on the levels observed in the leading market brands in each category. An implication of this assumption is that where consumption choices differ from these averages, the analysis may under or over-estimate the excise collected. For example, a lower income household that consistently purchases bottles of wine below the assumed average price will consume a greater total litres of wine and pay more excise duties (charged per litre or hectolitre) than the calculations assume. The opposite is true for a similar household with an occasional taste for fine wine.

The HBS records expenditure on tobacco products across three headings: cigarettes & cigarette papers; cigars & snuff; and other tobacco. Of the average annual household expenditure on these products (€682.81) 95.1% is accounted for by cigarettes & cigarette papers with the remaining two categories representing 1.1% and 3.9% respectively. For the purposes of the analysis, we have assumed that 100% of the expenditure is considered as cigarettes & cigarette papers. Given the relatively small expenditure in the other categories, and given similar taxation regimes across all three, this is unlikely to make significant difference to the overall excise and VAT calculations. The papers calculations also assume a standard price of €8.55 per packet of 20 cigarettes across the period and a total VAT+excise figure of 78.48% per packet; both figures from a 2010 Department of Finance Tax Strategy paper (2010/21: 2, 10). Table A7 in the appendix outlines the rates and *ad valorem* amounts of excise on tobacco products during this period.

The excise rates applying to fuel (gas, liquid fuel) and petrol and diesel are summarised in tables A8 and A9 of the appendix. On fuel we have assumed that the rate of fuel levies were constant throughout the period and that the average price per unit (for 2009 and 2010), as supplied by SEAI, is an accurate representation of the prevailing market price. Our calculations on petrol and diesel used the average price for a litre of petrol between August and December 2009 (€1.175) and between January and September 2010 (€1.300) based on market data from pumps.ie. Similarly, using the same source, we assume that the average price for a litre of diesel between August and December 2009 was €1.073 and that the price between January and September 2010 was €1.211. Table A9 outlines the rates of excise and carbon tax per litre in 2009 and 2010 alongside the national stockholding agency (NORA) levy of €0.02 per litre of fuel.

The remaining assumptions associated with the indirect taxation calculations are summarised in table A10 of the appendix plus its notes. For the purposes of calculating the flat airline tax per flight, we estimated a representative cost per average domestic and international flight, and calculated the size of the tax based on this combined with the household expenditure amount.

Other levies relate to insurance products are all calculated at a rate of either 3% or 1% of the base cost of premium

Alongside expenditure data, the paper also uses HBS income data (see Table 1). The presence of compatible income and expenditure data in the one survey makes the overall household taxation contribution analysis in this paper possible. However, income data remains a bi-product of the HBS, as the expenditure composition of the typical household's basket of goods is its primary focus. In national terms, the HBS data is secondary to the income data derived from the Survey on Income and Living Conditions (SILC).[8] While the results from both are similar there are a number of classification and methodological differences between the two surveys, most particularly differences in the income reference period and differences in how employer social insurance contributions, occupational pensions and regular inter-household transfers are treated (see CSO, 2012:41). The usual drawbacks associated with any income survey are also present in HBS – issues well summarised by Collins (2013a:3).

DIRECT TAXATION

The HBS data on total household income tax and social insurance contributions are summarised across the gross income deciles in table 2. The reported total tax and social insurance sums are then converted into percentages of the household's gross income to give each deciles effective taxation rate. These range from 0.30% to an average of 22.91% for the top decile. On average, households pay 13.74% of their gross income in taxes and social contributions. The rates are not dis-similar to those established by Collins using the 2011 SILC data who noted that "these rates best reflect the true scale of contributions made by households and individuals in income taxes and incorporate the various tax credits, rates, bands and exemptions which typify the income tax system" (2013a:7). At is simplest; a household with a gross income of €50,000 that pays a total of €10,000 in income taxes and PRSI reports an effective taxation rate of 20%.

A priori effective taxation rates might be expected to be higher than those reported in table 2. However, the combination of tax-free income (e.g. child benefit, pension lump sums) and the availability of various tax expenditures allow households to reduce their actual effective taxation rates.[9]

Chart 1 illustrates this data with its shape reflecting the progressivity of the Irish income taxation system – as income rises so too does the direct taxation contribution of households.

[8] See CSO (2013)

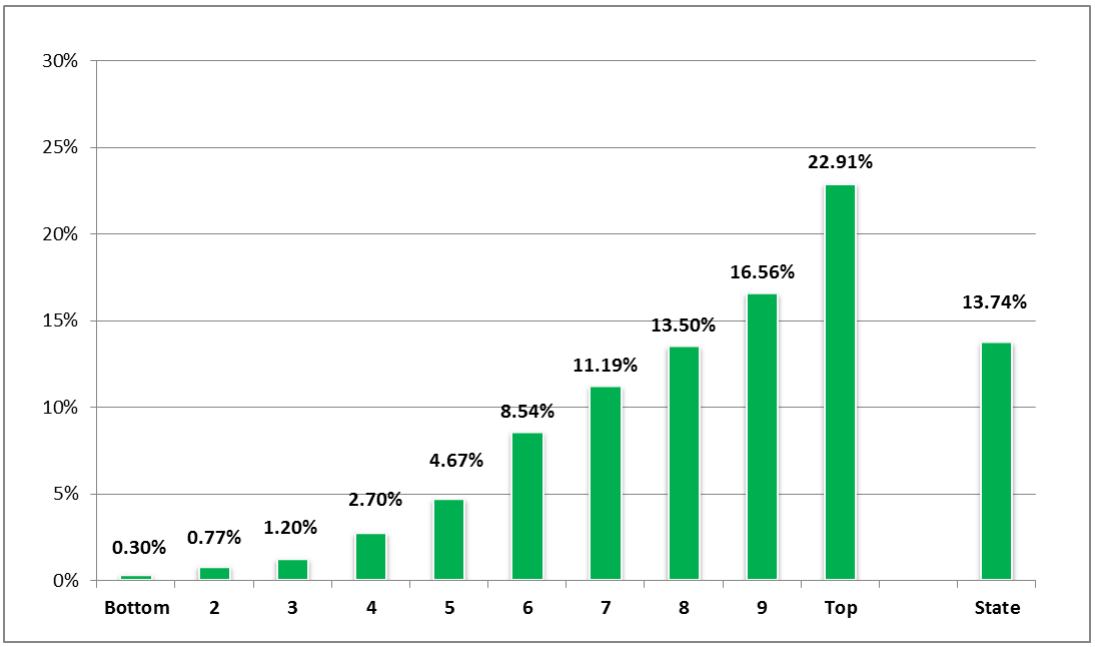
[9] See Collins (2013a:8) who outlines a number of illustrative case studies demonstrating the emergence of these effective rates.

