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Scenarios and Distributional Implications of a Household Wealth Tax in Ireland

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Abstract: This paper uses recently available information on the composition of household assets and liabilities to examine the impact of a tax on household wealth in Ireland under a wide range of assumptions on how such a tax might be designed. We compare results based on models of existing taxes on household wealth across Europe and a number of hypothetical scenarios to illustrate how the results are affected by varying qualifying thresholds or asset exemptions. We present revenue estimates and calculations for the percentage of households that would be liable for different qualifying thresholds, tax rates and exemptions for specific assets, such as the household main residence and farms. For each scenario, we further examine characteristics of affected households in terms of their income decile and demographic characteristics. Due to the imperfect correlation between income and wealth, we find that in almost every scenario, a non-negligible proportion of the tax would be collected from households in the lowest income deciles.

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Executive Summary

Taxes on household net wealth are levied in a number of European countries and have featured on a number of occasions in discussions on the tax base in Ireland. Up until now, it has been not been possible to provide a thorough assessment of the possible implications of the introduction of a wealth tax in Ireland because of the limited information available on the composition and distribution of household wealth. This data gap has now largely been filled by the Central Statistics Office, who in 2013 conducted the first comprehensive survey (the Household Finance and Consumption Survey*)* of household wealth in Ireland. The survey provides information on the ownership and values of different types of assets and liabilities along with more general information on income, employment and household composition. This paper uses this new data source to provide an analysis of the wealth holdings of Irish households and the potential implications of a wealth tax if applied on the existing structure of assets and household composition.

The objective of this paper is not to present a single model of a wealth tax for Ireland but rather to examine a wide range of possible scenarios and show how sensitive the estimates are to different assumptions. The aim of the analysis is to inform debate on the taxation of household wealth by showing how various combinations of qualifying thresholds, asset coverage and tax rates can affect the overall tax yield and the percentage of households that would be liable. We also examine some of the characteristics of affected households under each of the scenarios presented, in particular, how liability for a wealth tax would be spread across income levels and household types (based on age, marital status and number of household members).

We base our scenarios on existing wealth taxes in other European countries (France, Spain, Iceland, Netherlands, Norway, and three Swiss cantons) and supplement these with a set of stylised examples to illustrate the differing effects of changing threshold levels of wealth at which the household would become liable for a wealth tax allowing for exemptions from the tax of certain assets, such as the family home or farmland.

We begin by showing that, in common with many other countries, the ownership of wealth is relatively more heavily concentrated than income in Ireland. The wealthiest ten per cent of households hold close to 54 per cent of total household wealth with the top thirty per cent owning close to 85 per cent of wealth. At the opposite end of the distribution, the least wealthy ten per cent of households have negative wealth holdings (i.e. their debts are larger than their assets). Irish households hold the great majority of their wealth in the form of real (non-financial) assets, with by far the largest components of household wealth being the main residence and farms. The total net wealth of those households with positive net wealth is €378 billion, which could be seen as representing the maximum potential wealth tax base.

However, the levying of a wealth tax on this base of all wealth would involve taxing a lot of people who have very little net wealth and possibly low incomes and would present a very large administrative burden. This is one reason that all of the existing wealth tax designs in other countries apply a minimum wealth threshold before a household incurs liability. There is a wide range of personal thresholds evident in those countries which apply a wealth tax. The personal threshold for a single individual varies from under €25,000 to nearly €1.5 million in the European countries with a wealth tax in operation. The difference in the thresholds in part reflects the extent to which different types of wealth are exempted or are attributed a reduced value for wealth tax purposes. The assets

which most frequently feature as part of base narrowing are the household main residence, business assets, farms and pension assets. Thus the overall broadness of the wealth tax base depends on both the thresholds and the assets included. The revenue raised from the tax base then depends on the tax rate which can be progressive (the tax rate increases as wealth increases) or proportionate (a constant rate).

If the wealth tax systems of other European countries were replicated in Ireland and all else remained unchanged our estimates suggest a wide range of revenues that would be raised by a wealth tax, from a €22 million yield if the French system is used to €1,286 million in the case of the system applied in the Swiss Canton of St. Gallen. In the case of the former, an estimated 1,800 households would be affected (0.1% of households with positive net assets) whereas 880,000 would be affected under the latter (52% of households with positive net assets). The systems from the other countries all lie within these ranges in terms of wealth tax revenue and households affected.

A second set of alternative scenarios explores the trade-offs by adjusting thresholds and asset exemptions. These hypothetical tax designs start from broadest possible tax base with a low threshold, thereby casting a wide tax net, and then examine the impact of applying exemptions to specific assets (especially the household's main residence) and increasing the qualifying threshold.

The alternative scenarios investigated show that varying the level of the threshold is the key determinant of the number of households that would be affected, which is in keeping with the concentration of wealth at the upper end of the wealth distribution. Increases in thresholds also work to concentrate the wealth tax burden more in higher income deciles. Removing or reducing the applicability of the wealth tax to the largest asset categories is an important determinant of the wealth base, the level of average tax payment and the size and likely stability of revenues raised. Given the numbers of households affected, the treatment of the household's main residence (which is the largest asset for almost all households apart from the very wealthiest) is particularly relevant.

The types of households affected under any scenario depends on the particular design of the system applied. In all of the systems, the largest amount of wealth tax revenue would be collected from the ten percent of households with the highest incomes. However, except in the case of the application of systems with high thresholds and multiple exemptions, such as those in place in the French and Spanish systems which raise the least revenue, a not insignificant proportion of wealth tax revenue is raised from households in the lower income deciles. Households where the reference person is 65 or older would pay the largest amount of wealth tax.

In the alternative scenarios, households with lower incomes as well as older households typically face the larger wealth tax burdens as a proportion of their gross income. Applying an income restriction would remove many of the lower decile households from the tax net in most cases but would also reduce wealth tax paid by those in the higher income deciles as well. We find that the beneficiaries of an income cap on wealth tax payments are largely those in the highest wealth deciles. The income capping experiment demonstrates the difficulties posed by the imperfect correlation between income and wealth. Even with an income cap in place, the wealth tax burden as a proportion of gross income would still be significant for liable households.

1. Introduction

Designing a broad tax base that provides stable and sustainable sources of revenue with minimal economic distortion is a central policy objective of tax authorities worldwide. While the objective may be a perennial one, it moved to the forefront of debate during the recent financial crisis when the sensitivity of some streams of government revenue to economic fluctuations became apparent at the same time as unprecedented demands were being made on expenditures. This was particularly evident in the case of Ireland where large falls in government revenues resulted from the over-reliance on and decline in construction activity, and can be traced directly to the dramatic increase in the government deficit (Addison-Smyth and McQuinn, 2010). In common with a number of other countries, the examination of ways to improve the resilience of tax revenue streams to economic fluctuations has led to a discussion of the feasibility and desirability of including household wealth in the tax base in some way. For example, wealth taxes were introduced in response to the financial crisis in Spain (re-introduction) and on a temporary basis in Iceland. These initiatives were followed by broader debates on the potential for once-off capital levies in highly-indebted European countries (Deutsche Bundesbank, 2014) and the inclusion of an analysis of regular taxation of wealth in the wide-ranging report on the UK tax system (Mirrlees *et al.,* 2011).[1]

It has been difficult to assess the possible implications of the introduction of a wealth tax in Ireland up until now as there has been limited information available on the composition and distribution of household wealth. Calculations based on the aggregate wealth of the household sector tell us little about how many households a wealth tax might affect under different scenarios and what their characteristics are. Estimates such as those calculated by McDonnell (2013) used all information available to generate potential yields from a wider wealth tax but are based on aggregate data on wealth in Ireland combined with information on wealth distribution internationally. As both assets and liabilities are distributed very unevenly, micro level data are essential for accurately estimating the likely impact of any potential tax on household wealth.

This paper looks to address this gap by using the comprehensive survey data collected by the Central Statistics Office in 2013 as part of its *Household Finance and Consumption Survey* (CSO, 2015). Although a number of existing survey sources examined household income and expenditures, this survey provides for the first time comprehensive data on household balance sheets. It covers a range of information on ownership and values of different types of assets (such as property, self-employed business values and financial assets) and liabilities (such as mortgages and shorter-term debt) along with information on income, employment and household composition. It does not, however, cover potential dynamic impacts of a wealth tax such as behavioural responses or broader macroeconomic impacts and these are not incorporated in the estimates presented.

The reason for the desirability of household level data in examining the implications of a wealth tax is that estimates are likely to vary significantly depending on the distribution of wealth holdings

[1] Wealth taxes are typically applied to net wealth (i.e. assets less liabilities) and we therefore use the terms "wealth tax" and "net wealth tax" interchangeably. In some instances, taxes may be levied on the gross value of a particular asset, such as the Local Property Tax or the recently discontinued pension fund levy, but we do not examine this type of individual asset tax in this paper, which focuses on taxation of overall household wealth (although we do describe scenarios where some assets are exempted or allocated allowances).

across households and the composition of assets. Any realistic tax scenario will have an exemption limit as collecting tax on very small amounts of wealth is unlikely to be cost-effective. Additionally, in many cases, countries with existing wealth tax systems exclude certain kinds of assets – either because they are excessively difficult to value (such as pension funds) or because the tax system may not want to dis-incentivise ownership of some assets (such as businesses or farms). Different scenarios on thresholds levels, income considerations and asset coverage can therefore result in a wide range of possible outcomes, as this paper will show.

