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THE DISTRIBUTIVE EFFECTS OF RECENT VAT CHANGES IN THE REPUBLIC OF IRELAND

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ABSTRACT

Across the European Union (EU) changes to indirect taxes, and particularly Value Added Taxes (VAT), have been a central part of countries response to the economic crisis. By mid-2014, 22 of the 28 EU member states had increased VAT rates since the onset of the economic crisis in 2008.

Over that period VAT rates have featured as an area of change in a number of Republic of Ireland budgets. This paper focuses on the two most recent changes to these rates, introduced as part of the international bailout programme agreed by the Irish Government and the Troika (European Union, European Central Bank and the International Monetary Fund). These saw:

(i) The temporary introduction, and subsequent retention, of a second reduced rate of VAT for specific items related to the tourism sector (where the rate decreased from 13.5% to 9%); and
(ii) An increase in the standard rate of VAT from 21% to 23%.

This paper builds on previous work by Collins and Turnbull (2013) and Collins (2014a) to examine the distributive impacts of these two changes. To date, a detailed *ex post* empirical examination of these changes has been missing from assessments of recent crisis-induced policy reforms; a void this paper attempts to address. Using projections for the 2014 tax year, VAT is expected to generate more than one-fifth of exchequer revenue and is the second most important source of overall state income. The reforms examined by this paper cost, in revenue received or forgone, more than €1 billion per annum.

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THE DISTRIBUTIVE EFFECTS OF RECENT VAT CHANGES IN THE REPUBLIC OF IRELAND

Micheál L. Collins, NERI (Nevin Economic Research Institute), Dublin, Ireland.

INTRODUCTION

Across the European Union (EU) changes to indirect taxes, and particularly Value Added Taxes (VAT), have been a central part of countries response to the economic crisis. By mid-2014, 22 of the 28 EU member states had increased VAT rates since the onset of the economic crisis in 2008; 14 increased their reduced rate while 20 increased their standard VAT rate (European Commission, 2014).

Over that period VAT rates have featured as an area of change in a number of Republic of Ireland budgets. This paper focuses on the two most recent changes to these rates, introduced as part of the international bailout programme agreed by the Irish Government and the Troika (European Union, European Central Bank and the International Monetary Fund).[1] These saw:

(i) The temporary introduction, and subsequent retention, of a second reduced rate of VAT for specific items related to the tourism sector (where the rate decreased from 13.5% to 9%); and
(ii) An increase in the standard rate of VAT from 21% to 23%.

While increasing the standard rate of VAT has been common place across EU member states over recent years, only Ireland and Romania have introduced second reduced rates. Indeed, Ireland's recent VAT changes add to its record as the member state that most frequently alters VAT rates; a record which when judged from the perspective of potential revenue was considered by the European Commission to have "registered small actual *ex-ante* effects on potential revenue – perhaps a case of tinkering at the margin" (EC, 2013:14).[2]

This paper builds on previous work by Collins and Turnbull (2013) and Collins (2014a) to examine the distributive impacts of these two recent VAT changes. To date, a detailed *ex post* empirical examination of these changes has been missing from assessments of recent crisis-induced policy reforms; a void this paper attempts to address. Using projections for the 2014 tax year, VAT is expected to generate more than one-fifth of exchequer revenue and is the second most important source of overall state income (see table A1 in the appendix). The reforms examined by this paper cost, in revenue received or forgone, more than €1 billion per annum.

The remainder of this paper is structured as follows. The next section outlines the data and indirect taxation model used to undertake the analysis in this paper. It also details the income groups used to examine the distributive impact of the VAT rate changes. Following this, the

[1] An earlier change implemented prior to the Republic of Ireland's international bailout (Budget 2010) saw the standard rate reduced from 21.5% to 21% but is not considered here.
[2] The EC examined the VAT system over the year from 2000-2011. A longer overview, since 1972, is available from European Commission (2014). It should be noted that the objective of revenue generation may not be the only intention of VAT rate reforms.

paper reviews some recent research on VAT and indirect taxes generally. Next the paper outlines the results of its examination of the two rate changes. Finally, the paper concludes.

DATA AND INCOME CATEGORIES

This section is structured over three parts. It first outlines the data used in this paper and summarises the indirect taxation model developed in an earlier paper that serves as the basis for the empirical analysis. It then outlines the income categories used in that analysis and explains how these have been determined. Finally, the section reflects on the robustness of the indirect tax model and its representativeness.

Data and the Indirect Taxation Model

This paper uses the indirect taxation model developed by Collins and Turnbull (2013) and Collins (2014a) as the basis for its analysis. That model uses microdata from the Central Statistics Office's (CSO) 2009-2010 Household Budget Survey (HBS), the seventh such national survey since 1973.[3] 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).[4] 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.

Expenditure across a total of 538 items (white bread, hairdryers etc) or good/service-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.

- 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]

[3] Earlier urban-only expenditure surveys occurred in 1951-52 and 1965-66.
[4] As such the data does not cover individuals living in institutions (hospitals, prisons etc) who do form part of the population and are responsible for some of the expenditure and indirect tax in the economy.
[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.

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]

Alongside expenditure data, the paper also uses HBS income data. The presence of compatible income and expenditure data in the one survey makes much of the 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).[7] 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 (2013:3).

The income data also reveal differences between the disposable income (after direct taxes and transfers) and expenditure levels of households in the lower income deciles. The unequivalised data reveals that expenditure exceeds disposable income for the bottom four deciles, most notably for the bottom quintile, reflecting the composition of these households (for example pensioners who may also be living on past savings, the temporarily unemployed, the self-employed and students), their difficulties in making ends meet and the structure of the HBS which compiles its income and expenditure data on a current basis over the two weeks of a households' participation in the survey.[8] Post equivalisation, the gap remains for the bottom quintile. While such differences are common to household surveys (see Decoster et al (2010) for similar findings in five EU countries including Ireland, and Wolff and Zacharias (2007) in the US), the timing of the Irish 2009/10 HBS does play a part in exaggerating these differences. In particular, there are a number of self-employed earners in the bottom decile who record income losses (bottom coded to zero income) and their frequency is increased given the severe economic recession Ireland experienced over the period 2008-2010. That recession, which saw GDP per capita decline by 9.6% and unemployment increase from 4.8% to 15%, also ensures that the number of unemployed and those subsidising current spending from savings, is increased in the 2009/10 HBS. Given this, there is a need for some care in the interpretation of the data for the bottom decile – particularly as comparisons with gross incomes may be skewed

[6] See CSO (2012a:5; 2012b 39-40) where these response and accuracy issues are discussed further. A forthcoming paper (Collins, 2014c) will consider the reliability of the expenditure figures in both the tobacco and alcohol expenditure categories.
[7] See CSO (2014)
[8] It is likely that many of these income versus expenditure differences would disappear if households were observed over a longer period. That said, the literature points towards certain groups of lower income households who tend to consume more than their current income; reflecting Friedman's (1957) 'Permanent Income Hypothesis'.

by the higher frequency of recession induced zero income earners. In an attempt to take account of this, the indirect taxation change estimates are also presented as proportions of disposable income and expenditure.

Collins and Turnbull (2013) used this data to develop a model that estimated the indirect taxation contributions of households across the income distribution. Their initial assessment considered the overall proportion of household income/expenditure that was consumed by indirect taxes. Subsequently, Collins (2014a) developed the model to reflect expenditure and income at the equivalised households/adult level. That process adjusted the data to account for differences in household size and composition. The analysis used the national equivalence scale with values of 1 for the first adult, 0.66 for each additional adult (aged 14yrs+) and 0.33 to each child aged less than 14 years. Following equivalisation, households have been ranked by gross income and divided into deciles – ten percent groups of the household population spanning the 10% with the lowest income (the bottom decile) to the 10% with the highest income (the top decile). These equivalised household deciles are used for policy simulations later in the paper.