Table 2: Gross Income, Income Tax & Social Insurance, by decile 2009/10

Decile	Average Gross Income €	Total Income Tax & Social Insurance €	Total Income Tax & Social Insurance as % Gross Income
Bottom	9,887.07	29.59	0.30%
2	15,827.24	122.00	0.77%
3	22,778.14	274.10	1.20%
4	29,453.52	796.21	2.70%
5	36,642.36	1,709.83	4.67%
6	45,789.52	3,911.83	8.54%
7	57,111.53	6,390.85	11.19%
8	71,410.42	9,638.95	13.50%
9	92,095.61	15,251.90	16.56%
Top	154,966.77	35,506.72	22.91%
State	**53,576.86**	**7,359.80**	**13.74%**

Source: Calculated from CSO, 2012b.

Chart 1: Total Income Tax & Social Insurance as % Gross Income



INDIRECT TAXATION

Based on the HBS expenditure data and the aforementioned assumptions, tables 3 and 4 present the results of the papers indirect taxation analysis at an overall (state) level and across the income deciles. Table 3 outlines the nominal values of household contributions across VAT, excise, levies and other indirect taxes while table 4 presents these amounts as percentages of gross income. Charts 2-4 also illustrate these findings.

Table 3: Nominal Values of various Indirect Taxation sources by decile, 2009/10

Decile	VAT €	Excise €	Levies €	Other Indirect €	Total Indirect €
Bottom	1,601.20	800.50	38.75	265.42	2,705.86
2	1,666.53	849.81	42.92	293.14	2,852.40
3	2,118.63	1,183.57	51.37	392.34	3,745.91
4	2,451.71	1,274.09	67.85	473.73	4,267.38
5	2,846.97	1,458.33	80.09	546.26	4,931.65
6	3,378.53	1,682.30	107.56	668.68	5,837.07
7	3,796.87	1,689.36	128.78	703.83	6,318.83
8	4,386.07	1,811.01	148.99	769.22	7,115.30
9	4,921.15	1,898.38	167.72	863.93	7,851.19
Top	6,439.14	2,125.49	215.73	1,022.56	9,802.92
State	**3,360.16**	**1,477.12**	**104.95**	**599.82**	**5,542.05**

Note: Other indirect taxes include vehicle tax and television licence.

Table 4: Indirect Taxation sources by decile, 2009/10 as % Gross Income

Decile	VAT	Excise	Levies	Other Indirect	Total Indirect
Bottom	16.19%	8.10%	0.39%	2.68%	27.37%
2	10.53%	5.37%	0.27%	1.85%	18.02%
3	9.30%	5.20%	0.23%	1.72%	16.45%
4	8.32%	4.33%	0.23%	1.61%	14.49%
5	7.77%	3.98%	0.22%	1.49%	13.46%
6	7.38%	3.67%	0.23%	1.46%	12.75%
7	6.65%	2.96%	0.23%	1.23%	11.06%
8	6.14%	2.54%	0.21%	1.08%	9.96%
9	5.34%	2.06%	0.18%	0.94%	8.53%
Top	4.16%	1.37%	0.14%	0.66%	6.33%
State	**6.27%**	**2.76%**	**0.20%**	**1.12%**	**10.34%**

Note: Table A11 in the appendix presents another set of comparisons benchmarked against disposable income. It displays similar results.

VAT is the largest source of indirect taxation, collecting on average €3,360 per annum from households, equivalent to 6.27% of average gross income. In nominal terms VAT is progressive but judged against gross income it is notably regressive; accounting for a higher percentage of gross income among households lower down the income distribution (see chart 2). Excise demonstrates a similar structure, and represents an average of €1,477 per household. As a proportion of gross income, the bottom three deciles spend more than 5% of their gross income on excise while those in the top three deciles expend less than half of this (below 2.5% of their gross income) on excise taxes (see chart 3).