Our objective is not to present a single model of a wealth tax for Ireland but rather to examine a wide range of possible scenarios and show how sensitive the estimates are to different assumptions. We calculate a number of scenarios based on wealth tax structures already in existence in other European countries and also on a set of stylised examples moving from a narrowly focused to more broad ranging design. We do not therefore propose any particular tax design but rather the work aims to inform the debate on the taxation of household wealth by demonstrating the factors that affect the revenue yield and the extent and composition of households liable.

The remainder of the paper is organised as follows: Section 2 briefly reviews the arguments for and against taxing household wealth. Section 3 presents the data used in the analysis and a description of the overall patterns of Irish household wealth. Section 4 discusses the various scenarios that we use as the basis of the calculations of a tax estimate and draws attention to a number of important limitations of the estimates. Section 5 presents the main results covering the size of the tax base, extent of liability, average payments and potential revenue yields. Section 6 drills down into the implications of the tax scenarios in more detail, looking at how many households would be affected across the income distribution and the characteristics of the households affected. Section 7 examines some considerations relating to the impact of including an income qualification and Section 8 discusses how a wealth tax might interact with other forms of asset taxation already in existence in Ireland. Finally, Section 9 concludes.

2. Wealth Taxes in Theory and Practice[2]

This section looks in brief at the economic and practical arguments in favour and against a wealth tax. Wealth taxes are levied on marketable net wealth (assets minus liabilities) with some exemptions or reliefs. The term "marketable" implies two significant exemptions are made when deciding on the base for a wealth tax – these are human capital and pension funds. Human capital is regarded as inherently untaxable for practical purposes but is worth mentioning as its exclusion shows how the existence of a wealth tax might affect investment decisions. Investing in a real or financial asset in order to benefit from future income streams results in a liability for wealth tax purposes but investing in education or skills to improve future earning capacity will not.

The exclusion of pension funds may seem less obvious as they can constitute a major source of financial wealth for many households. However, accessing or selling pension fund assets prior to retirement is generally not permitted and tends to be difficult in the limited circumstances where transferring them is possible. In this sense they are typically not considered to be marketable forms of wealth. In addition, taxing pension funds gives rise to practical difficulties in measuring the value of the fund, in particular when entitlements to unfunded schemes such as certain occupational

[2] A more extensive treatment of the wealth tax debate is provided in Lawless (2016).

pensions are considered e.g. defined benefit schemes. Finally, there are other public policy objectives such as incentivising saving for retirement to be offset against the gains from including pension funds in a wealth tax base.

As by definition the level of wealth holdings in a country is a multiple of income, wealth provides a potentially substantial tax base.[3] Furthermore, as wealth tends to be considerably more concentrated than income, the percentage of households liable for paying the tax could be kept quite small and the rate low while still raising considerable revenue, at least in theory and assuming limited change in behaviour (Schnellenbach, 2010).

The revenue raising potential of any tax is often one of the first arguments put forward in its favour. In the context of taxing wealth, there are a number of additional equity arguments that have been put forward as a rationale for its use as part of the tax base. The first is a redistribution argument arising from the proposition that it is undesirable for wealth to be highly concentrated in a relatively small proportion of households. We will see in the next section that wealth is considerably more concentrated than income in Ireland and this is true in most countries. There has been some evidence that this concentration has been increasing over time and, along with presenting evidence of increasing wealth inequality in a range of countries, Piketty (2014) argues that this has potentially negative implications for economic and social stability. He proposes a global wealth tax could be designed to reverse this trend, with an emphasis on the need for international cooperation on its implementation as the mobility of capital of the richest individuals makes it difficult to fully tax wealth in any one country.

The second argument in favour of a wealth tax relates to assessing the total capacity of a person or household to contribute to the costs of funding public services. According to this argument, ability to pay should take into account that those with high wealth have greater resources on which to draw and therefore should be taxed at a higher rate than those with low wealth even in the case where incomes earned are the same. Piketty (2014) further suggests that wealthier individuals benefit more from the protection of property rights underpinned by government and therefore should contribute more to the costs associated with upholding these rights. This principle was one of the factors underpinning the Local Property Tax, where the market value of a house (i.e. gross value) is related to the benefits received by the owners.

Although equity provides the main grounds for proponents of a wealth tax, there is also a potential economic efficiency rationale. A wealth tax applied to all assets reinforces the incentive for investments to be focused towards higher-yielding opportunities because there is now an additional cost to holding assets. In an Irish context, the focus of this argument has been on the potential societal benefits to making it more expensive to own undeveloped land and thus make a greater amount of land available for development, in a similar way to the impact of targeted site value tax as put forward by Lyons (2011).

On the other hand there are economic efficiency arguments against a wealth tax. As with all taxes, there is a deadweight burden associated with a wealth tax. A wealth tax discourages saving, distorting individuals' choices between consumption and saving (although a sufficiently high

[3] Though, as a tax base, wealth is not necessarily any more stable than economic activity. This can most easily be seen in the Irish house price bubble and subsequent crash.

threshold before incurring liability can mitigate the impact on life-cycle savings). More generally, unless very carefully designed, wealth taxes create negative incentive effects and divert efforts away from wealth generating investments to investing in assets with the lowest tax liability or those where the valuation is most difficult.[4] This relates back to Piketty's point - made in favour of a wealth tax but drawing attention to its limitations - that the wealthiest individuals may have opportunities to move their financial assets internationally and plan their tax affairs in order to minimise their tax liabilities. This results in the wealth tax in practice being levied largely on households whose assets are less liquid or mobile such as housing, farmland or business assets. In this regard, there is an additional argument that levying a wealth tax that includes business assets may further be a disincentive to entrepreneurship and foreign direct investment. As a result of these efficiency costs associated with wealth taxes the OECD's Tax and Economic Growth report (2008) considered that, among the various forms of taxation, net wealth taxes were likely to be intermediate in terms of their impact on economic growth.

A frequently cited objection to wealth taxes, is that if wealth is accumulated from savings over a lifetime then these flows will have already in many cases been taxed as they were earned and should not be taxed again. However 'double taxation' is not unique to wealth taxes and does not in and of itself provide the grounds for not taxing wealth. The 'double taxation' argument however does benefit from drawing a further distinction between wealth built up by the individual's own efforts and wealth acquired through inheritance, lottery wins or arising from ownership of an asset (e.g. house price increases).

Taxation of household net wealth is relatively rare across OECD countries and becoming more so with a number of countries abolishing their wealth taxes in the past twenty years[5]. In countries with a net wealth tax, the returns rarely contribute more than one per cent of total tax revenue (Schnellenbach, 2012). Apart from the arguments against the principle of a wealth tax mentioned above, there are a number of difficulties in implementation that have tended to limit their use in practice. The first is the imperfect correlation between income and wealth that means households with significant asset holdings making them liable for the payment of a wealth tax can have limited cash resources with which to pay. Kaplan, Violante and Weidner (2014) identify the "wealthy hand-to-mouth" as households with valuable assets – typically property or pension funds – but low incomes. Farmers and pensioners are the classic examples where collection of wealth taxes can encounter practical and political obstacles unless the tax liabilities can be accumulated until assets are sold or inherited (in which case one could argue they would have been subject to other taxes on wealth transfer or capital gains in many instances).

Further practical difficulties come from the thin market for many assets that make valuation a considerable administrative burden. The cost associated with administering such a tax will be influenced by the number and variety of exemptions and exclusions. The exclusion of pension funds from wealth tax calculations in a number of countries (see Section 4) highlights a number of the practical difficulties faced by tax authorities in designing a tax that is efficient to implement without creating negative incentive effects. Although pension funds can be a substantial component of

[4] A household net wealth tax will incentivise a shift towards public and corporate ownership of assets as well as incentivising households to hold more debt and relatively more of those asset types with lower liabilities.
[5] Taxation of net corporate assets is rarer again. In the OECD, Luxembourg, France, and Switzerland have net wealth taxes on corporations. (Pomerleau and Cole, 2015).

financial wealth for many households, they can be difficult to value (particularly in the case of occupational defined benefit schemes) and accessing the wealth in advance can only be done in very limited circumstances, if at all. Beyond this practical issue, a range of public policy initiatives – including tax breaks - are aimed at encouraging saving for retirement and these would be at odds with a wealth tax that included pensions in their base.

The practical implementation issues such as the cost of administration and concerns regarding capital flight were the key basis for wealth taxes being regarded as infeasible in the review of the overall Irish tax system undertaken by the Commission on Taxation (2009). Ireland's only previous experience of a net wealth tax was quite short-lived and was relatively limited in scope with a wide range of exempted assets and allowances. The tax was in place from 1975 to 1978 but then abolished because of extremely high administration and compliance costs relative to the levels of revenue raised (Sandford and Morrissey, 1985).

3. Patterns of Irish Household Wealth

In order to undertake this static analysis of the extent of the revenue base for a wealth tax and how many households it would affect depending on threshold levels and exemptions, detailed information on the asset and liability structure of Irish households was required. This data is available in the Household Finance and Consumption Survey (HFCS), which was carried out by the Central Statistics Office in 2013 in coordination with the Central Bank of Ireland. The survey structure and results are described in CSO (2015) and in Lawless, Lydon and McIndoe-Calder (2015). The survey was extensive in scope with face-to-face interviews carried out with over 5000 households across the country. The methodological design included an over-sampling of households in more affluent areas to maximise the detail on asset holdings of wealthier households, where financial structures might be expected to be more complex.[6] When calculating results at an aggregate level, this survey design is adjusted by using appropriate weights.