The baseline results from Collins (2014a) serve as the starting point for this papers assessment of the two recent VAT changes. Table 1 outlines the structure of indirect taxation across the income distribution covering VAT, Excise, Levies and other indirect measures. The latter category captures vehicle taxes (running cost taxes not registration taxes - VRT) and the television licence. The table presents the expenditure in each category as a proportion of equivalised gross income.

Table 1: Indirect Taxation sources by decile, 2009/10 as % of Equivalised Gross Income (Equivalised data)

Decile	VAT	Excise	Levies	Other Indirect	Total Indirect
Bottom	17.63%	8.82%	0.44%	3.01%	29.93%
2	10.05%	5.66%	0.21%	1.90%	17.85%
3	8.99%	4.84%	0.23%	1.58%	15.66%
4	8.23%	4.20%	0.23%	1.53%	14.20%
5	7.48%	3.85%	0.23%	1.47%	13.05%
6	7.44%	3.52%	0.23%	1.36%	12.57%
7	6.23%	2.85%	0.21%	1.24%	10.53%
8	5.97%	2.39%	0.21%	1.04%	9.62%
9	5.31%	2.07%	0.18%	0.94%	8.50%
Top	3.80%	1.16%	0.12%	0.61%	5.70%
State	**6.27%**	**2.76%**	**0.19%**	**1.12%**	**10.36%**

Source: Collins (2014a:18)

Notes: Tables A2a and A2b in the appendix present another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the regressivity reported above.

On average 10.36% of gross income is allocated to indirect taxation, although this number varies considerably across the income distribution. Overall, indirect taxes are regressive, consuming a higher proportion of resources the further down the income distribution you go. As the table shows, the bottom seven deciles contribute more in indirect taxation that the average. VAT, the focus of this paper, is the largest of the indirect taxation sources and reflects the regressive pattern.

The regressive nature of indirect taxes stands in contrast to the progressive nature of the direct taxation (income taxes and social insurance) system. As the HBS provides data on these tax payments, it is possible to combine them with the data in table 1 to establish a picture of the overall taxation contribution of households. Table 2 presents these results which are summarised diagrammatically in chart 1.

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 points in the third, fourth and fifth deciles and then increasing after that towards the top decile.

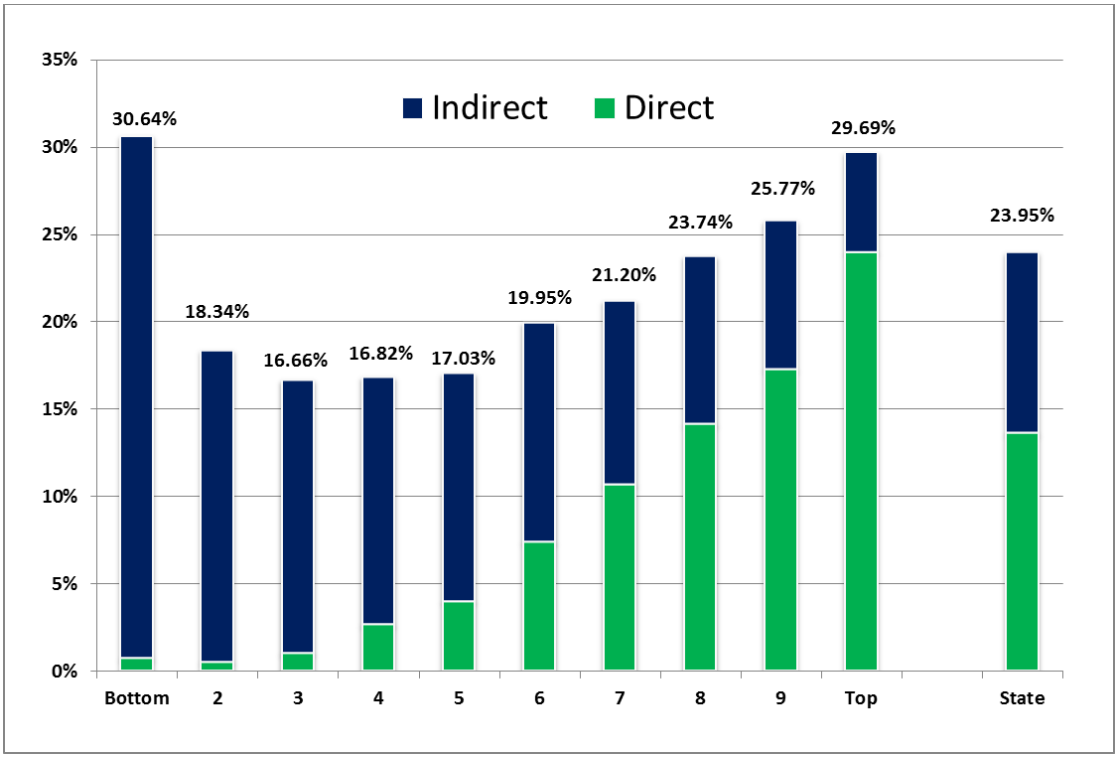
Table 2: Direct, Indirect and Total Household Taxation as % Gross Income (Equivalised data)

Decile	Direct	Indirect	Total
Bottom	0.72%	29.93%	30.64%
2	0.49%	17.85%	18.34%
3	1.00%	15.66%	16.66%
4	2.62%	14.20%	16.82%
5	3.97%	13.05%	17.03%
6	7.38%	12.57%	19.95%
7	10.67%	10.53%	21.20%
8	14.12%	9.62%	23.74%
9	17.27%	8.50%	25.77%
Top	23.99%	5.70%	29.69%
State	**13.60%**	**10.36%**	**23.95%**

Source: Collins (2014a:19)

Note: Equivalised using national scale. The unequivalised data display a similar structure – see tables in Collins and Turnbull (2013) which are included in the appendix: tables A3a and A3b.

Chart 1: Total Household Tax Contributions, % Gross Income (Equivalised data – national scale)



Source: Collins (2014a:19)

Income Categories

This paper uses two methods of disaggregating the income distribution to assess the distributive impact of recent VAT changes. The first examines effects across equivalised gross household income deciles – where households are allocated into tenths of the income distribution following the adjustment of household gross income to take account of the composition and size of households. As previously outlined (see subsection above), this adjustment was performed using the national equivalence scale.

The paper also introduces one further method of assessing the distributive impact using the segmentation of the income distribution proposed by Atkinson and Brandolini (2011 and 2013). Using equivalised household disposable income (calculated as gross income minus direct taxes) they divide the population into five groups. The origin of their schema is to provide a more nuanced understanding of the "forgotten middle", the 60% who sit in the middle of the income distribution between the bottom 20% (the poor) and the top 20% (the rich). Acknowledging that the economic literature is "converging" (Ravallion, 2010:446) on the definition of the middle class as those between 75% and 125% of the median equivalised disposable income, they build on this demarcation to identify their groupings (2011: 7).

Running from the bottom of the income distribution upwards, Atkinson and Brandolini first use the poverty line (at 60% of the median equivalised disposable income) to identify their first group: those in poverty. Above this line, but below the 75% threshold, they point to a group on

"the margins" of poverty who are "neither poor nor in the middle class" (2011: 8). Their third group, the middle class, reside between the aforementioned 75% and 125% threshold and can said to be comfortably out of poverty. Citing Horrigan and Haugen (1988: 5) they note that this structure ensures that "the lower endpoint of the middle class represents an income significantly above the poverty level" at one and a quarter times the at risk of poverty threshold (2011: 8). They identify a fourth group who are neither middle-class nor rich, labelling them an "upper middle-class", with incomes between 125% and 167% of median equivalised disposable income. The upper delineation for this group, an "implicit richness line", was set relative to the 125% line – it is one-third more than the lower endpoint of the upper middle-class (2011: 9).[9] The final group, above the 167% line, they label as the rich.