Chart 2: VAT as a % of Gross Income

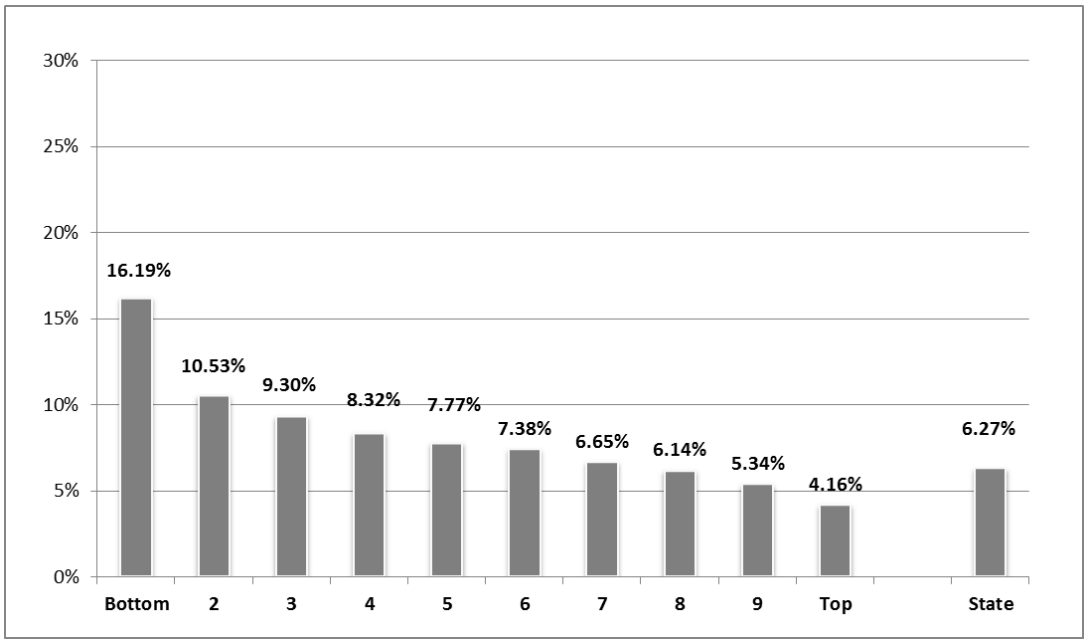


Chart 3: Excise as a % of Gross Income

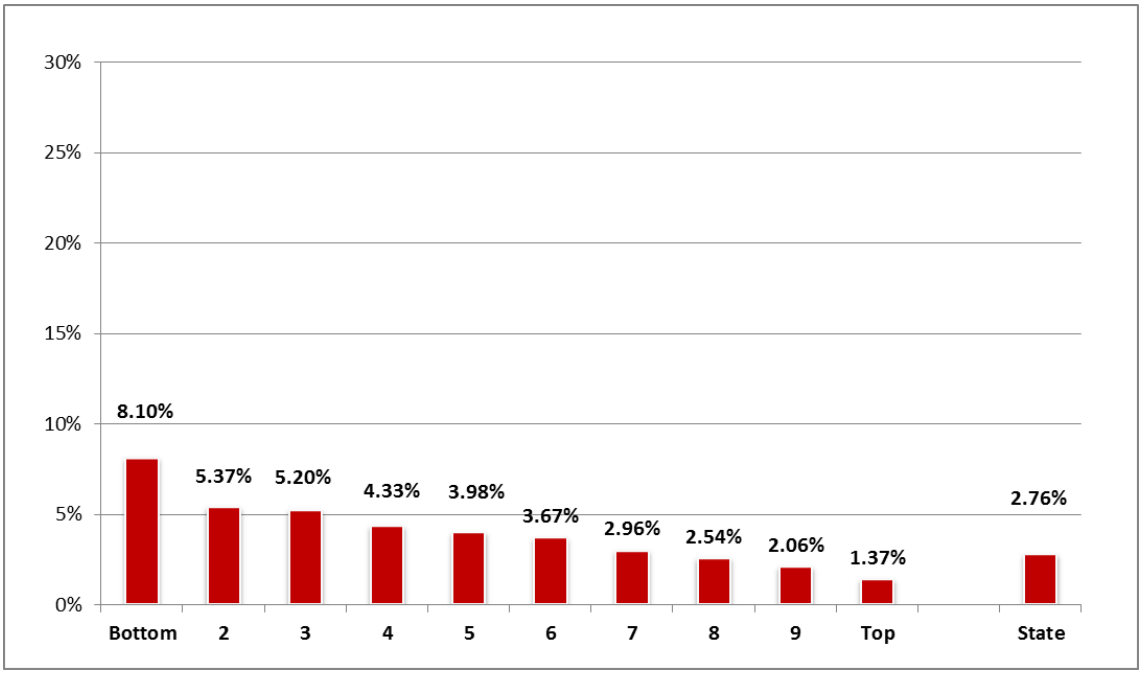


Chart 4 brings together the results as a percentage of gross income for levies and other indirect taxes. The latter category captures vehicle taxes (running cost taxes not registration taxes - VRT) and the television licence. Taken together, these represent an annual expenditure of almost €705 per household and are again regressive.