The HFCS asked households to describe in detail their sources of income, assets and debts. It also collected a range of demographic information to allow us to look at how income and wealth are related to household composition, job characteristics and educational attainment. When presenting information on the structure of the household such as labour market status, age or education, a "reference person" is selected to classify the household. The reference person was selected as the person identified in the survey as being most likely to be knowledgeable about the household's financial affairs.

The broad pattern of wealth across Irish households is presented in Table 1, which shows the median and mean net wealth across different household characteristics from the HFCS publication (CSO, 2015). All of the figures presented are of *net* wealth calculated by summing the values of all of the household's assets and subtracting the value of all of their debts. As already mentioned, occupational pension funds are excluded as they are not included in the survey and they are commonly excluded from wealth taxes internationally in any case. Even at the level of basic summary statistics, we see evidence that wealth is not evenly distributed across households – the

[6] The areas were ranked using the Pobal Haase-Pratschke Deprivation Index based on the Census of Population 2011 data applied to Census Small Area units which typically have 80 to 100 households. CSO (2015) describes this index and the sample structure in detail.

median net wealth is €102,600, the point at which a household is at the mid-point of the distribution with more wealth than half the households in the country and less than the other half. However, the mean (average) net wealth is over double this amount at €218,700. We present more detailed information on the distribution of wealth later in this section.

Table 1: Net Wealth of Irish Households

	Median net wealth €000's	Mean net wealth €000's	Share of net wealth %
Total	102.6	218.7	100
Age of Reference Person			
18-34	4	38	3.5
35-44	31.5	122.5	13.3
45-54	157.1	283.4	25.1
55-64	195.5	344.1	25.7
65+	202.3	348.2	32.5
Work Status of Reference Person			
Employee	53.9	157.3	32.5
Self-employed	307	551	23.3
Retired	204.5	316.1	26.6
Unemployed	7.2	68.4	3.9
Other	94.2	205.2	13.8
Household Composition			
1 adult	80.5	153.4	15.6
1 adult & children	1.4	30.6	0.6
2 adults	144.8	255.2	32.9
2 adults & 1 - 3 children	33.1	144	13.9
3+ adults	217.1	390.3	28
Other household with children	104.5	235.2	9
Education of Reference Person			
Primary or lower	126.2	218.8	12
Lower secondary	121.7	240	19.1
Upper and post-secondary	90.6	203.5	33.9
Third level	95.8	236.7	27.4
Postgraduate	51.5	189.8	7.6

Source: CSO (2015)

Looking at how wealth is distributed across other household characteristics, we see a strong life-cycle pattern. Households where the reference person is in the youngest age category (18 to 34 years) hold a median amount of €4000 in net wealth. The final column of the table shows the share of total net wealth in each of the categories so these younger households hold 3.5 per cent of total household wealth in the country. The share of wealth held by each age category steadily increases with households where the reference person is over 65 holding 32.5 per cent of household wealth, representing a median amount of over €200,000. This relationship between wealth and age is explored further in Lawless, Lydon and McIndoe-Calder (2015) and, as would be expected, is shown

to be largely driven by people acquiring their household's main residence and paying off the associated mortgage over time. This pattern of taking out debt, particularly mortgage debt, when relatively young and having a debt-free asset when the household is older is also one of the factors leading to an imperfect correlation between income and wealth that will be a factor in some of our later scenarios on the impact of a wealth tax system.

The relationship between age and wealth is also reflected in the distribution of wealth across work status categories, where households with a retired reference person hold over one-quarter of total wealth.[7] The wealth levels of the self-employed tend to be considerably higher than those of employees. The self-employed hold over 23 per cent of household wealth although they account for just 9 per cent of households. However, some of this wealth is comprised of assets related directly to their work if they operate as a self-employed business (i.e. not as a limited or incorporated company).

As wealth is measured at the level of the household, the number of household members and particularly the number of adults in the household tend to be associated with higher wealth levels. Single parent households tend to have the lowest average wealth holdings by a fairly considerable margin whereas households with two or more adults and no children have the most.[8] Perhaps slightly surprisingly given the usual labour market result of higher education being associated with higher earnings, we see no such relationship between education and net wealth, with households with the two lowest categories of education actually having the highest median and mean net wealth levels. This is likely to be the result once again of the life-cycle build-up of wealth, here being set against a general increase in average educational attainment that has been taking place over a number of decades.

Table 2: Distribution of Irish Household Wealth

Decile	Wealth		Decile	Income	
	Threshold	% of Net Wealth		Threshold	% of Net Wealth
Bottom	<= - €4,274	-3.5%	Bottom	<= €13,386	5.4%
2nd	<= €1,820	0.0%	2nd	<= €19,899	5.9%
3rd	<= €10,000	0.2%	3rd	<= €25,303	5.7%
4th	<= €47,750	1.2%	4th	<= €31,651	6.8%
5th	<= €100,600	3.5%	5th	<= €39,680	7.1%
6th	<= €152,027	5.7%	6th	<= €48,945	8.8%
7th	<= €210,400	8.3%	7th	<= €62,343	9.3%
8th	<= €310,152	11.9%	8th	<= €80,020	11.6%
9th	<= €546,090	18.9%	9th	<= €108,629	13.7%
Top	> €546,090	53.8%	Top	> €108,629	25.6%

[7] Note that the "Retired" work status and "Over 65" age group do not overlap entirely.

[8] Note that the definition of "household" in the HFCS requires some sharing of finances so a number of individuals renting a property together but otherwise having separate finances would be considered as separate households in this context.

To look in some more detail at how wealth is distributed, beyond the detail provided in the HFCS publication (CSO, 2015), Table 2 looks at two different ways of dividing households into groups and calculates their shares of total wealth. The first ranks households by wealth and divides them into ten groups (deciles), each representing an equal number of households. For instance, household wealth exceeds €546,090 in the wealthiest ten per cent of households. The second uses the same sorting method to rank households by income and divide them into groups to see how much wealth is associated with each income bucket[9]. In this ranking, the ten percent of households with the highest income have incomes in excess of €108,629.

The most immediately striking result from Table 2 is the concentration of wealth in the top decile – the wealthiest ten per cent of households hold close to 54 per cent of total household wealth. The top three deciles own close to 85 per cent of the wealth. At the opposite end of the distribution, the least wealthy households have negative wealth holdings (i.e. their debts are larger than their assets). The picture is somewhat more evenly distributed by income decile, with the top ten per cent of households by income owning one-quarter of total wealth.

Table 3: Composition of HFCS Wealth Base

	Wealth Base (billions)	As % of Gross Assets
Household main residence (HMR)	€226	47%
Other residential	€44	9%
Farms	€92	19%
Non-res excl. farms	€16	3%
Business (net value)	€26	5%
Vehicles	€12	3%
Other real assets	€8	2%
Real Assets	*€424*	*88%*
Current account	€33	7%
Voluntary pension	€13	3%
Other financial	€14	3%
Financial Assets	*€60*	*12%*
Gross Assets = Real + Financial assets	**€484**	**100%**
HMR Outstanding	€86	18%
Other property	€27	6%
Non-collateralised	€7	1%
Total Debt	*€120*	*25%*
Net Assets = Gross assets – Total Debt	***€364***	**75%**

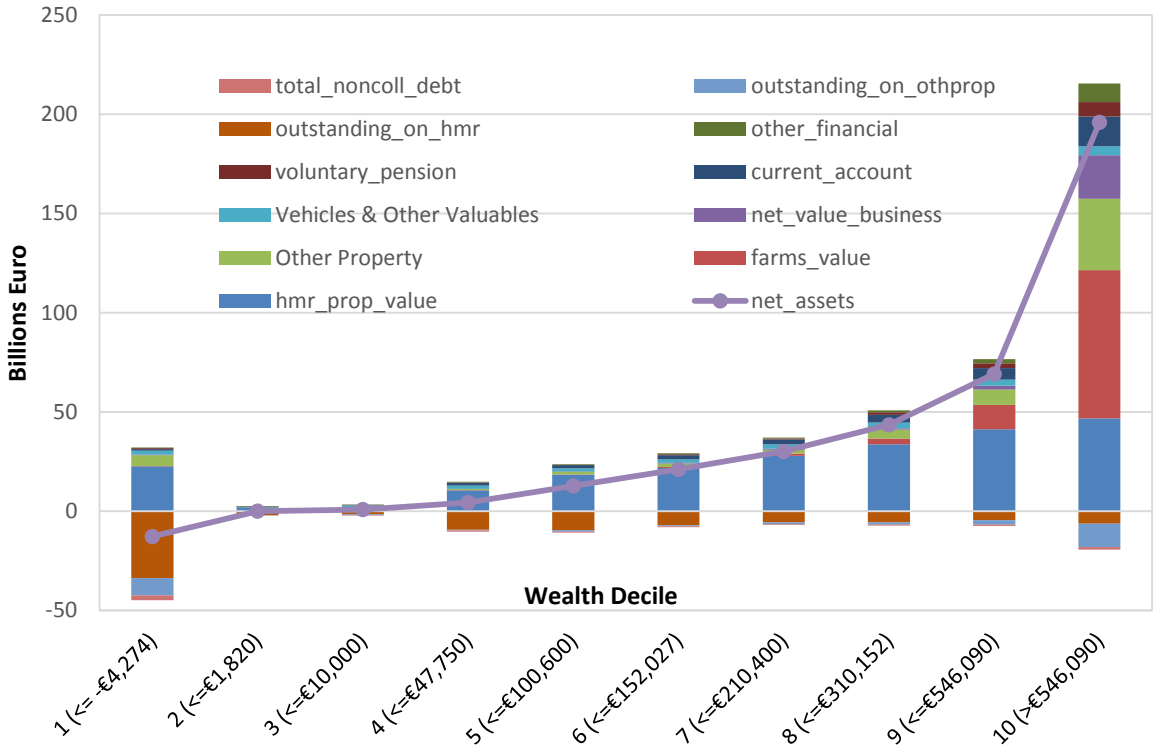
We next look at the different assets and liabilities that make up household wealth. Table 3 adds up the different components of wealth across all households and looks at their total values (in millions of euro) and their relative shares of gross and net wealth. Out of total gross assets (i.e. not adjusted for debt) of Irish households, the main residence accounts for just under half of the total value.