Table 3 summarises Atkinson and Brandolini's income classification and the labels they use to describe these groups. It also includes the labels used by Maitre et al (2014) who have used this classification in their paper on the experience of economic stress in Ireland during the recent recession. The final column outlines the labels used in this paper for the five groups. While the choice of labels is to a great degree arbitrary, there seems merit in noting the precariousness of those just above the poverty line, while considering those above 167% as affluent, rather than rich, is appealing and easier to defend given various perceptions of what 'rich' might mean. Indeed, later in their paper Atkinson and Brandolini consider alternative definitions of 'rich' considering not just income, but assets, access to resources and employment status.

Table 3: Atkinson and Brandolini's Income Classification and Corresponding Labels

Income range	Atkinson and Brandolini	Maitre et al	Collins (2014)
Median equivalised household disposable income			
< 60% median income	In poverty	Income poor	In poverty
60 to <75% of median	Margins of poverty / lower middle class	Precarious income class	Precarious income class
75 to < 125% of median	Middle class	Lower middle income class	Middle class
125 to < 167% of median	Upper middle class	Upper middle income class	Upper middle class
167% + of median	Rich	Affluent class	Affluent class

Source: Atkinson and Brandolini (2011, 8-9) and Maitre et al (2014: 21)

Atkinson and Brandolini admit that there is some subjectivity attached to partitioning the population into groups in this way. Their examination suggests that the middle income groups are "internally highly heterogeneous" and wonder whether "a pure income characterisation of social classes is analytically satisfactory". Reflecting the divergent economics (mainly income

[9] Looked at another way, the 125% threshold is one-quarter less than the income level that identifies the rich.

focused) and sociological (mainly labour market focused) literatures alongside the slow emergence of greater data on personal wealth and access to resources, they posit "perhaps, it is time to re-integrate the analyses of income, wealth and occupation" (2011: 20 and 2013). However, their approach provides an interesting complement to traditional methods that focus on the top and bottom of the income distribution and assists in deepening our understanding of the distributive picture established for the recent VAT reforms examined in this paper.

Table 4: Equivalised Disposable Income Thresholds and Proportions of the Population in each of the Five Income Groups.

Income Group	Equivalised Disposable Income Threshold	% of total households*	% of total population*
In poverty	<€11,447	16.1%	15.6%
Precarious income class	€11,447 to less than €14,309	15.7%	14.5%
Middle class	€14,309 to less than €23,848	31.1%	34.7%
Upper middle class	€23,848 to less than €31,861	14.9%	15.7%
Affluent class	> €31,861	22.1%	19.8%
		100.0%	**100.0%**

Notes: The median equivalised disposable income is €19,079

*As there are differences in the numbers of adults and children in households, there are some differences between the proportions of households and the population in each group.

Table 4 applies these income categories to the HBS data. It reports the equivalised disposable income thresholds for each of the groups, the proportion of the total household population in each category and the proportion of the total population in each category. Analysis of the HBS microdata established a median equivalised disposable income of €19,079 and the various thresholds are established as a proportion of this value.

When the Atkinson and Brandolini's classification is applied, 15.6% of the population are found to be in poverty, 14.5% are living above the poverty line but below the entry threshold to the middle class. The largest proportion of the population is defined as middle class at almost 35%. A further 15.7% have incomes between 125% and 167% of the median and are in the upper middle-class while almost 20% are classified as affluent. Table A4 in the appendix applies these values to different household types to give an indication of the nominal disposable income amounts that correspond to households of different compositions being in each of the income groups.

To establish a baseline for the analysis in this paper, the indirect tax contributions of households in the five income categories was calculated using the aforementioned indirect taxation model. Table 5 presents these results which reflect the regressive nature of indirect taxation as established earlier. The bottom three groups, those in poverty, those just above the poverty line and the middle class, all contribute more in indirect taxation that the average. VAT, the focus of this paper, again reflects this regressive pattern.

Table 5: Indirect Taxation sources by Income Group, 2009/10 as % of Equivalised Gross Income (Equivalised data)

Income Group	VAT	Excise	Levies	Other Indirect	Total Indirect
In poverty	14.40%	7.49%	0.34%	2.54%	24.77%
Precarious income class	9.04%	4.89%	0.23%	1.65%	15.81%
Middle class	7.41%	3.63%	0.23%	1.41%	12.68%
Upper middle class	5.99%	2.56%	0.21%	1.11%	9.87%
Affluent class	4.49%	1.56%	0.14%	0.75%	6.95%
State	**6.27%**	**2.76%**	**0.19%**	**1.12%**	**10.36%**

Notes: Tables A5a and A5b in the appendix present another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the regressivity reported above.

Bringing the data in table 5 together with data on the direct taxation contributions (income taxation and social insurance contributions) of those in the five income groups, table 6 reports their nature of their overall taxation contribution. Of the five income groups, two contribute taxation to the exchequer at above the average level – those living in poverty and those who are in the affluent class.

Table 6: Direct, Indirect and Total Household Taxation by Income Group as % Gross Income (Equivalised data)

Income Group	Direct	Indirect	Total
In poverty	0.97%	24.77%	25.74%
Precarious income class	2.20%	15.81%	18.01%
Middle class	6.46%	12.68%	19.14%
Upper middle class	12.62%	9.87%	22.49%
Affluent class	20.55%	6.95%	27.50%
State	**13.60%**	**10.36%**	**23.95%**

Representativeness of the Estimates

As assumption of this paper is that the household expenditure data from 2009/10 is taken to offer a good representation of household expenditure at the time of each policies implementation. Over the period from 2009/10 to 2013 overall household consumption, as recorded in the national accounts statistics, remained flat (see table 7) - a persistent feature of comments on the sluggish nature of Ireland's recovery from it banking, property and fiscal crash in 2008/09. As such, the paper assumes that the expenditure patterns in the HBS offer a

credible insight into the nature and composition of household consumption across the income distribution.[10]

Table 7: Personal Expenditure on Consumer Goods and Services, 2009-2013

Year	€ millions
2009	83,565
2010	82,447
2011	82,969
2012	82,468
2013	83,335

Source: CSO Quarterly National Accounts online database

Similarly, the paper considers the distributive impact of these VAT changes relative to household gross income. Again, changes to its values might alter the representativeness of the results established later. Looking at data from the CSO's Survey on Income and Living Conditions (SILC) over the years 2009-2012, table 8 shows how nominal gross household income and equivalised gross household income has changed over that period.[11] Unsurprisingly, given the economic climate, it decreased with equivalised income being almost 6% lower in 2012 compared to 2009. Data from the HBS suggests an average equivalised household income for 2009/10 of €524.70; a figure slightly lower than the average SILC value for those two years and closer to the average SILC value over the years 2010-2012 (€525.38). Given the similarity of the HBS value to the SILC equivalised income values, the paper has assumed that the reported HBS income values offer a representative picture of gross income levels.[12]

Table 8: Trends in Gross Household Income, 2009-2012

Year	Gross household income €	Gross equivalised household income €
2009	1,083.21	551.39
2010	1,037.42	534.66
2011	1,014.75	522.87
2012	1,001.63	518.60

Source: CSO SILC (2014: 17)

Note: The HBS average equivalised household income for 2009/10 was €524.70.

[10] An alternative is to accompany the results of the analysis with a sensitivity test to capture possible changes. However, given the small changes in consumption levels, such an assessment would hardly alter the estimates established later in the paper.

[11] SILC data is only available up to 2012. The 2013 data will be released in late 2014 or early 2015.