Chart 4: Levies & Other Indirect Taxes as a % of Gross Income

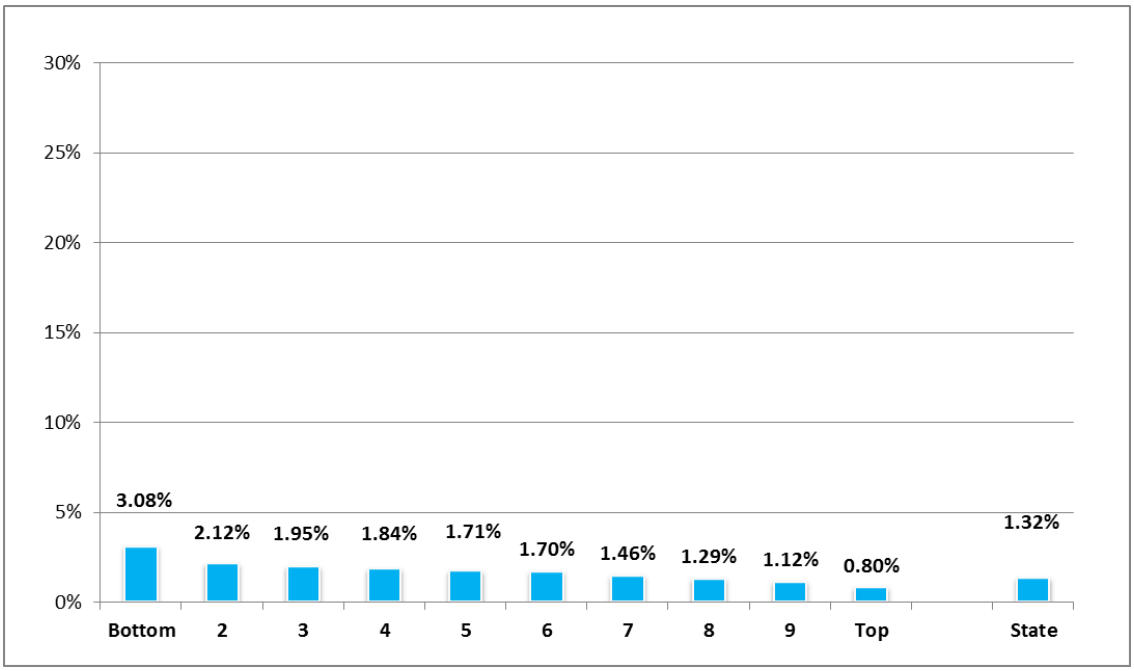


Chart 5 summarised the indirect tax contributions of households across the income distribution, given the calculations undertaken for this paper. Overall, indirect taxation is notably regressive, collecting more as a percentage of gross income from households at the bottom of the income distribution than from those with higher gross incomes further up.

Chart 5: Total Indirect Taxes as a % of Gross Income

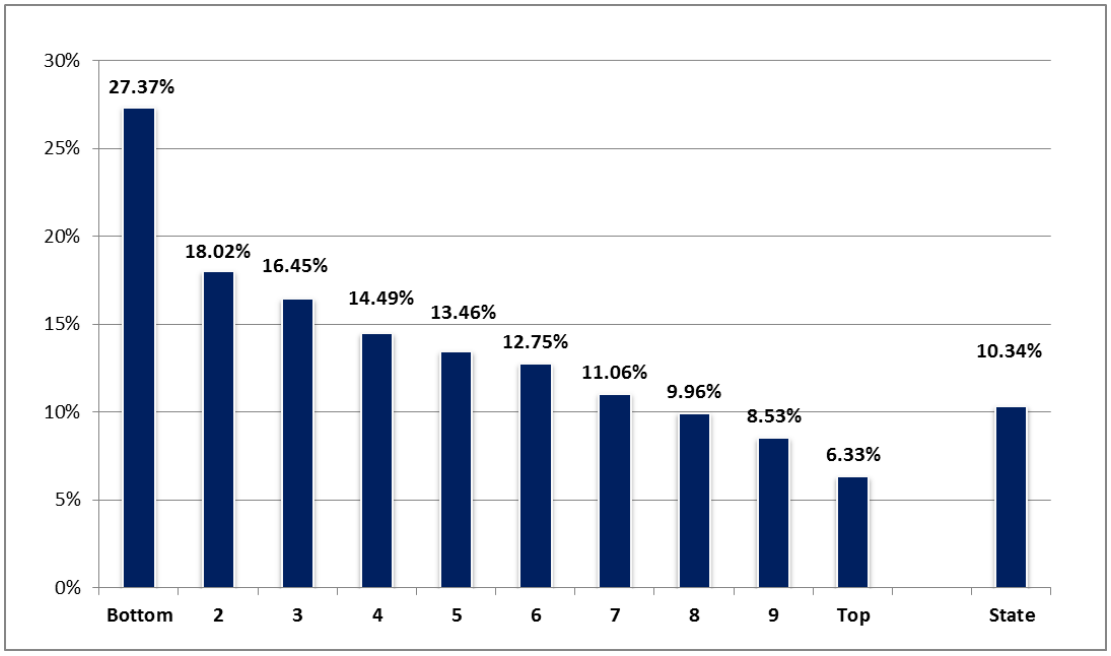
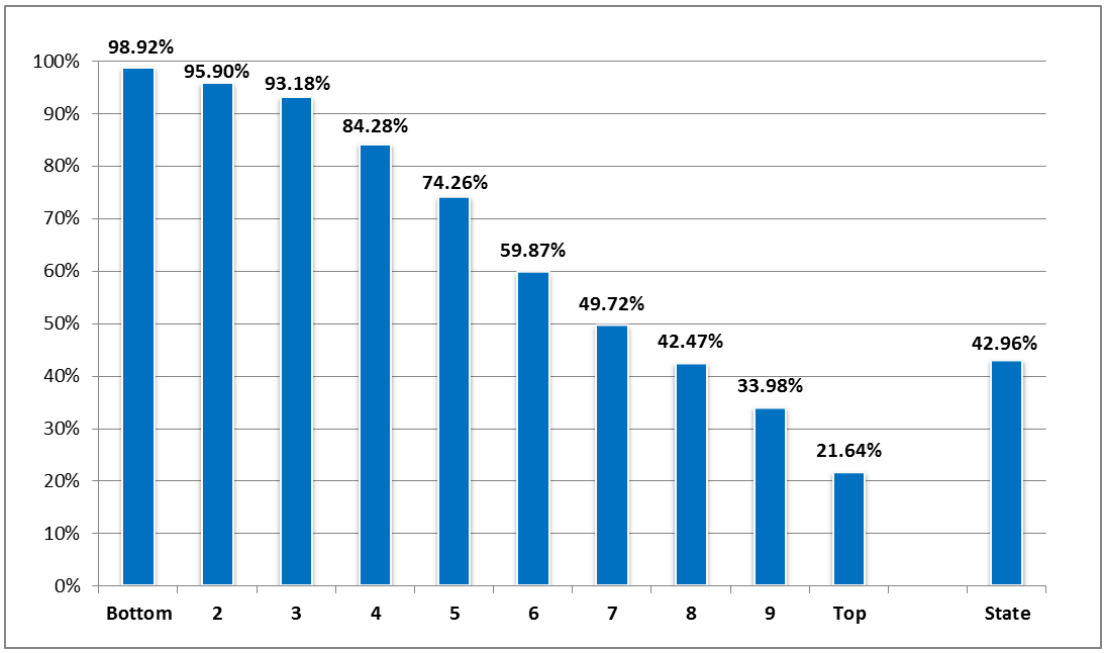