[9] Note these are deciles of gross household income (un-equivalised) and are therefore not the same as the income deciles used in the CSO Survey on Income and Living Conditions.

Farms make up a further twenty per cent of asset values and other residential property 9 per cent. Overall, Irish households hold almost all of their wealth in the form of real assets with just 12 per cent accounted for by financial assets. The majority of financial assets are held in the form of current accounts, with the remainder being comprised of voluntary pensions (i.e. private pension funds that are not provided through an employer, which we unfortunately have limited information on) and other financial assets (these would include shares, mutual funds etc.) The largest debts are also those associated with property, with outstanding mortgages on the household main residence representing 18 per cent of total gross asset values and other property debts a further 6 per cent. Debts reduce the gross asset values by one-quarter, leaving total net wealth across all households of €364 billion.

These assets are of course not evenly distributed across household. Figure 1 presents the distribution of assets across wealth deciles described above. The concentration of wealth in the top decile is again apparent. Interestingly, the bottom decile has a larger share of assets than the next five deciles but is distinguished by having a much higher degree of debt, whereas the second and third deciles in particular have very low asset holdings but also almost no debt. From the fourth to the ninth deciles – i.e. for almost all households with positive wealth apart from the top group, the household main residence is the dominant asset. Only in the wealthiest households does the main residence value not account for the majority of net wealth. The asset composition of the wealthiest group is more heterogeneous, although farm values and other residential property combined with the main residence account for close to three-quarters of the total.

Figure 1: Type and Value of Assets Held by Wealth Decile



4. Constructing Scenarios for a Wealth Tax Design

As we discussed in the Introduction, our objective in this research is to present a broad range of scenarios for the implications of a wealth tax to give as full a picture as possible of the different considerations that would need to be taken into account. In particular the aim is to address the implications of tax design in terms of calculating the tax base, payments, potential revenues and distribution of households liable for payment.

We therefore present a wide range of scenarios but grouped into two categories. The first takes the structure of existing wealth taxes in similar countries and applies the thresholds and asset coverage to Irish household wealth. The countries used are France, Spain, Iceland, Netherlands, Norway, Switzerland (as the Swiss system varies by cantons and municipalities, we specifically calculate the systems represented by the median municipality in each of the cantons of Schwyz, Uri and St. Gallen). We adjust the thresholds using purchasing power parity equivalent exchange rates to ensure consistency in the application of the thresholds from these countries to the Irish data.

The second set of scenarios explores the trade-offs from adjusting thresholds and asset exemptions. These hypothetical tax designs start from broadest possible tax base and a low threshold, thereby casting a wide tax net, and then examine the impact of applying exemptions to specific assets (especially the HMR) and increasing the qualifying threshold. For all of these different scenarios, we calculate the size of the tax base, the percentage of households that would be liable, the average tax payment and resulting revenues, which are presented in Section 5. We then look at the distribution of the tax across household types in Section 6

Before describing the scenarios in some more detail, there are a number of important caveats to be borne in mind when looking at our results. The first is that as the data is collected at a household level, we effectively make the assumption that all assets are owned by the household reference person. We do not attempt to equivalise the data by household size or composition. In designing a tax in practice, however, the allocation of assets across household members may be an important consideration, particularly if the household is not represented by a single tax unit.

The second consideration is that the values used are all as reported by the households in 2013 and there may have been asset value changes since then. Using asset values from 2013 might serve to understate the potential revenue from wealth tax. Property values in particular have generally risen, although not evenly across the country. Again, the frequency and difficulty of asset value updating is one of the potential administrative hurdles that a wealth tax design has to address and in the case of the Irish experience of the 1970s was one of the factors that led to a high cost of implementation (Sandford and Morrissey, 1985).

There is likely to be some limitations in the survey in capturing the very top of wealth distribution. On the other hand, taking the asset allocation as it stood in the absence of any wealth tax means that no account is taken of the tax capitalisation effect a wealth tax would have in reducing asset values. There are also no behavioural changes to reduce tax liability that might change asset composition. A recent study by Brulhart et al (2016) of the Swiss wealth tax finds behavioural elasticities substantially in excess of those in the taxable income literature One other limitation of the survey is that it does not include values for occupational pensions or future welfare payments, although the wealth taxes implemented in a number of countries used as models exempt these

assets. Finally we cannot account for the extent to which wealth in the survey may be subject to some form of taxation in other jurisdictions.

Scenarios from Other Countries

In considering the range of hypothetical wealth tax scenarios which could be simulated using the Irish distribution of wealth from the HFCS data, one starting point is to examine the existing (or antecedent) wealth taxes which are applied in other countries. While wealth taxes have become increasingly uncommon in developed countries there are still a number of countries which levy wealth taxes. The examples examined here include the taxes on wealth applicable in France, Spain, the Netherlands, Iceland (expired 2014), Norway and Switzerland.

Table 4 summarises the thresholds (in national currency and using purchasing power parity adjustments), rates and main exemptions of each country's wealth tax system and more detail is provided in Appendix A and B. In the main, all of these countries apply taxes on net wealth, i.e. any debts are deducted from asset values. The broadness of the wealth tax base varies from country to country depending on the extent to which different types of wealth are exempted or are attributed a reduced value for wealth tax purposes and the level of individual thresholds which apply before liability to wealth tax is incurred. The assets which most frequently feature as part of base narrowing are the household main residence, business assets, farms and pension assets.

There is a wide range of personal thresholds evident among wealth tax systems. The personal threshold for a single individual varies from €21,139 (€23,289 in PPP terms) in the Netherlands[10] to €1.3 million in France (€1.46m in PPP terms).

As with any tax, progressivity can be achieved through a combination of progressive tax rates and varying the aforementioned individual thresholds. Progressive tax rates feature in the French, Spanish and Icelandic systems as well as in some Swiss cantons. In the Netherlands, Norway and some further Swiss cantons proportionate rates are applied. The unit of taxation to which wealth taxes are applied is the income tax unit. With the exception of France, this is the individual with thresholds doubled for married couples, though in the Icelandic case thresholds for couples were less than double that for single taxpayers.[11]

The main features of each country's wealth tax system are as follows:

- The French net wealth tax has the narrowest base of the systems examined with a high personal threshold and a large range of exemptions and deductions from the tax base. In addition cumulative wealth and income taxes are capped at a proportion of income. The French tax unit, the "fiscal household" is unusual and has the effect of applying the same threshold to couples as singles. Wealth tax rates increase progressively from 0.5% to 1.5% on the highest wealth households.

[10] The lowest threshold, which is not considered in this paper, is in the Swiss canton of Oberwalden at 25,000 CHF (€16,500 in PPP terms).

[11] The principle of equivilisation which is broadly applied when considering income adjusts household income to account for household composition. Thus a two adult household is considered to require less than twice the income of a single person household to achieve the same standard of living. Similarly it seems possible that a couple would not require double the amount of wealth a single person held to each derive commensurate benefit.

- The Spanish net wealth tax also has a narrow base with a relatively high personal threshold (doubled for married couples) and a number of exemptions and deductions from the tax base. Cumulative wealth and income taxes are capped at a proportion of income subject to a minimum payment. Wealth tax rates increase progressively from 0.2% to 2.5% on the highest wealth households.
- The Dutch tax on assumed income from wealth savings and investments, although legally an income tax is effectively a net wealth tax. As the tax only extends to savings and investments, the tax base is on the narrow side despite the very low personal thresholds (doubled for married couples). The tax applies at a proportionate rate.
- Swiss wealth taxes are unusual in a number of ways. They are the most broadly based, applying to almost all net assets. The tax is applied by the cantonal (regional) governments rather than the federal (national) government and as a result rates, personal thresholds and other provisions vary considerable by canton. Cantons typically also have an additional allowance per child. Municipalities within cantons can further vary the tax by applying a range of multipliers. Cantons apply a mix of proportionate and progressive rates. The lowest rate is the 0.2% proportionate rate in Oberwalden which applies above a very low threshold. The highest progressive rate applies in Basel reaches 8.0% in Basel on the highest wealth households. The cantons considered in this paper are Uri, Schwyz and St. Gallen which apply a range of proportionate rates combined with varying personal thresholds.
- The net wealth tax regime applying in Norway is intermediate in terms of the personal threshold (doubled for married couples), the extent and value of exemptions and deductions and ultimately the width of the wealth tax base. All property types are typically attributed a significantly discounted value for tax purposes. A proportionate tax rate applies, the majority of which is hypothecated to the municipality it was collected in.
- The Icelandic net wealth tax expired at the end of 2014. It had a number of unusual features including that it was introduced with capital controls to prevent capital flight and personal thresholds for married couples were less than double those for single taxpayers. The tax featured a progressive rate schedule.