[12] A more detailed examination of the distributive impacts of recent income changes has yet to be undertaken (a focus of a future research paper using the SILC data). However, if there are variations in the decile and income group impacts of income changes these may alter the representativeness of the results; although it would be unlikely to significantly alter their overall shape and magnitude.

As a means of assessing the robustness of the modelled indirect taxation, table 9 compares the calculated total VAT tax take (the average household level times the number of households) with the exchequer revenue from VAT. Overall the modelled VAT collected from households equals just over €5.5 billion representing between 54.5% and 56% of the exchequer VAT collected in 2009 and 2010. Estimates from the European Commission for the period 2000-2011 suggest Irish households contributed on average 49% of the total VAT tax take; with the remainder coming from investment (28%), industry (18%) and Government and non-profits (2%) (2013:60-61). The EC household VAT estimates for 2009 and 2010 were 51% and 53% respectively suggesting the modelled indirect taxation used in the remainder of this paper offers a good representation of the indirect taxation experience of households.

Finally, the simulated distributive impacts established in this paper are *ceteris paribus* estimates and therefore ignore any consumption pattern or behavioural changes that might have occurred as a result of the policy implementation. While it is probable that such 'second-round effects' did occur, the composition of their overall and distributive nature is difficult to robustly assess. If any such changes are symmetrically distributed across the income distribution, relative to gross income, they would not alter the distributive shape of the policy impacts identified below. Similarly, the analysis assumes that the incidence of the tax change falls on the consumer i.e. that the VAT reduction or increase is passed on in full. Where this is not the case and the VAT changes are completely or partially absorbed by the supply-side (producers, retailers etc), there are likely to be differences between the actual and modelled outcomes.

Table 9: Comparing Modelled Household VAT Contributions to Exchequer Yield

Average VAT per household	€3,360.16
No of Households in the state[1]	1,649,691
Modelled total VAT from households €	5,543,225,711
Modelled total VAT from households €m	5,543
Exchequer VAT in 2009 €m[2]	10,175
Exchequer VAT in 2009 €m[2]	9,862
Modelled VAT as % of Exchequer VAT 2009	54.5%
Modelled VAT as % of Exchequer VAT 2010	56.2%
EC estimate of VAT from households 2009[3]	51%
EC estimate of VAT from households 2010[3]	53%

Source: Collins (2014a: 38)

Notes:
1. As per Murray and Collins (2012) using data from Census 2011
2. Data from CSO National Income and Expenditure Annual Results Table 22
3. Estimates calculated from European Commission (2013: 60-61, 116-117)

PREVIOUS RESEARCH

The number of studies that have assessed the composition and distribution of indirect taxation contributions in Ireland is quiet small. The most comprehensive have been a series of CSO reports, entitled *Redistributive Effects of State Taxes and Benefits on Household Income*, which followed the publication of HBS data across the 1970s and 1980s (CSO, 1980, 1983 and 1995). These distinguished between four phases of income redistribution namely (i) receipt of cash benefits; (ii) payment of direct taxes; (iii) receipt of non-cash benefits; and (iv) payment of indirect taxes. In each case the reports identified the total sums of direct and indirect taxes paid by various household types across the state.[13] Collectively the studies reflect that over the period from 1973-1987 there was an increase in the importance of direct taxation over time and a small decline in indirect taxation. The distributional breakdown from 1987 points to a progressive direct income taxation system and a regressive indirect tax system.[14]

The work of Barrett and Wall (2006) reignited the discussion and analysis of indirect taxation in a more contemporary Irish context. Using HBS data from 1999/00, as well as information from the Department of Finance and the Revenue Commissioners, they focused on indirect taxation and quantified the regressive nature of both VAT and excise duties. They found that these indirect taxes had a highly regressive nature, with those in the lowest income decile paying a far greater share of their income than those in the highest decile. They also found, amongst other things, that a "third of the difference in tax share between the lowest and highest deciles can be accounted for by taxes on drink and tobacco", and that, therefore, eliminating taxes on drink and tobacco was the best way of reducing regressivity in the Irish case (2006: 29). Although Barrett and Wall do not specifically examine the impacts of any previous indirect tax changes, they do simulate structural reforms to the VAT system in a similar way to that outlined earlier for this paper (2006: 23-27).

Verde and Tol (2009) used the subsequent HBS data, from 2004/05, to assess the effects of carbon taxation across the income distribution in Ireland and found that "carbon tax is markedly regressive as expected" (2009: 330).[15] As with the Barrett and Wall (2006) study, the Verde and Tol paper indicates that the 'lifestyles' of lower income individuals may exacerbate the regressivity of indirect taxation, specifically carbon taxes in this case, as they tend to live in less energy efficient homes and use more carbon intensive fuels. They also state that the carbon tax would "probably be less regressive if compared to consumption rather than disposable income" (2009: 333), an issue that is raised by other studies.

Prior to the emergence of the various papers associated with this project (Collins and Turnbull 2013 and Collins 2014a), the most recent Irish research on the issue of distributional effects of indirect taxes came from Leahy *et al.* (2011). Their assessments are based on indirect taxes (primarily VAT) paid by households as a proportion of weekly disposable income. The researchers use data from the HBS complemented with data from the *Growing Up in Ireland* survey with the latter used to assess excise taxes per household on things like alcohol and tobacco, rather than attempting to estimate the excise using the HBS data.[16] The research also considers indirect tax payments outside of the HBS such as payments on the sale of houses. The

[13] Murphy (1984) also reviewed the 1973 and 1980 HBS redistributive results.
[14] See Collins (2014a: 3-4) for a more detailed summary.
[15] See also Callan et al (2009) who examine this issue in a related paper.
[16] This paper attempts to use the HBS data to estimate these excise duty expenditures.

authors conclude, broadly in line with the Irish research before them, that the "current system is highly regressive" (2011: 213). Leahy *et al.* also simulate the distributive impacts of some policy reforms including an increase in the standard VAT rate (2011: 228-229).

There have been a number of other papers and reports which have specifically examine the VAT changes considered in this paper and these are incorporated into the next section.

RECENT VAT CHANGES

Changes to indirect taxes are a regular feature of annual Budgets and the distributive patterns established by this paper offer the potential to model *ex post* and *ex ante* indirect taxation policy choices. A forthcoming paper (Collins, 2014c) will examine *ex ante* the distributive impact of a suite of indirect taxation changes. This paper focuses on the two most recent changes to these rates, introduced as part of the international bailout programme agreed by the Irish Government and the Troika (European Union, European Central Bank and the International Monetary Fund).[17] These saw:

(i) The temporary introduction, and subsequent retention, of a second reduced rate of VAT for specific items (where the rate decreased from 13.5% to 9%); and
(ii) An increase in the standard rate of VAT from 21% to 23%.

Each of these changes is examined in turn below.

Reduction of items to a second reduced rate of VAT

VAT rates within the EU are governed by the EU VAT Directive (2006) so as to adhere to rules regarding free trade and a common EU wide market. The current Directive reflects an update of the original 1977 VAT Directive and its subsequent amendments.[18] It dictates that Member States must apply a standard VAT rate of at least 15% and provides an option for countries to apply one or two reduced VAT rates to a specified list of goods and services where these reduced rates must be more than 5%. In 2011 Ireland possessed a standard VAT rate of 21% and a reduced rate of 13.5%. As part of that years 'Jobs Initiative' programme, the Government introduced a new second reduced rate of 9%.