Chart 6: Total Indirect Taxes as a % of Total Tax Paid, by decile



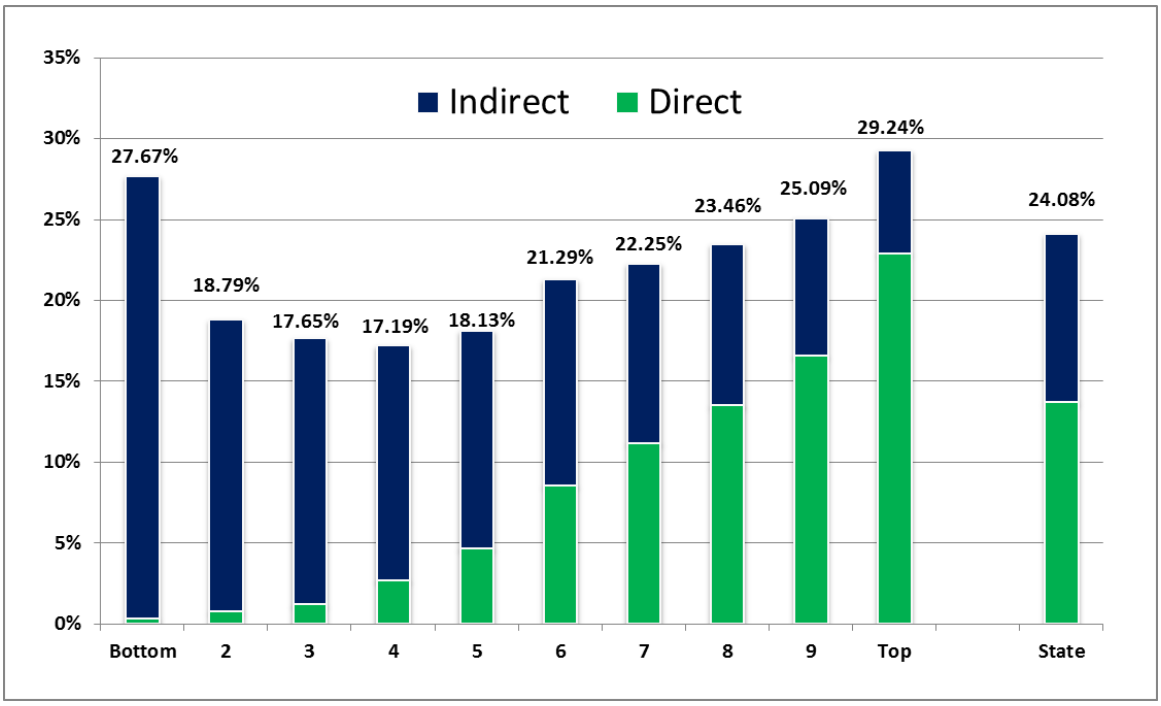
Note: See table A12 in the appendix for the corresponding nominal amounts.

Concluding this section is chart 6 which allows an exploration of the importance of indirect taxes in the overall taxation contribution of households across the deciles. It calculates the proportion of the total taxes paid by households which derive from indirect taxes. Unsurprisingly, given the aforementioned low incomes, consumption patterns and the regressive profile of all the indirect tax measures, the chart highlights the relative significant of indirect taxes in the bottom half of the income distribution.

RESULTS, IMPLICATIONS AND NEXT STEPS

Chart 7 brings together the direct income household contributions from chart 1 and the total indirect household contributions from chart 5. It presents a picture of the overall average level of household tax contributions alongside how these differ across the gross income deciles. On average, the analysis finds that Irish households contribute 13.7% of their gross income in direct taxes and 10.3% of their income in indirect taxes giving an overall total contribution of just over 24% of their household gross income.

Chart 7: Total Household Tax Contributions, % Gross Income



Across the income distribution, three deciles contribute taxation to the exchequer at above the average level – the top 2 deciles and the bottom decile. This gives a U-shape to the overall household tax contribution curve – households at the bottom and top of the income distribution contribute the most, with contributions as a percentage of gross income declining to their lowest point in the fourth decile and then increasing after that towards the top decile. Table 5 presents the results in tabular form and table A12 in the appendix reports the nominal values.

Table 5: Direct, Indirect and Total Household Taxation as % Gross Income

Decile	Direct	Indirect	Total
Bottom	0.30%	27.37%	27.67%
2	0.77%	18.02%	18.79%
3	1.20%	16.45%	17.65%
4	2.70%	14.49%	17.19%
5	4.67%	13.46%	18.13%
6	8.54%	12.75%	21.29%
7	11.19%	11.06%	22.25%
8	13.50%	9.96%	23.46%
9	16.56%	8.53%	25.09%
Top	22.91%	6.33%	29.24%
State	**13.74%**	**10.34%**	**24.08%**

Note: See table A12 in the appendix for the corresponding nominal amounts.

The results across the paper, and at the overall household level in this section, assist in informing our understanding of the contribution individuals and households across the income distribution make to the costs of funding the state. Clearly, judging tax contributions by income taxes alone offers a limited, and misleading, picture of the distribution of tax contributions across society. Households are contributing in various ways, leading to the U-shaped curve in chart 7 which summarises our findings on the overall shape of household tax contributions.

Subsequent papers are planned to build on this analysis. They will incorporate adjustments to the figures for household size and composition (equivalisation) and allow assessments of direct and indirect tax per equivalent adult rather than household. The analysis is also planned to be extended to model *ex post* and *ex ante* indirect taxation policy choices including: the distributive impacts of the standard rate increases (Budget 2012); the reduction of some items from 13.5% to 9% (Jobs Initiative and Budget 2014); the impact of increases in excise duties and levies; and the distributive impact of any potential changes to the 0% and exempt classifications. We also plan to expand our analysis above to cover other household groups such as those in urban/rural regions and those in varying socio-economic groups.