In line with OECD recommended practice, when applying wealth taxes from other countries to Ireland adjustment needs to be made to account for differences in price levels and currencies (OECD, 2013). Purchasing Power Parities (PPPs) from Eurostat for household final consumption expenditure are used to apply the thresholds and wealth tax bands from other countries wealth tax systems to Ireland.

Table 4: Rates and Exemptions for Liability to Wealth Tax by Wealth Tax Regime
(Single Person Thresholds)

Wealth Tax Regime	Threshold National Currency	HFCE PPP* Exchange Rate	Threshold in Euro (PPP terms)	Rate(s)	Exclusions and Deductions
French system	€1,300,000	1.1225	€1,459,276	Progressive 0.5% - 1.5%	Excl. Business & Pension. Ded. LPT & 30% of HMR
Spanish system	€700,000	1.2863	€900,430	Progressive 0.2% - 2.5%	Excl. Business & Pension. Ded. €300k from HMR
Dutch system	€21,139	1.1017	€23,289	Proportional 1.20%	Excl. HMR, Business, Pension, Farms, Personal Property
Swiss -Schwyz -Oberiberg	75,000 CHF	0.6643	€49,824	Proportional 0.246%	Excl. Pension
Swiss -Uri -Unterschachen	100,600 CHF	0.6643	€66,830	Proportional 0.2575%	Excl. Pension
Swiss -St. Gallen -Lutisburg	125,000 CHF	0.6643	€83,040	Proportional 0.4692%	Excl. Pension
Norwegian system	1,200,000 KR	0.0994	€119,276	Proportional 0.85%	Excl. 100k kr private property Ded. 75% from HMR & c.40% from other property
Icelandic system	75,000,000 ISK	0.0067	€501,323	Progressive 1.5% & 2%	N/A

* Household Final Consumption Expenditure (HFCE) Purchasing Power Parity (PPP) value for 2013 (Eurostat)

Alternative Scenarios

Up until this point, the discussion has concerned wealth tax regimes from other countries which can be applied to the Irish distribution of wealth. For illustrative purposes, it is also possible to consider a wider range of hypothetical wealth tax scenarios. The following scenarios attempt to be representative of the full range of what could be an infinite number of possible scenarios. In this way estimates of the impact of scenarios not modelled can also be better informed.

As identified earlier, the broadness of the wealth tax base is largely determined by two main parameters; the application of exemptions from, or reductions to, wealth tax liability for particular asset types e.g. the household main residence; and varying the level of individual thresholds of wealth before entering the wealth tax net. In the hypothetical wealth tax scenarios presented here, these two parameters are combined in varying extents to generate a variety of theoretical wealth bases. Each of these scenarios is labelled primarily in reference to these two parameters. The higher the individual thresholds, the narrower the base and the more assets are exempted or reduced in value, the narrower the base also.

Table 5 shows the main features of each of our alternative scenarios. At one extreme, a combination of the narrowest of asset bases and the largest individual thresholds can be conceived of. In this "High Threshold – Large Exemptions " scenario, exemptions[12] for the household main residence, farms, business assets and voluntary pensions (almost three quarters [73.6%] of gross assets) are combined with high individual thresholds of €1 million (double if married) and €500k per child.

Table 5: Thresholds and Exemptions for Liability to Wealth Tax by Wealth Tax Scenario

	Personal Threshold	Exclusions and Deductions
High Threshold – Large Exemptions	€ 1m (double if married) €500k per child	Excl. HMR, Farms, Business, & Pension
No Threshold – Large Exemptions	None	Excl. HMR, Farms, Business, & Pension
High Threshold – No Exemptions	€ 1m (double if married) €250k per child	None
Middle Threshold – No Exemptions	€ 500k (double if married) €125k per child	None
Low Threshold – 50% Deduction	€125k (double if married) €30k per child	Excl. Pension Assets Ded. 50% from HMR, Farms & Business
No Threshold – HMR Exempt	None	Excl. Household Main Residence
Low Threshold - Large Exemptions	€125k (double if married) No child allowance	Excl. HMR, Farms, Business, & Pension
Low Threshold – No Exemptions	€125k (double if married) No child allowance	None
All Net Assets	None	None

[12] When particular assets are exempted from liability to wealth tax, the debt associated with those assets is still deducted from the remaining assets to arrive at net wealth. E.g. When the household main residence (HMR) is exempted from liability to wealth tax, mortgage debt associated with the HMR is still deducted from the remaining gross assets to arrive at net wealth.

At the opposite extreme, bringing together the broadest of asset bases and the smallest of individual thresholds yields a scenario where all positive net assets would be liable. In the "All Net Assets" scenario, all asset types are included in the base at their full valuation and there is no individual threshold which would reduce individual's wealth tax liabilities. In this scenario any household with net assets greater than zero would incur a wealth tax liability. The full range of scenarios is set out in the table below with each scenario varying as the combination of personal threshold and exclusions and deductions. For ease of comparison each of these scenarios will be assigned a tax rate of 1%.

The closest comparators in Ireland to net wealth taxes are the Local Property Tax and the means testing of non-contributory social welfare payments[13]. While neither is designed as a net wealth tax, both of these can be contrasted with the alternative scenarios in Table 5. The Local Property Tax (LPT) is a tax on a residential assets which make up over half of gross wealth (i.e. it excludes all assets other than residential property). LPT is based on each individual residential property's gross value which are summed if more than one property is held. By contrast the alternative scenarios are all based on the aggregate of household assets liable in that scenario, less total household debt. The LPT applies at a rate of 0.18 per cent on the first €1 million in value (organised into nineteen valuation bands) and 0.25 per cent on the portion of the value above €1m.

In Ireland non-contributory social welfare payments are subject to a means test. This includes imputing an income to the value of capital assets which is broadly comparable to a tax on net wealth. (i.e. with a wealth tax, the tax payment increases as wealth increases, whereas with capital assets testing, the social welfare payment decreases as wealth increases). For comparison to the various wealth tax scenarios it is worth noting that the household main residence is excluded from the assessment of assets as is personal use property (e.g. private vehicle, jewellery). The asset value of pensions are taken into account to the extent that the pension fund can be accessed, if there is no access to the fund its value is not assessed. As regards farm assets, these are not assessed on their capital value but farm income is included on the income side of the means test. Conversely, all other property, savings and investments is assessed on the basis of net capital value but income from these assets is not included on the income side of the means test.

Associated with the minimum living standard purpose of social welfare payments the rates of reduction of payment as net wealth increases are relatively high. For most social welfare payments they correspond to annual net wealth tax rates of 5.2 per cent on net wealth liable above €20,000, 10.4 per cent above €30,000 and 21.8 per cent above €40,000 before reverting to 0 per cent when the imputed income value of net wealth exceeds the value of the social welfare payment. For a claimant with a net income of €0 before welfare, this 0 per cent rate kicks in at €82,500 for a weekly welfare payment of €200 (€10,400 annually). This unusual tax structure from a net wealth tax perspective, though appropriate from a means testing viewpoint, illustrates some of the difficulties in comparing systems similar but functionally different from a net wealth tax.

[13] Other forms of tax which include elements of household wealth are briefly discussed in Section 8.

Actual Modelling of Wealth Taxes

In the modelling exercise it is not always possible to exactly implement all elements for each of the wealth tax regimes. This tends to be as a result of certain information which is used in calculating the relevant wealth taxes being absent from the HFCS dataset. Nonetheless, most of the main factors influencing the estimated wealth tax burden should be accounted for in the modelling. Here we outline some of the issues involved in the modelling process, detail what exactly was modelled in each of the country scenarios and summarise the main differences between the country wealth tax scenarios modelled and the actual wealth tax regimes they represent. The implications of these differences are also considered.

In the HFCS the household is defined as "a person living alone or a group of people who live together in the same private dwelling and share expenditures, including the joint provision of the essentials of living. Employees of other residents (i.e. live-in domestic servants, au-pairs, etc.) and roommates without other family or partnership attachments to household members (e.g. resident boarders, lodgers, tenants, visitors, etc.) are considered separate households." This definition is used as the unit of taxation in modelling all scenarios.

However the HFCS definition of a household differs from the actual unit of taxation which might apply in these countries. For example a student living at home and over the age of 18 may be considered to be an independent wealth tax unit in some jurisdictions while being considered part of the one household by the HFCS definition. Similarly, individuals sharing housing and expenditures may be considered separate wealth tax units in some countries whereas the HFCS definition of a household (and the modelling) considers these individuals to be part of the one household. The difference between the HFCS household definition used in the modelling and the actual tax units as defined in the relevant countries will have implications in terms of the estimates of the overall wealth tax burden and its distribution. For instance, where multiple individuals are treated as one wealth tax unit in the HFCS, the modelled results will indicate that a larger proportion of wealth is in the hands of a smaller number of households.

In addition to the issue of the appropriate attribution of wealth identified already there is also the related issue of attribution of thresholds. As modelled, the threshold is determined on the basis of the marital status of the household reference person[14]. Thus where the reference person is married, that household is assigned double the threshold of an individual in the relevant scenarios. Households with multiple adults where the reference person is not married will be assigned a single individual's threshold. For example, in cases where one married adult is living in the household they will be modelled with the full couple threshold. Conversely where there are two unmarried individuals who share housing and expenditures their combined wealth will be modelled with just a single individual's threshold.