The VAT reform was targeted at the tourism sector, perceived as an under-utilised labour intensive sector which has suffered a 25% decline in inbound tourist numbers and a 30% decline in earnings over the period from 2007-2010. The goods and services reclassified to the 9% rate mainly included restaurant and catering services, hotel and holiday accommodation, various entertainment services such as admission to cinemas, theatres, museums, fairgrounds, amusement parks and the use of sporting facilities. It also applied to hairdressing and printed matter such as brochures, maps, programmes and newspapers.[19] The annual cost of the reform (in revenue forgone terms) was estimated by the Department of Finance at €350 million.

[17] An earlier change implemented prior to the Republic of Ireland's international bailout (Budget 2010) saw the standard rate reduced from 21.5% to 21% but is not considered here.
[18] The original 6th VAT Directive was updated on 26th November 2006 as the Council Directive 2006/12/EC.
[19] The full details of the goods and services impacted by the reduction are listed in paragraphs 3(1) to (3)7, 8, 11, 12 and 13(3) of Schedule 3 of the VAT Consolidation Act 2010.

Although first announced as a temporary measure, due to expire at the end of 2013, the reform was retained as an ongoing feature of the VAT structure in Budget 2014.

To date papers from the Department of Finance (O'Connor, 2012), Deloitte for Fáilte Ireland (2013) and Foley for the Restaurants Association of Ireland (2013) have considered the pass through of the VAT reduction and the likely impact it had on tourism activity and job creation since its introduction. When announcing an extension of the reform in Budget 2014, the Minister for Finance cited the creation of over 15,000 jobs as a result of the measure (Department of Finance, 2013: 3). While robust data sources are limited, Consumer Price Index trends and tourism statistics suggest a reasonable pass through of the reform in price reductions and employment growth; although the latter was accompanied by a general recovery in the tourism sector.

To date there have been no examinations of the distributive impact of this tax reduction, a void this analysis attempts to address. In modelling the policy reform the paper:

- Takes as a baseline the indirect taxation contributions established for equivalised household deciles and the Atkinson and Brandolini income groups (Tables 1 and 5).
- The model has been set up so that each HBS expenditure item is classified as being subject to one of six VAT classifications (see details in Collins, 2014a: 9-10). The analysis simulated a reduction in the VAT rate for those items subject to the second reduced rate (from 13.5% to 9%) while leaving all other expenditure data unchanged.
- The household expenditure and income data from 2009/10 is taken to offer a good representation of household expenditure at the time of the policies implementation (see earlier text).
- The simulated distributive impacts are *ceteris paribus* estimates and therefore ignore any consumption pattern or behavioural changes that might have occurred as a result of the policy implementation.
- The analysis assumes that the incidence of the tax decrease falls on the consumer i.e. that the VAT reduction is passed on in full.
- The results are reported as reductions in expenditure costs as a proportion of gross income – the normal method of assessing the progressivity or regressivity of a taxation reform measure. Assuming stable consumption patterns following the adoption of the policy, the VAT reduction is analogous to a cash transfer to households.

Tables 10a and 10b and Charts 2a and 2b present the results of the modelled policy simulation. Overall the measure is notably progressive, impacting more positively on lower income households than on those further up the income distribution. On average, the VAT reduction was equivalent to an increase in gross income of 0.26% per annum. The decile analysis reveals that the bottom six deciles gained at above the average level while the income groups results show that it was those living in poverty and those living just above the poverty line who gained most.

The simulated average gain implies an exchequer cost associated with gains to all households of €231 million; approximately 66% of the overall Department of Finance estimate of €350

million.[20] The proportion of VAT revenue associated with households is higher than the 2013 EC figure of 49% reported earlier, likely reflecting the greater orientation of the reclassified goods and services to household consumption. However, *a priori* one would expect a reasonable proportion of the exchequer cost of such a measure would flow to households outside the state (tourists) as well as to other sectors of the economy.

In overall terms the average and decile/income group impact of the reclassification of goods and services to the second reduced VAT rate is small yet progressive. It should also be noted that the VAT reclassification was only one of a number of measures announced simultaneously by Government as part of its 2011 'Jobs Initiative'. The inclusion of changes to other taxes, levies, social insurance rates, public service provisions and the minimum wage might alter the distributive picture of the overall 'Jobs Initiative' package.[21]

Table 10a: The Distributive Impact of the reduction of items to a second reduced rate of VAT (from 13.5% to 9%), by income decile

Decile	€ per annum*	% Gross Income
Bottom	+54.77	+0.72%
2	+36.54	+0.32%
3	+41.30	+0.31%
4	+45.47	+0.29%
5	+51.41	+0.28%
6	+66.40	+0.29%
7	+70.20	+0.25%
8	+92.78	+0.27%
9	+108.37	+0.24%
Top	+140.04	+0.18%
State**	**+70.72**	**+0.26%**

Notes: *The euro values are on a per equivalent adult basis.
**The state/average per adult figure transformed into an average household figure implies a gain of €140 per annum.
Table A6a in the appendix presents another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the progressivity reported above.

[20] The exchequer cost is calculated as the average equivalised gain multiplied by the average national equivalence scale value multiplied by the number of households in the state. The latter figure is taken from Murray and Collins (2012) who used Census 2011 data to determine the number of permanent households in the state as 1,649,691.
[21] The 2011 Jobs Initiative (Department of Finance, 2011a) also included a 0.6% levy on private pension funds, PRSI reductions for low income workers, an increase in the minimum wage by €1 per hour (reversing an earlier reduction), various labour activation programmes and a series of small capital expenditure measures.

Table 10b: The Distributive Impact of the reduction of items to a second reduced rate of VAT (from 13.5% to 9%), by income group

Decile	€ per annum*	% Gross Income
In poverty	+49.04	+0.55%
Precarious income class	+40.62	+0.31%
Middle class	+55.89	+0.28%
Upper middle class	+81.52	+0.26%
Affluent class	+121.52	+0.21%
State**	**+70.72**	**+0.26%**

Notes: *The euro values are on a per equivalent adult basis.
**The state/average per adult figure transformed into an average household figure implies a gain of €140 per annum.
Table A6b in the appendix presents another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the progressivity reported above.

Chart 2a: The Distributive Impact of the reduction of items to the second reduced rate of VAT (from 13.5% to 9%), % Gross Income by income decile