REFERENCES

AA Ireland (2012) *A Breakdown of Irish Fuel Taxes & Hikes*, [accessed at http://blog.aaireland.ie/a-breakdown-of-irish-fuel-taxes-and-hikes-in-ireland/ on 17/04/13]

Barrett, A and C. Wall (2006). *The Distributive Impact of Ireland's Indirect Tax System*. Dublin, Combat Poverty Agency.

Callan, T, C. Keane, M. Savage and J.R. Walsh (2012), 'Distributional Impact of Tax, Welfare and Public Sector Pay Policies: 2009-2012' in ESRI Quarterly Economic Commentary, Winter 2011/Spring 2012. Dublin, ESRI.

Central Statistics Office (2012a), *Household Budget Survey 2009/10 – Volume 1,* Dublin, Stationery Office.

Central Statistics Office (2012b), *Household Budget Survey 2009/10 – Volume 2,* Dublin, Stationery Office.

Central Statistics Office (2013) S*urvey on Income and Living Conditions 2011 and revised 2010 Results*. Dublin, Stationery Office.

Central Statistics Office (various issues), *Redistributive Effects of State Taxes and Benefits on Household Incomes,* Dublin, Stationery Office.

Collins M.L. (2011). "Taxation". In O'Hagan, J. and C. Newman (eds.), *The Economy of Ireland* (11th edition). Dublin, Gill and Macmillan.

Collins, M.L. (2013a). 'Income Taxes and Income Tax Options – a context for Budget 2014' *NERI Working Paper No. 5. Dublin, NERI.*

Collins, M.L. (2013b). 'Income Distribution, Pre-Distribution and Re-Distribution: Latest data for the Republic of Ireland' *NERI Research inBrief No. 5. Dublin, NERI.*

Collins, M.L. and C. Kavanagh (2006), "The Changing Patterns of Income Distribution and Inequality in Ireland, 1973-2004", in Healy, S., B. Reynolds and M.L. Collins, *Social Policy in Ireland: Principles, Practice and Problems,* Dublin, Liffey Press.

Department of Finance (2009) *Budget 2010*. Dublin, Stationery Office.

Department of Finance (2010) *General Excise Duties (Tobacco and Alcohol Products) – Tax Strategy Group Document 10/21.* Dublin, Department of Finance.

Department of Finance (2011) *Budget 2012*. Dublin, Stationery Office.

Department of Finance (2013) *Budget 2014*. Dublin, Stationery Office.

Irish Life (2010) *Life Assurance Premium Levy*, [accessed at http://www.irishlife.ie/guides/life-assurance-premium-levy.html on 21/10/13]

Leahy, E., S. Lyons and R.S.J. Tol. (2011), 'The Distributional Effects of Value Added Tax in Ireland', *Economic and Social Review*, Vol. 42, No. 2.

Madden, D. (1989), 'Indirect Tax Reform in Ireland', *Economic and Social Review*, Vol. 21, No. 1.

Madden, D. (1995), 'An Analysis on Indirect Tax Reform in the 1990s', *Fiscal Studies*, Vol. 16, No. 1.

Office of National Statistics (2013), The Effects of Taxes and Benefits on Household Income, 2011/12. London, ONS.

Oireachtas Eireann (2013). *Parliamentary Question reply* 21039/13. Dublin, Oireachtas Eireann.

Oireachtas Eireann (2013). *Parliamentary Question reply* 27330/13. Dublin, Oireachtas Eireann.

Revenue (2013a) *Historic VAT Rates*, [accessed at http://www.revenue.ie/en/tax/vat/rates/current-historic-rates-vat.html on 07/04/13].

Revenue (2013b) *Items liable to stamp duty*, [accessed at http://www.revenue.ie/en/tax/stamp-duty/miscellaneous.html on 21/10/13].

Scott, S. and J. Eakins (2004), *Carbon Taxes: Which Households Gain or Lose*, Wexford: EPA.

SEAI (2013) *Domestic Fuel Cost Archive*, [accessed at http://www.seai.ie/Publications/Statistics_Publications/Fuel_Cost_Comparison/Domestic_Fuel_Cost_Archives.pdf on 21/10/13]

Social Justice Ireland (2011), *Analysis and Critique of Budget 2012*. Dublin, Social Justice Ireland.

Social Justice Ireland (2013), *What Would Real Recovery Look Like - Socio-Economic Review*. Dublin, Social Justice Ireland.

TMF Group (2012) *New irish insurance premium tax levy following Quinn levy*, [accessed at http://www.tmf-vat.com/tmf-in-the-media/new-irish-insurance-premium-tax-levy-following-quinn-failure.html on 21/10/13]

APPENDICES

Table A1: Estimated Composition of Taxation Revenues, 2014

	2014	2014%
Income tax	17,045	33.9%
VAT	10,740	21.4%
Social Insurance	10,236	20.4%
Excise duties	4,815	9.6%
Corporation tax	4,380	8.7%
Stamp duties	1,475	2.9%
Local taxes/charges	550	1.1%
CGT	400	0.8%
CAT	380	0.8%
Customs	255	0.5%
Total	**50,276**	**100.0%**

Source: Calculated from Department of Finance, Budget 2014 (C15, C30)

Note: This table updates Collins (2011:91)

Table A2: Decomposition of Average Household Expenditure, by decile 2009/10 € per annum