The main advantage of this approach is its consistency with Irish law regarding the tax treatment of married couples as compared to individuals. In practice, the alternative system of attributing an allowance per adult in the household would also likely require a registry of place of residence. However, the approach could potentially bias the wealth tax estimates upwards given that

[14] This affects the modelling of all country scenarios except for the French wealth tax system where there is just one threshold applied to all households.

households with multiple adults would in practice have their wealth separated out and each individual would have their own threshold, unlike the modelling approach.

In Switzerland and Norway, different valuations apply to agricultural land and property based around the earning power of the property e.g. rental value. The exact detail of how this is calculated in these jurisdictions is not clear and the HFCS data does not contain information which would allow this type of valuation to be implemented. As a result in modelling the application of these jurisdictions' wealth taxes to Ireland, the tax base will be over-estimated as the taxable values of farmland under these systems will be larger than if it was possible to replicate the actual valuation techniques. These differences are important considering that farms comprise a large proportion of net wealth in Ireland.

With regard to the income caps in France and Spain, in the modelling these are applied such that the total wealth tax cannot exceed the maximum proportion of income (subject to the minimum payment in Spain). In practice, these income caps apply to cumulative liability to income and wealth taxes, however data on income taxes payable by these households is not available. As a result, the modelled income caps on wealth tax payments will limit liability by less than would be the case if it was possible to apply the limit to cumulative income and wealth taxes. However, this would not be expected to have a major impact on estimates the number of households liable or the revenue. Appendix B provides some further details on the application of the country scenarios to the Irish data.

Finally it should be noted that the results tables provided display point estimates around which confidence intervals can be relatively large. This applies particularly in the case of the more disaggregated results.

5. Tax Base, Household Liability and Revenue Estimates

Applying Comparator Country Tax Structures to Ireland

Applying the tax structures of our comparison countries to the Irish household wealth structure gives us a fairly broad range of outcomes as shown in Table 6. Along with the country scenarios, we include in the final row of the table an extreme comparison scenario of applying a flat 1 per cent tax to all net wealth. This essentially gives an extreme upper bound to the households that would be liable to a wealth tax.

To begin with the highly unrealistic scenario of taxing all positive wealth at 1 per cent, this would raise an estimated €3,781 million and affect 86% of all households. To achieve this yield, however, would require taxing lots of people who have very little net wealth and possibly low incomes. In addition, applying a wealth tax to all households would present a very large administrative burden. All of the existing wealth tax designs in other countries apply a minimum wealth threshold for this reason. Looking at the results, we see a stark contrast in terms of the size of the tax base and the number of households liable between the very broad-based Swiss system (with relatively minor differences across canton) and the more narrowly-targeted systems applied in other countries. This perhaps highlights a distinction between taxing (almost all) wealth and taxing the upper part of the distribution of wealthy households.

If applied in Ireland, the French and Spanish systems, which provide exemptions or allowances for a range of assets along with relatively high qualifying thresholds, would result in at most less than one per cent of households being liable to pay any wealth tax. The percentage of wealth liable to be taxed is in all instances higher than the percentage of households liable due to the extent to which wealth is concentrated in upper part of the household distribution. The revenue streams from these tax systems would vary from €22 million from the application of the narrowly focused French system to €77 million from the slightly broader Spanish model. The Dutch, Icelandic and Norwegian systems are slightly more broadly based and would encompass between 23 per cent and 4 per cent of households. This would result in significantly higher revenue being raised, some three quarters of a billion euro under the Norwegian system.

The variations of the Swiss system when applied to Irish data show quite a different pattern from those of the other country models. As only pensions are excluded from the asset calculations and the liability thresholds are set considerably lower than in other countries, a very significant number of household would be affected by the tax – over half of households in the St. Gallen example covering 72 per cent of all household wealth. This does not however translate directly into higher revenue streams because the tax rate applied is considerably lower. Although the St. Gallen model does project the highest revenue, it is spread over a much larger number of taxpayers than any of the other country systems. The Icelandic system raises more revenue from 4.4 per cent of households than the Schwyz or Uri canton systems generate from taxing over 40 per cent of households.

Table 6: Tax Base, Household Liability and Revenue from Country Scenarios

	Tax base (millions)	% wealth liable	Liable hhds (thousands)	% liable household	Revenue (millions)
French system	€5,320	1.4%	1.7	0.1%	€22
Spanish system	€10,500	3%	12	1%	€77
Dutch system	€58,800	15%	331	23%	€706
Swiss system (Schwyz)	€230,000	61%	697	41%	€566
Swiss system (Uri)	€249,000	66%	784	46%	€641
Swiss system (St Gallen)	€274,000	72%	881	52%	€1,286
Norwegian system	€91,000	24%	212	13%	€774
Icelandic system	€42,200	11%	75	4%	€725
1% tax on all net assets	€378,120[15]	100.0%	1,459	86.32%	€3,781

[15] The tax base includes only those with positive net assets. It is therefore larger than the €364,000 million from Table 3 which includes households with negative net wealth.

This is shown further in our calculation of average tax bills from the different systems presented in Table 7. While affecting very few taxpayers, the French system applies by far the highest average payment for households that are liable to pay at over €12,000.

Table 7: Estimated Tax Bills for Irish Households from Other Country Systems

	Mean payment
French system	€12,537
Spanish system	€6,620
Dutch system	€2,132
Swiss system (Schwyz)	€810
Swiss system (Uri)	€816
Swiss system (St Gallen)	€1,457
Norwegian system	€3,637
Icelandic system	€9,660
1% tax on all net assets	€2,592

Varying Thresholds and Asset Exemptions

Applying the tax designs of other countries to Irish data therefore gives a reasonably wide range of outcomes. However, in order to understand further the trade-offs between thresholds, asset coverage and revenue, we also simulated the effects of a range of hypothetical tax scenarios, going from a very narrowly focused base with high liability threshold and many exempted assets to a charge on all net assets. In all of these scenarios, the focus is on the effects of varying the threshold and the assets included.

The final critical determinant of potential revenue yields is of course the rate applied. In Table 8 we present the outcome of having a 1 per cent rate applied to all qualifying wealth above the specified threshold. As this is a simple proportional rate, the revenue from alternative rates would be a multiple of the number reported – a 0.5 per cent rate would half our revenue estimates or a 2 per cent rate would double them for example. The effects of introducing multiple rates would be more complex but their upper and lower bounds can be set by these single proportional rate estimates.

To put the projected revenues associated with the scenarios in context it is worth bearing in mind that general government total receipts from taxes and social contributions in 2013 were €53.2bn.[16]

[16] Exchequer tax returns in 2013 were €37.8bn. On an exchequer basis, an additional €1bn raised from net wealth taxes would be equivalent to an increase of 2.6 per cent.

If net wealth taxes raised an additional €1bn that would be equivalent to a 1.9 per cent increase in government receipts.

The narrowest tax base that we look at in Table 8 – the high-threshold, large exemptions case - is relatively similar to a simplified version of the structure of the French wealth tax system. It applies a high personal allowance threshold including increases for children and exempts a range of assets such as the main residence, farms, business and pension wealth. This results in just 1.4 per cent of wealth liable for taxation. The 4,288 liable households would pay over €12,000 each in this scenario (Table 9 gives the tax payment estimates for liable households) and, in total, this scenario would raise €53 million in revenue. Keeping the asset exemptions in place but removing the personal allowances completely (the no threshold, large exemptions scenario) brings 64 per cent of households into the tax net, although as the largest assets have been excluded, the amount of total wealth liable for taxation is just under 22 per cent. Many more households are liable to be taxed under this scenario, albeit at a considerably lower average amount (€765), resulting in a revenue yield of €823 million.

The effect of taking the opposite course and removing all asset exemptions but restoring the personal allowances is the basis of the next two scenarios presented – high and middle thresholds, both with no exemptions. This experiment demonstrates that the threshold largely drives the number of households liable even when no specific asset exemptions are included. Unlike the previous example where excluding many assets but having no threshold for remaining wealth still resulted in the majority of households facing some level of wealth tax, both of these scenarios would have the wealth tax apply to not much more than 5 per cent of households. The average tax payment is lower in the middle threshold scenario as households with lower levels of wealth are included; notwithstanding this, the revenue is 2.5 times higher because of the larger number of taxpayers.

Table 8: Tax Base, Household Liability and Revenue from Alternative Scenarios

	Tax base (millions)	% Wealth Liable	Liable Hhds (thousands)	% Liable Households	Revenue (millions)
High Threshold – Large Exemptions	€5,297	1.4%	4	0.25%	€53
No Threshold – Large Exemptions	€82,257	22%	1,075	64%	€823
High Threshold – No Exemptions	€24,753	6%	26	1.5%	€248
Middle Threshold – No Exemptions	€62,178	16%	95	6%	€622
Low Threshold – 50% Deduction	€87,151	23%	296	18%	€872
No Threshold – HMR Exempt	€204,099	54%	1,140	67%	€2,041
Low Threshold – Large Exemptions	€32,968	9%	96	6%	€329
Low Threshold – No Exemptions	€205,429	54%	548	32%	€2,054
1% tax on all net assets	€378,120	100%	1,459	86%	€3,781

As we saw earlier, most country systems in practice take a balance of some form between the asset exemption and allowance approaches. We therefore take an intermediate approach for the next scenario – low threshold, 50 per cent deduction - with a lower threshold (€125,000 for an individual, double if married and additional €30,000 per child) applied and specific assets are provided with an offset of half their value (specifically the main residence, farms and businesses, while pensions are exempted completely). In terms of country examples above, this is perhaps most similar to the Norwegian system. This scenario brings 18 per cent of households into the scope of a wealth tax, and with an average tax bill of just under €3,000 per household would result in a revenue yield of €872. This is slightly more than would be raised from the 64 per cent of households being levied with the wealth tax in the second scenario where there was no personal allowance but more assets exempted completely.