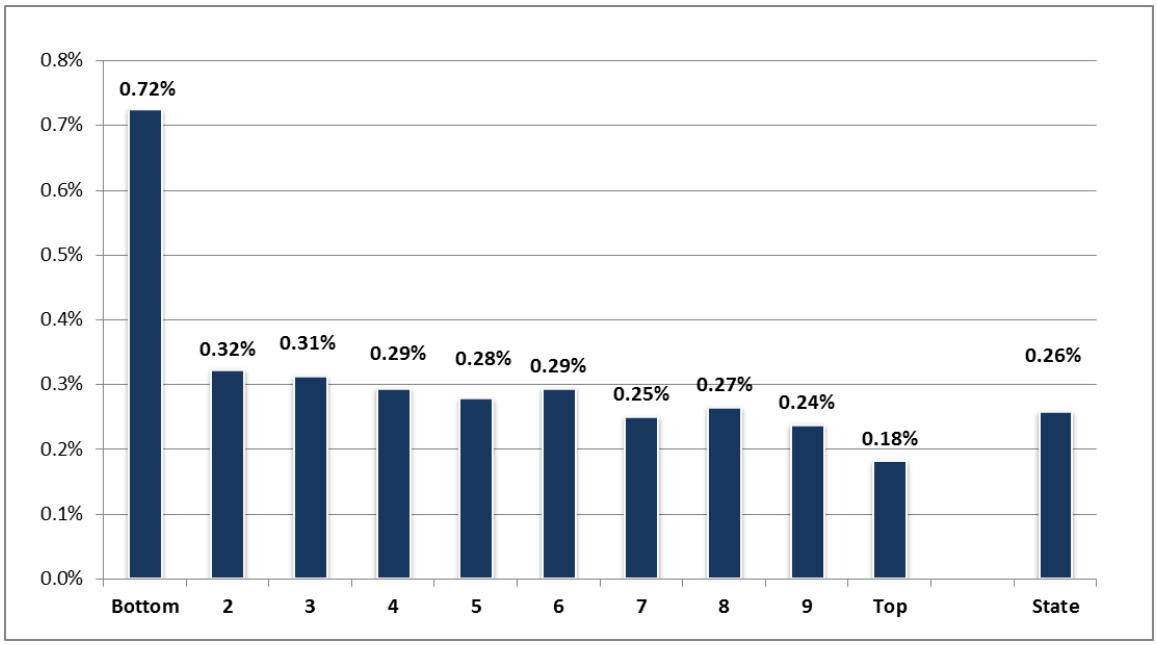
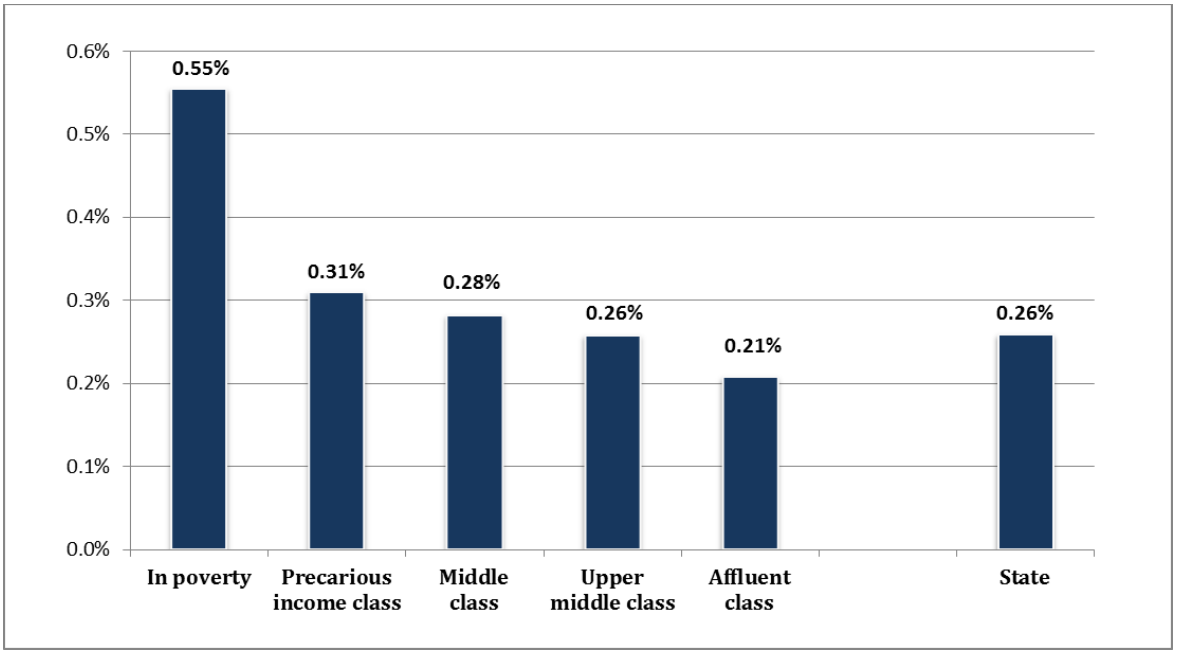


Chart 2b: The Distributive Impact of the reduction of items to the second reduced rate of VAT (from 13.5% to 9%), % Gross Income by income group



An increase in the standard VAT rate from 21% to 23%

Ireland's programme of fiscal reforms between 2008 and 2015 witness a series of ten contractionary adjustments, which by 2014 had seen more than 18% of GDP (€30 billion) removed from the economy through tax increases and expenditure reductions. As part of that process Budget 2012 (December 2011) included an increase in the standard rate of VAT from 21% to 23% yielding an additional €670 million per annum to the exchequer. The increase, while part of the programme of measures implemented under various Memoranda of Understanding with the Troika, was initially proposed as part of the 2010 *National Recovery Plan* and was to be phase in over two years (2010: 97-98).

At the time of the reform, and subsequent to it, there was limited empirical consideration of the impact of this reform on households and individuals across the income distribution. The documentation issued to accompany the Budget did not include any assessment of the impact of the change, despite it being the largest taxation or expenditure measure included in the Budget.[22] At the time, 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 VAT increase was progressive.

To date there have been no *ex post* examinations of the distributive impact of this tax increase, a void this analysis attempts to address. In modelling the policy reform the paper:

- Takes as a baseline the indirect taxation contributions established for equivalised household deciles and the Atkinson and Brandolini income groups (Tables 1 and 5).

[22] The impact of smaller income taxation reforms on representative income levels and household types was included.

- The model has been set up so that each HBS expenditure item is classified as being subject to one of six VAT classifications (see details in Collins, 2014a: 9-10). The analysis simulated an increase in the VAT rate for those items subject to the standard rate while leaving all other expenditure data unchanged. The simulation takes account of the fact that the HBS data covered a period where two separate standard VAT rates were applied, 21.5% (2009) and 21% (2010). Reflecting this, the analysis simulates a VAT increase of 1.5% in the relevant 2009 expenditure and 2% in the relevant 2010 expenditure.
- The household expenditure and income data from 2009/10 is taken to offer a good representation of household expenditure at the time of the policies implementation (see earlier text).
- The simulated distributive impacts are *ceteris paribus* estimates and therefore ignore any consumption pattern or behavioural changes that might have occurred as a result of the policy implementation.
- The analysis assumes that the incidence of the tax increase falls on the consumer i.e. that the VAT increase is passed on in full.
- The results are reported as increases in expenditure costs as a proportion of gross income – the normal method of assessing the progressivity or regressivity of a taxation reform measure. Assuming stable consumption patterns following the adoption of the policy, the VAT increase is analogous to a cash transfer (lump sum tax) from households to Government.

Tables 11a and 11b and Charts 3a and 3b present the results of the modelled policy simulation. Overall the measure is notably regressive, impacting more heavily on lower income households than on those further up the income distribution. On average, the standard rate VAT increase was equivalent to a decrease in gross income of 0.38% per annum. Looking at the income group results, those living in poverty are most affected with the VAT increase requiring them to spend almost 1% more of their gross income for the same consumption – the table shows this as (in effect) a loss of income. Both the precarious income class and the middle class also experience an above average impact. The decile analysis reveals that the bottom 70% of the income distribution experience an above average loss. The poorest decile are most effected, spending 1% more of their income on VAT; results which echo those found by Leahy *et al's ex ante* examination (2011: 228-229).

The simulated average equivalised cost implies an exchequer gain from all households of €342 million; approximately 51% of overall Department of Finance estimate of €670 million.[23] The proportion of VAT revenue associated with households is similar to the 2013 EC figure of 49% reported earlier, something to be expected given the broad reach of the standard VAT rate across most areas of consumption by households; the remainder comes from investment, industry and Government and non-profits. The average household impact of €207 per annum supports the assertion by the Minister for Finance in his Budget 2012 speech that the average impact on households would not be €500 per annum as suggested by some commentators (Department of Finance, 2011b: A14).

[23] The exchequer cost is calculated as the average equivalised cost multiplied by the average national equivalence scale value multiplied by the number of households in the state. The latter figure is taken from Murray and Collins (2012) who used Census 2011 data to determine the number of permanent households in the state as 1,649,691.