Commodity Group	No of items / groups	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	State
Food	237	3463.19	3855.58	5028.59	5925.56	6315.87	6977.51	7468.52	8536.13	9401.79	11542.22	**6850.19**
Alcoholic drink and tobacco	23	1177.18	1339.46	1659.85	1755.34	1951.01	2200.95	2176.43	2481.16	2684.14	3180.37	**2060.07**
Clothing and footwear	17	732.61	1032.64	1326.94	1539.83	1838.82	1966.14	2462.90	2607.43	3328.56	4100.30	**2092.94**
Fuel and light	4	1283.11	1313.89	1648.37	1793.43	1894.66	1956.75	2072.59	2002.15	2043.89	2437.33	**1844.56**
Housing	21	3755.92	4121.70	4768.21	5755.98	6265.77	7506.09	8422.90	10006.04	10197.02	16304.16	**7708.55**
Household non-durables	10	339.69	480.58	656.42	667.90	850.01	857.32	963.24	1114.04	1206.92	1469.39	**860.45**
Household durables	58	714.87	885.49	975.77	1078.56	1357.20	1667.15	1868.57	2044.93	2400.80	2693.01	**1568.53**
Transport	39	2392.45	2358.54	2904.86	4008.99	4958.14	6280.38	7149.70	8570.57	9636.60	12437.10	**6069.06**
Miscellaneous, services and other	129	4600.19	4651.85	5956.87	7518.09	8804.33	11226.53	14133.47	17511.61	22663.86	35399.43	**13243.81**
Total Expenditure	**538**	**18459.20**	**20039.73**	**24925.86**	**30043.68**	**34235.82**	**40638.83**	**46718.32**	**54874.05**	**63563.59**	**89563.32**	**42298.15**

Table A3: Decomposition of Average Household Expenditure, by decile 2009/10 %

Commodity Group	No of items / groups	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	State
Food	237	18.8%	19.2%	20.2%	19.7%	18.4%	17.2%	16.0%	15.6%	14.8%	12.9%	**16.2%**
Alcoholic drink and tobacco	23	6.4%	6.7%	6.7%	5.8%	5.7%	5.4%	4.7%	4.5%	4.2%	3.6%	**4.9%**
Clothing and footwear	17	4.0%	5.2%	5.3%	5.1%	5.4%	4.8%	5.3%	4.8%	5.2%	4.6%	**4.9%**
Fuel and light	4	7.0%	6.6%	6.6%	6.0%	5.5%	4.8%	4.4%	3.6%	3.2%	2.7%	**4.4%**
Housing	21	20.3%	20.6%	19.1%	19.2%	18.3%	18.5%	18.0%	18.2%	16.0%	18.2%	**18.2%**
Household non-durables	10	1.8%	2.4%	2.6%	2.2%	2.5%	2.1%	2.1%	2.0%	1.9%	1.6%	**2.0%**
Household durables	58	3.9%	4.4%	3.9%	3.6%	4.0%	4.1%	4.0%	3.7%	3.8%	3.0%	**3.7%**
Transport	39	13.0%	11.8%	11.7%	13.3%	14.5%	15.5%	15.3%	15.6%	15.2%	13.9%	**14.3%**
Miscellaneous, services and other	129	24.9%	23.2%	23.9%	25.0%	25.7%	27.6%	30.3%	31.9%	35.7%	39.5%	**31.3%**
Total Expenditure	**538**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A4: VAT Rates used

Date Effective From	Standard Rate (%)	Reduced Rate (%)	0% Rate	Exempt Rate
1st December 2008	21.5	13.5	0	N/A
1st January 2010	21.0	13.5	0	N/A

Source: Revenue Commissioners (2013a)

Table A5: Excise on Alcohol

Goods	Description or Usage	Rate (1) of Duty in € 2009*	Rate (2) of Duty in € 2010**
Spirits	Exceeding 0.5% vol but not exceeding 1.2% vol	€39.25 per litre of alchol in the spirits	€31.13 per litre of alchol in the spirits
Beer	Exceeding 0.5% vol but not exceeding 1.2% vol	€0.00	€0.00
	Exceeding 1.2% vol but not exceeding 2.8% vol	€9.93 per hectolitre per cent of alcohol	€7.85 per hectolitre per cent of alcohol
	Exceeding 2.8% vol	€19.87 per hectolitre per cent of alcohol	€15.71 per hectolitre per cent of alcohol
Wine	Still and sparkling, not exceeding 5.5% vol	€109.34 per hectolitre	€87.39 per hectolitre
	Still, exceeding 5.5% vol but not exceeding 15% vol	€328.09 per hectolitre	€262.24 per hectolitre
	Still, exceeding 15% vol	€476.06 per hectolitre	€380.52 per hectolitre
	Sparkling, not exceeding 5.5% volume	€656.18 per hectolitre	€524.48 per hectolitre
Cider and Perry	Still and sparkling, not exceeding 2.8% vol	€41.62 per hectolitre	€32.93 per hectolitre
	Still and sparkling, exceeding 2.8% vol but not exceeding 6.0% volume	€83.25 per hectolitre	€65.86 per hectolitre
	Still and sparkling, exceeding 6.0% vol but not exceeding 8.5% volume	€192.47 per hectolitre	€152.28 per hectolitre
	Still, exceeding 8.5% volume	€273.00 per hectolitre	€216.00 per hectolitre
	Sparkling, exceeding 8.5% vol	€546.01 per hectolitre	€432.01 per hectolitre
Other Fermented Beverages: Other than Cider or Perry	Still and sparkling, not exceeding 5.5% vol	€109.34 per hectolitre	€87.39 per hectolitre
	Still exceeding 5.5% vol	€328.09 per hectolitre	€262.24 per hectolitre
	Sparkling, exceeding 5.5% vol	€656.18 per hectolitre	€524.48 per hectolitre
Intermediate Beverages	Still, not exceeding 15% volume	€328.09per hectolitre	€262.24 per hectolitre
	Still, exceeding 15% vol	€476.06 per hectolitre	€380.52 per hectolitre
	Sparkling	€656.18 per hectolitre	€524.48 per hectolitre