Table 9: Estimated Tax Amounts for Irish Households from Alternative Scenarios –

	Mean payment
High Threshold – Large Exemptions	€12,353
No Threshold – Large Exemptions	€765
High Threshold – No Exemptions	€9,590
Middle Threshold – No Exemptions	€6,565
Low Threshold – 50% Deduction	€2,945
No Threshold – HMR Exempt	€1,790
Low Threshold – Large Exemptions	€3,418
Low Threshold – No Exemptions	€3,746
All Net assets	€2,592

Given the high share of household wealth in Ireland accounted for by the household's main residence, we include a scenario of exempting this particular asset only with no other allowances or exemptions applied (no threshold, HMR exempt). The lack of personal allowance in this scenario means that it would bring a significant proportion of households into the tax net but by exempting the main asset most households possess, the average payment would be lower than in all but one of the other scenarios presented (€1,790).

The final new scenario reduces the threshold once again (low threshold, no exemptions) this time applying to all wealth above €125,000 (doubled for married couples but no additional child allowance), perhaps the broadest feasible base. This threshold reduction brings considerably more households into the tax net, increasing the percentage liable to almost one-third compared to the 6 per cent in the middle threshold, no exemptions scenario. This reflects the highly non-linear distribution of wealth across households. The final row of Table 8 repeats the comparison of taxing all net wealth that was also included as a benchmark in the country comparison tables. This selection of scenarios – some perhaps more realistic than others – demonstrate the type of

considerations and trade-offs in the structure of a wealth tax and their implications for the numbers of households that would be liable and potential revenue to be raised.

Comparison of Wealth Tax Revenues and Household Liability in Comparator Jurisdictions

As a check against the estimates from applying other jurisdictions' wealth tax systems to Ireland, it is useful to briefly compare the wealth tax systems as they apply in their own jurisdictions. Table 10 details the proportion of tax units liable and the average wealth tax payment due in a number of the comparator jurisdictions. As the wealth tax systems use different tax units, among other differences, they are not strictly comparable. They will, however, provide a broad indication of the breadth and depth of the wealth tax systems in those countries. For instance, it is estimated that, just under one percent of French 'fiscal households' are liable to the French wealth tax and that the average liability of those households is high at over €14,000. By comparison, the proportion of tax units who are liable to the wealth tax in the canton of Uri in Switzerland is much higher at 40%. The average wealth tax payment is however substantially lower.

Table 10: Liable Tax Units and Average Payments across Countries

	Comparator Year	Proportion of Tax Units Liable	Average Wealth Tax Payment
France[i]	2013	0.90%	€14,050
Spain[ii]	2013	0.80%	€6,000
Netherlands[iii]	2011	26%	€1,900
Uri, Switzerland[iv]	2013	40%	Fr. 1,200
Norway[v]	2014	24%	kr 23,400

[i] Figures refer to 'Fiscal Households' which are based on income tax returns.
Source: Authors' calculations from Direction Générale des Finances Publiques, Cahier statistique 2015

[ii] Source: Authors' calculations from Agencia Tributaria, 2013, Datos económicos y tributarios del impuesto por CCAA, provincia y tamaño de población. Tamaño de población: Total, Distribución geográfica: Total
Source: Agencia Tributaria, 2013 Resumen del Impuesto por Comunidades Autónomas, Comunidad Autónoma: Total , Sexo: Total

[iii] Source: 2014 European Commission Cross-country Review of Taxes on Wealth and Transfers on Wealth
Source: Authors' calculations from Netherlands Commission on Income Tax and Surcharges, 2013 Towards a more active tax system End Report (in Dutch)

[iv] Figures refer to 'Natural Persons'.
The proportion of households liable figure does not include assets in other cantons or abroad.
Source: Steuerstatistik Uri 2013, Tabelle 22 Natürliche Personen. Steuerbares Vermögen nach Vermögensstufen
The average wealth tax payment does include assets in other cantons and abroad.
Source: Authors' calculations from Steuerstatistik Uri 2013 Tabelle 33 Kantons- und Gemeindesteuerertrag der natürlichen Personen Kantons- und Gemeindesteuerertrag der natürlichen Personen. Tabelle 21 Vermögen nach Ziffern der Steuererklärung.

[v] The 2014 statistics are the most recent available. In 2014 the threshold was 1m kroner and the rate 1%.
Note the 2015 Norwegian wealth tax parameters were those simulated for Ireland.
Sources: Bruer-Skarsbø, Ø. (2015). Behavioral Responses to the Norwegian Wealth Tax.
Statistics Norway, Skatteoppgjøret for bosatte personer 17 år og eldre. Millioner kroner, antall personer med beløp og gjennomsnitt.
Source: Statistics Norway, Skattestatistikk for bosatte personer 17 år og elder

The most notable difference from the Irish simulations is the Norwegian example. Official statistics from Norway suggest that 24% of tax units there are liable for the wealth tax with an average payment of kr. 23,400 (c. €2,326). The estimate for the proportion of households liable when the Norwegian wealth tax system is applied to Ireland is 12.6% with an average payment of €3,637 (See Table 6). These differences are likely to be attributable to a combination of dissimilar structures of wealth holdings, the diverging treatment of certain assets in the modelling as compared to application in reality (See Actual Modelling Section) and that wealth tax parameters differed in the comparator year (2014) from those modelled (2015).

6. Distribution of Liability

The calculations in the previous section showed the percentage of households that would be liable for a wealth tax under a range of scenarios. This section looks in more depth into what type of households these are and, in particular, where they sit in the income distribution.

In describing the data in Section 3, we noted that wealth is considerably more concentrated than income. Although income and wealth are positively correlated, there are a number of reasons why this correlation is not perfect. For example, households may have acquired assets through inheritance or assets they purchased in the past may have had varying degrees of capital appreciation (or indeed depreciation in the case of households with negative equity properties). Some farming households may have assets of high value that generate modest income streams and older households may own mortgage-free property but now be living on a pension income that is considerably lower than their prior employment earnings.

At the other end of the age distribution, high-income young families with recent house purchases may have apparently low net wealth relative to their income as they are at a life-cycle stage where asset accumulation has only just begun. There are therefore a wide variety of reasons why we might find a tax on wealth has impacts all along the income distribution with implications for ability to pay that would need to be considered in the design of any potential system.

The next two tables divide households into ten income buckets with an equal number of households in each grouping and calculates the percentage of the wealth tax that would be paid by each group (Table 11) and how the number of liable households are spread across the income deciles (Table 12) in the case of each of the country wealth tax systems being applied to Irish households. We will do the same for our set of hypothetical scenarios later in the section.

Table 11: Distribution of Tax Paid by Household Income Decile – Country Systems

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
French	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.2%	78.8%
Spanish	0.1%	0.2%	0.0%	0.3%	2.9%	3.3%	3.7%	5.6%	28.2%	55.7%
Dutch	3.5%	2.1%	1.7%	4.5%	4.8%	5.7%	7.3%	10.5%	19.5%	40.4%
Swiss -Schwyz	4.8%	5.4%	4.7%	6.1%	6.3%	8.2%	8.6%	11.7%	14.2%	30.0%
Swiss – Uri	5.0%	5.6%	4.9%	6.3%	6.4%	8.3%	8.7%	11.7%	14.0%	29.1%
Swiss – St.Gallen	5.2%	5.7%	5.1%	6.5%	6.6%	8.4%	8.8%	11.7%	13.9%	28.1%
Norwegian	3.1%	4.6%	3.9%	5.6%	6.0%	7.3%	8.5%	12.1%	17.1%	31.8%
Icelandic	2.6%	2.7%	1.5%	3.1%	5.3%	5.6%	7.1%	10.7%	19.6%	41.9%
1% tax	5.4%	5.8%	5.7%	6.8%	7.1%	8.8%	9.4%	11.7%	13.9%	25.5%

Table 12: Distribution of Liable Households by Income Decile – Country Systems

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
French	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.2%	82.8%
Spanish	1.0%	2.1%	1.6%	1.8%	13.3%	8.8%	11.6%	11.7%	16.9%	31.1%
Dutch	7.4%	6.1%	4.5%	5.0%	6.2%	7.8%	11.0%	11.8%	15.5%	24.6%
Swiss -Schwyz	10.5%	9.6%	8.2%	8.5%	8.3%	9.4%	8.9%	10.9%	10.7%	15.2%
Swiss – Uri	10.4%	9.7%	8.4%	8.5%	8.5%	9.5%	9.1%	10.8%	10.3%	14.8%
Swiss – St.Gallen	10.3%	9.6%	8.2%	8.2%	8.8%	9.5%	9.7%	10.8%	10.7%	14.2%
Norwegian	6.9%	8.5%	5.3%	7.7%	7.5%	8.8%	9.7%	12.1%	13.9%	19.7%
Icelandic	5.5%	7.8%	4.0%	7.9%	7.1%	7.7%	8.8%	10.2%	15.0%	26.1%
1% tax	10.0%	10.2%	10.2%	10.1%	10.2%	9.5%	9.9%	9.8%	9.8%	10.3%

The immediately striking result from this analysis is that, with the exception of the very narrowly focused French system, all of the other wealth tax designs would affect at least some households in all of the income bands. In all cases the bulk of the tax revenue would be raised from the higher income groups, as should be expected from the positive correlation of income and wealth, but a non-negligible proportion would come from the lower deciles in most of the other country systems.