Table 11a: The Distributive Impact of an increase in the standard VAT rate (from 21% to 23%), by income decile

Decile	€ per annum*	% Gross Income
Bottom	-80.70	-1.07%
2	-67.34	-0.59%
3	-70.94	-0.54%
4	-79.92	-0.52%
5	-87.94	-0.48%
6	-102.71	-0.46%
7	-109.37	-0.39%
8	-124.25	-0.35%
9	-150.15	-0.33%
Top	-171.85	-0.22%
State**	**-104.51**	**-0.38%**

Notes: *The euro values are on a per equivalent adult basis.
**The state/average per adult figure transformed into an average household figure implies a loss of €207 per annum.
Table A6a in the appendix presents another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the regressivity reported above.

Table 11b: The Distributive Impact of an increase in the standard VAT rate (from 21% to 23%), by income group

Decile	€ per annum*	% Gross Income
In poverty	-76.76	-0.87%
Precarious income class	-71.05	-0.54%
Middle class	-92.57	-0.47%
Upper middle class	-114.96	-0.36%
Affluent class	-158.29	-0.27%
State**	**-104.51**	**-0.38%**

Notes: *The euro values are on a per equivalent adult basis.
**The state/average per adult figure transformed into an average household figure implies a gain of €207 per annum.
Table A6b in the appendix presents another set of comparisons benchmarked against equivalised disposable income and equivalised household expenditure. The disposable income results are broadly similar while those compared to expenditure mitigate some of the regressivity reported above.

Unsurprisingly, given the aforementioned research from Murphy (1984), the CSO (1995), Barrett and Wall (2006) and Leahy et al. (2011), the analysis finds the Budget 2012 standard rate VAT increase to be regressive. However, it should be noted that the VAT increase was only one element of an overall Budgetary package, representing 15% of the total fiscal adjustment

included in Budget 2012. The inclusion of changes to other taxes and public expenditure measures might alter the overall distributive picture.

Chart 3a: The Distributive Impact of an increase in the standard VAT rate (from 21% to 23%), % Gross Income by income decile

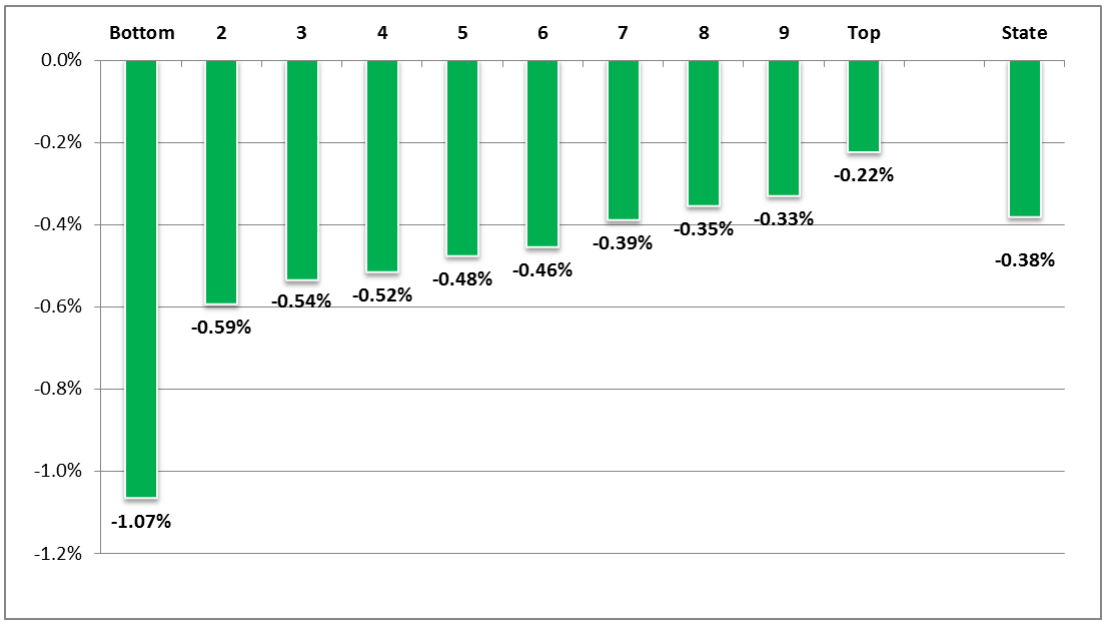
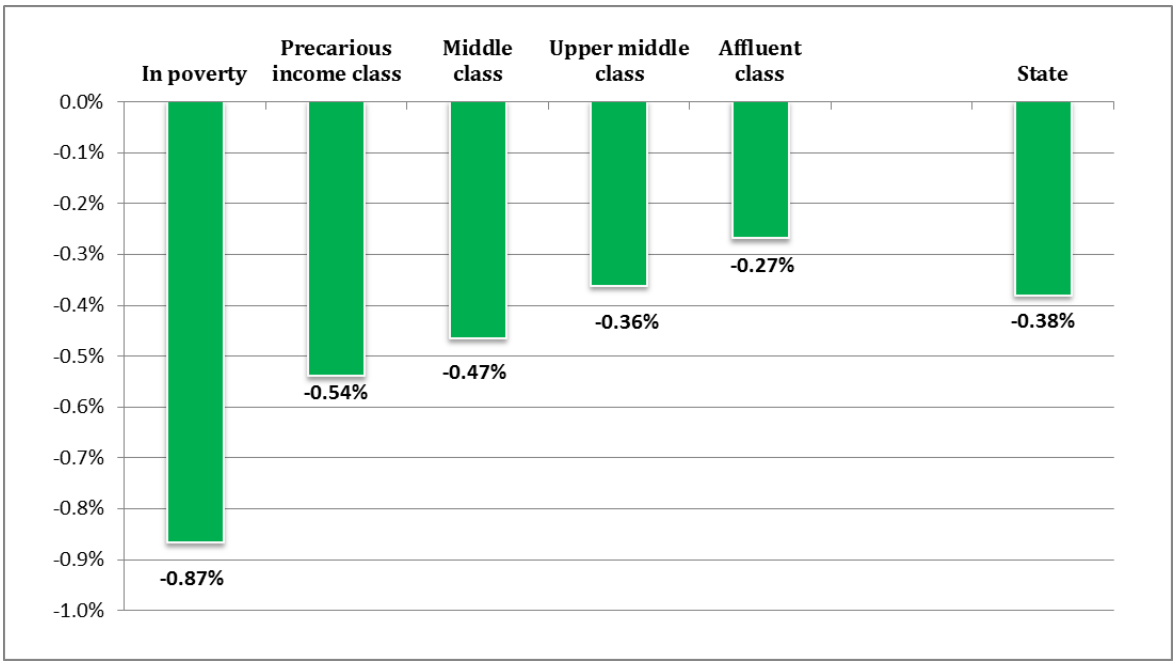


Chart 3b: The Distributive Impact of an increase in the standard VAT rate (from 21% to 23%), % Gross Income by income group



CONCLUSION

Unlike direct income taxation, indirect taxes sweep right across the population and are experienced by all households irrespective of their income or status. Building on the development of an indirect taxation model in earlier papers, this paper has examined the distributive impact of two recent changes to the principal source of indirect taxation, VAT. Taken together, both policy reforms totalled more than €1 billion per annum, equivalent to 9% of annual VAT revenues and many multiples of the capital expenditure threshold (€20m) that triggers a full cost benefit analysis.

The paper highlights the regressive nature of the VAT, and overall indirect, taxation system. However, it results point towards the possibility of reforms to that system being both progressive and regressive. The reclassification of tourism related goods and services to a second reduced VAT rate (moving from 13.5% to 9%) was found to be progressive while an increase in the standard VAT rate (from 21% to 23%) was found to be regressive.