Source: Reply to parliamentary question [21039/13]
Note: * Rate in place since 15th of October 2008 ** Rate in place since 10th December 2009

Additional assumptions regarding alcohol calculations:

- all beer purchased falls into the category of "Exceeding 2.5% volume"
- all wine purchased falls into the category of "Still, exceeding 5.5% volume but not exceeding 15% volume"
- all 'Liqueurs' fall into the category of 'Intermediate Beverages' "Still, exceeding 15% volume"
- all ciders and perries fall into the category "Still and sparkling, exceeding 2.8% vol but not exceeding 6.0% volume"
- all alcopops fall into the category of 'Spirits'

Table A6: Assumed Prices/Proofs per litre of Alcohol*

Drinks (Off-Sales)	Price per Litre (€)	Assumed Proof (% of alcohol per litre
Spirits (e.g. gin, vodka & whiskey)	25.00	37.5%
Liquers & cocktails (e.g. Baileys & Daiquiri)	20.00	17.0%
Table wine	12.85	12.5%
Champagne, sparkling wines & wine with mixer	38.56	12.0%
Fortified wine, port, sherry, vermouth & Martini	16.66	20.0%
Ciders & Perry	3.60	4.5%
Alcopops & alcoholic soft drinks	8.00	4.0%
Beers (including pale ales & stout)	4.10	4.3%
Lagers & continental beers	4.10	4.3%

Drink (Consumed Out)	Price per Litre (€)	Assumed Proof (% of alcohol per litre
Spirits (e.g. gin, vodka & whiskey)	72.40	37.5%
Liquers & cocktails (e.g. Baileys & Daiquiri)	72.40	17.0%
Spirits with mixer**	60.00	18.8%
Table wine	33.33	12.5%
Champagne, sparkling wines & wine with mixer	99.99	12.0%
Fortified wine, port, sherry, vermouth & Martini	72.40	20.0%
Ciders & Perry	7.91	4.5%
Alcopops & alcoholic soft drinks	15.45	4.0%
Beers (including pale ales & stout)	7.91	4.3%
Lagers & continental beers	7.91	4.3%

Notes: *Based on the observed market price/proof of indicative product(s) in each category
** The analysis assumed that half of the price of 'Spirits with mixer' is the alcoholic drink and that the rest is the price of the mixer

Table A7: Tobacco Excise

Duty per 1,000 cigarettes	€183.40
Ad Valorem Duty as a % of Retail Price (Cigarettes)	18.25%
Cigars – per Kilo	€261.07
Fine Cut per Kilo	€220.30
Other Smoking per Kilo	€181.12

Source: Reply to parliamentary question [27330/13]

Table A8: Fuel Excise

	Avg. Price per Unit - 2009	Avg. Price per Unit - 2010	Levy per Unit
Gas	0.057	0.047	0.0037
Liquid Fuel	0.62	0.80	0.07653

Sources: SEAI, Budget (2010)

Table A9: Petrol & Diesel Excise & Carbon Tax

	Excise & Carbon per litre – 2009 (€)	Excise & Carbon per litre – 2010 (€)	NORA Levy per Litre
Petrol	0.50571	0.54771	0.02
Diesel	0.48002	0.53002	0.02

Source: AA Ireland (2012)

Table A10: Levies: Airlines and Insurance

Flat Airline Tax per Flight	€3
Primary Dwelling Insurance	3% of base cost of premium
Vehicle Insurance	3% of base cost of premium
Travel Insurance	3% of base cost of premium
Life Assurance	1% of base cost of premium
Medical Insurance	3% of base cost of premium
Animal Insurance	3% of base cost of premium

Source: Irish Life, TMF Group, Revenue (2013b)

Additional assumptions regarding airline and insurance calculations:

- assume that the average cost of a domestic flight (i.e. a flight within the Republic of Ireland) was €30 throughout the measurement period
- assume that the average cost of an international flight (i.e. a flight between the Republic of Ireland and an overseas territory) was €65 throughout the measurement period
- assume that all insurance levies stated to be 3% in Table A10 fall into the category of non-life assurance and are therefore 3% rather than 1%

Table A11: Indirect Taxation sources by decile, 2009/10 as % Disposable Income

Decile	VAT	Excise	Levies	Other Indirect	Total Indirect
Bottom	16.24%	8.12%	0.39%	2.69%	27.45%
2	10.61%	5.41%	0.27%	1.87%	18.16%
3	9.41%	5.26%	0.23%	1.74%	16.65%
4	8.56%	4.45%	0.24%	1.65%	14.89%
5	8.15%	4.17%	0.23%	1.56%	14.12%
6	8.07%	4.02%	0.26%	1.60%	13.94%
7	7.49%	3.33%	0.25%	1.39%	12.46%
8	7.10%	2.93%	0.24%	1.25%	11.52%
9	6.40%	2.47%	0.22%	1.12%	10.22%
Top	5.39%	1.78%	0.18%	0.86%	8.21%
State	**7.27%**	**3.20%**	**0.23%**	**1.30%**	**11.99%**

Table A12: Direct, Indirect and Total Household Taxation, € per annum

Decile	Direct	Indirect	Total
Bottom	29.59	2,705.86	2,735.44
2	122.00	2,852.40	2,974.40
3	274.10	3,745.91	4,020.02
4	796.21	4,267.38	5,063.60
5	1,709.83	4,931.65	6,641.49
6	3,911.83	5,837.07	9,748.90
7	6,390.85	6,318.83	12,709.68
8	9,638.95	7,115.30	16,754.25
9	15,251.90	7,851.19	23,103.09
Top	35,506.72	9,802.92	45,309.64
State	**7,359.80**	**5,542.05**	**12,901.85**

Note: This table complements chart 6 and table 5 earlier in the paper.