While acknowledging that indirect taxation changes generally take place in the context of a Budget/Fiscal package, and that Governments may consider any distributional impacts in the context of the overall Budgetary package, this paper at the least offers a heretofore lacking insight into the distributive impact of these recent VAT changes. Given the structure of the taxation system, and the composition of household contributions to it, it remains important that considerations of the impact of taxation changes are more comprehensive than just exclusively looking at income taxation changes.

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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: Collins (2014b) as calculated from Department of Finance, Budget 2014 (C15, C30)

Table A2a: Indirect Taxation sources by decile, 2009/10 as % Equivalised Disposable Income (Equivalised data)

Decile	VAT	Excise	Levies	Other Indirect	Total Indirect
Bottom	17.76%	8.88%	0.45%	3.03%	30.11%
2	10.10%	5.69%	0.21%	1.91%	17.91%
3	9.08%	4.89%	0.23%	1.60%	15.79%
4	8.45%	4.31%	0.23%	1.57%	14.57%
5	7.79%	4.01%	0.24%	1.54%	13.58%
6	8.03%	3.80%	0.25%	1.47%	13.55%
7	6.98%	3.19%	0.23%	1.38%	11.77%
8	6.95%	2.78%	0.24%	1.22%	11.19%
9	6.42%	2.50%	0.21%	1.14%	10.27%
Top	5.01%	1.52%	0.16%	0.81%	7.49%
State	**7.26%**	**3.20%**	**0.22%**	**1.30%**	**11.97%**

Table A2b: Indirect Taxation sources by decile, 2009/10 as % Equivalised Total Household Expenditure (Equivalised data)

Decile	VAT	Excise	Levies	Other Indirect	Total Indirect
Bottom	8.34%	4.17%	0.21%	1.42%	14.15%
2	8.74%	4.92%	0.19%	1.65%	15.50%
3	8.65%	4.66%	0.22%	1.52%	15.06%
4	8.09%	4.13%	0.22%	1.50%	13.94%
5	8.28%	4.26%	0.26%	1.63%	14.42%
6	8.35%	3.95%	0.26%	1.52%	14.08%
7	8.02%	3.66%	0.26%	1.59%	13.54%
8	7.83%	3.13%	0.28%	1.37%	12.61%
9	7.75%	3.01%	0.26%	1.37%	12.40%
Top	6.93%	2.10%	0.22%	1.12%	10.37%
State	**7.91%**	**3.48%**	**0.24%**	**1.42%**	**13.05%**

Table A3a: Direct, Indirect and Total Household Taxation as % Gross Income (Unequivalised data)

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%**

Source: Collins and Turnbull (2013: 13) and Collins (2014a:18).

Table A3b: 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**

Source: Collins and Turnbull (2013: 23) and Collins (2014a:40).

Table A4: Nominal Disposable Income Thresholds for Different Household Types using the Atkinson and Brandolini Income Group Classification, € per annum

1 Adult Household				
In poverty	*less than*	11,447		
Precarious income class	*between*	11,447	to less than	14,309
Middle class	*between*	14,309	to less than	23,848
Upper middle class	*between*	23,848	to less than	31,861
Affluent class	*more than*	31,861		
2 Adult and 2 Children Household				
In poverty	*less than*	26,558		
Precarious income class	*between*	26,558	to less than	33,197
Middle class	*between*	33,197	to less than	55,328
Upper middle class	*between*	55,328	to less than	73,918
Affluent class	*more than*	73,918		
Single Parent 1 Child Household				
In poverty	*less than*	15,225		
Precarious income class	*between*	15,225	to less than	19,031
Middle class	*between*	19,031	to less than	31,718
Upper middle class	*between*	31,718	to less than	42,376
Affluent class	*more than*	42,376		
2 Adult Household				
In poverty	*less than*	19,002		
Precarious income class	*between*	19,002	to less than	23,753
Middle class	*between*	23,753	to less than	39,588
Upper middle class	*between*	39,588	to less than	52,890
Affluent class	*more than*	52,890		

Note: The data presents the nominal disposable income thresholds for different household types. Consideration of the corresponding gross income thresholds would need to include the amount of direct taxation paid by each household type. An indication of the effective tax rates faced by households across the income distribution is provided in table 6 of this paper.

Table A5a: Indirect Taxation sources by Income Group, 2009/10 as % of Equivalised Disposable Income (Equivalised data)

Income Group	VAT	Excise	Levies	Other Indirect	Total Indirect
In poverty	14.54%	7.56%	0.35%	2.57%	25.01%
Precarious income class	9.24%	5.00%	0.23%	1.69%	16.17%
Middle class	7.93%	3.89%	0.24%	1.50%	13.56%
Upper middle class	6.85%	2.93%	0.24%	1.27%	11.29%
Affluent class	5.65%	1.97%	0.18%	0.95%	8.75%
State	**7.26%**	**3.20%**	**0.22%**	**1.30%**	**11.97%**

Table A5b: Indirect Taxation sources by Income Group, 2009/10 as % of Equivalised Household Expenditure (Equivalised data)

Income Group	VAT	Excise	Levies	Other Indirect	Total Indirect
In poverty	8.49%	4.41%	0.20%	1.50%	14.59%
Precarious income class	8.60%	4.65%	0.22%	1.57%	15.05%
Middle class	8.17%	4.00%	0.25%	1.55%	13.97%
Upper middle class	7.92%	3.38%	0.28%	1.47%	13.04%
Affluent class	7.36%	2.56%	0.24%	1.23%	11.39%
State	**7.91%**	**3.48%**	**0.24%**	**1.42%**	**13.05%**

Table A6a: The Distributive Impact of two recent VAT changes, by gross income decile

Decile	Reduction of items to the 2nd reduced rate of VAT			Increase in the standard VAT rate		
	% Gross Income	% Disposable Income	% Total Expenditure	% Gross Income	% Disposable Income	% Total Expenditure
Bottom	+0.72%	+0.73%	+0.34%	-1.07%	-1.07%	-0.50%
2	+0.32%	+0.32%	+0.28%	-0.59%	-0.60%	-0.52%
3	+0.31%	+0.32%	+0.30%	-0.54%	-0.54%	-0.52%
4	+0.29%	+0.30%	+0.29%	-0.52%	-0.53%	-0.51%
5	+0.28%	+0.29%	+0.31%	-0.48%	-0.50%	-0.53%
6	+0.29%	+0.32%	+0.33%	-0.46%	-0.49%	-0.51%
7	+0.25%	+0.28%	+0.32%	-0.39%	-0.44%	-0.50%
8	+0.27%	+0.31%	+0.35%	-0.35%	-0.41%	-0.47%
9	+0.24%	+0.29%	+0.35%	-0.33%	-0.40%	-0.48%
Top	+0.18%	+0.24%	+0.33%	-0.22%	-0.29%	-0.41%
State	**+0.26%**	**+0.30%**	**+0.33%**	**-0.38%**	**-0.44%**	**-0.48%**

Table A6b: The Distributive Impact of two recent VAT changes, by income group

Income Group	Reduction of items to the 2nd reduced rate of VAT			Increase in the standard VAT rate		
	% Gross Income	% Disposable Income	% Total Expenditure	% Gross Income	% Disposable Income	% Total Expenditure
In poverty	+0.55%	+0.56%	+0.33%	-0.87%	-0.88%	-0.51%
Precarious income class	+0.31%	+0.32%	+0.29%	-0.54%	-0.55%	-0.51%
Middle class	+0.28%	+0.30%	+0.31%	-0.47%	-0.50%	-0.51%
Upper middle class	+0.26%	+0.29%	+0.34%	-0.36%	-0.42%	-0.48%
Affluent class	+0.21%	+0.26%	+0.34%	-0.27%	-0.34%	-0.44%
State	**+0.26%**	**+0.30%**	**+0.33%**	**-0.38%**	**-0.44%**	**-0.48%**