The three variants of the Swiss system have the largest impact on the lower deciles, which is unsurprising given that they covered a significantly larger percentage of households than the other systems. In fact the Swiss systems in Table 12 show that the distribution of liable households are spread fairly evenly across all income groups although the higher income groups do contribute more of the total tax revenues (Table 11). However, even more narrowly focussed tax designs such as the Icelandic system (where 4 per cent of households would be affected) and the Spanish system (1 per cent of households) which is most similar to the French system, have some households in the lowest income decile that would be liable if those structures were applied in Ireland.

As one of the potential explanations for an imperfect correlation between income and wealth relates to retirees having built up debt-free assets while working but now receiving reduced incomes from pensions, the distribution of households liable for the wealth by age and family structure was calculated for each of the country scenarios. This allows us to examine if there is any evidence that

the liable households are disproportionately concentrated in any particular grouping. Overall, approximately twenty per cent of households have a reference person aged 65 or older (CSO, 2015). Table 13 shows that in the French system 41 per cent of wealth tax revenue would be raised from households in this age group without dependent children.

In almost all cases the percentage of wealth tax revenue raised from households with a reference person aged 65 or more is well in excess of their share of the population. Sole adults with children represent a much smaller fraction of potential tax revenue relative to their share of the population as these tend to be the family type with the lowest net wealth.

Table 13: Wealth Tax Revenue from Country Scenarios by Household Type

	French	Spanish	Dutch	Swiss	Norwegian	Icelandic	1% tax on all Net Assets
1 adult, aged 65+	19%	23%	10%	10%	12%	15%	9%
1 adult, aged <65	47%	2%	8%	7%	7%	6%	7%
2 adults, RP aged 65+	22%	13%	15%	16%	14%	14%	16%
2 adults, RP aged <65	11%	28%	23%	17%	17%	20%	17%
3 or more adults	0%	23%	14%	21%	23%	21%	19%
1 adult with children	0%	0%	2%	1%	1%	2%	1%
2 adults with children	0%	10%	20%	19%	18%	15%	22%
3 or more adults with children	0%	0%	8%	10%	8%	5%	10%
	19%	23%	10%	10%	12%	15%	9%

In most systems, our calculations have around twenty per cent of tax revenues being raised from households with three or more adults; we would however express some caution about this result as it is not clear that such households would necessarily be taxed as a single unit and personal allowances in most cases were allocated to at most two people in the household in line with the description of these systems. Multi-adult households, depending on their composition, may be more appropriately treated as separate units. These considerations likely give rise to this element of the calculations being somewhat over-estimated (conversely this would then increase further the shares coming from one and/or two adult households).

Tables 14 and 15 present the distributions of tax raised and households liable for the wealth tax across income deciles for each of the tax design scenarios we presented earlier. Similarly to those for the country scenarios, although we find that the bulk of the tax revenues would be raised from higher income households under all hypothetical tax designs, some households at all points in the income distribution would find they are liable for some payment in all but the first case that combines a high threshold with large exemptions. The scenarios where there is no threshold at all results in a fairly even spread of liable households all across the income distribution, even in cases where considerable assets are exempted (such as the “no threshold, large exemptions” and “no threshold, HMR exempt” cases).

Table 14: Distribution of Tax Paid by Household Income Decile under Alternative Scenarios

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions					0.3%			2.2%	22.7%	74.9%
No Threshold – Large Exemptions	4.5%	3.4%	3.3%	6.1%	6.5%	6.9%	8.4%	11.1%	17.9%	31.8%
High Threshold – No Exemptions	0.5%	1.5%	0.1%	0.6%	4.1%	5.6%	3.8%	9.2%	13.1%	61.4%
Middle Threshold – No Exemptions	2.1%	3.4%	1.8%	2.6%	4.3%	5.9%	6.1%	10.3%	16.3%	47.1%
Low Threshold – 50% Deduction	3.5%	3.8%	2.9%	4.6%	5.1%	6.7%	7.6%	11.1%	16.7%	38.1%
No Threshold – HMR Exempt	3.4%	4.8%	4.4%	6.5%	6.5%	8.0%	9.2%	12.9%	15.0%	29.4%
Low Threshold – Large Exemption	2.0%	1.1%	0.8%	4.5%	4.1%	5.1%	4.8%	9.8%	21.2%	46.6%
Low Threshold – No Exemptions	4.1%	4.8%	4.1%	5.5%	5.6%	7.9%	8.4%	11.9%	14.8%	32.9%

Table 15: Distribution of Liable Households by Income Decile under Alternative Scenarios

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions					4.5%			8.9%	27.8%	58.8%
No Threshold – Large Exemptions	11.8%	11.8%	11.7%	11.7%	11.1%	9.2%	9.0%	8.2%	7.7%	7.8%
High Threshold – No Exemptions	2.7%	3.4%	1.5%	4.1%	6.5%	7.1%	7.7%	11.8%	17.4%	37.8%
Middle Threshold – No Exemptions	4.6%	6.4%	4.4%	7.2%	6.2%	8.6%	7.6%	12.2%	13.7%	29.1%
Low Threshold – 50% Deduction	7.6%	8.0%	6.5%	7.8%	7.3%	8.8%	10.0%	11.6%	13.2%	19.1%
No Threshold – HMR Exempt	11.2%	11.4%	11.4%	11.6%	10.9%	9.3%	9.2%	8.7%	7.9%	8.4%
Low Threshold – Large Exemption	6.3%	3.8%	1.9%	5.4%	7.5%	7.1%	8.3%	12.6%	18.3%	28.7%
Low Threshold – No Exemptions	9.3%	9.3%	7.0%	7.7%	7.8%	9.5%	9.2%	11.6%	11.2%	17.3%

Table 16 repeats the household type analysis for each of the alternative scenarios. Once again, the percentage of tax revenue raised from households with a reference person aged 65 or more tends to exceed these households share of the population. Accordingly, proportionately less wealth tax revenue is raised from one and two adult households with children than their share of all households.

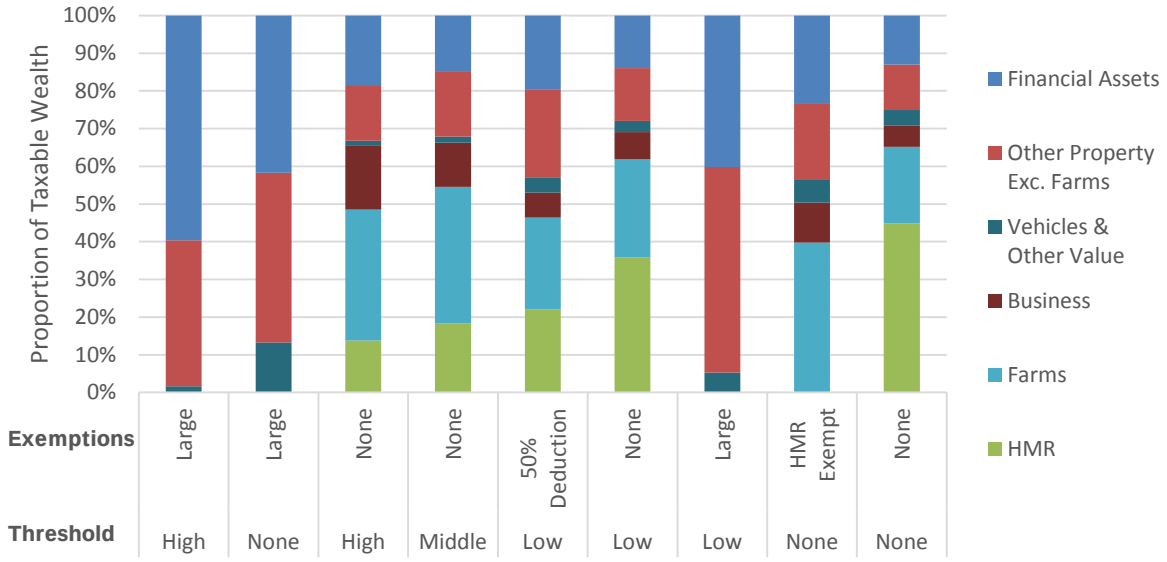
Table 16: Wealth Tax Revenue from Alternative Scenarios by Household Type

Threshold:	High	None	High	Middle	Low	Low	Low	None
Exemptions:	Large	Large	None	None	50% Deduction	None	Large	HMR Exempt
1 adult, aged 65+	25%	10%	12%	11%	11%	9%	12%	7%
1 adult, aged <65	3%	8%	3%	6%	7%	7%	7%	6%
2 adults, RP aged 65+	2%	18%	12%	13%	16%	15%	15%	15%
2 adults, RP aged <65	53%	22%	22%	19%	19%	16%	27%	17%
3 or more adults	15%	16%	18%	23%	20%	21%	15%	22%
1 adult with children		1%	0%	0%	1%	1%	2%	1%
2 adults with children	2%	17%	23%	19%	17%	20%	15%	22%
3 or more adults with children		8%	10%	10%	9%	11%	8%	11%
	100%	100%	100%	100%	100%	100%	100%	100%

In Section 2, it was shown that the household main residence (HMR), farms and business comprise some 70% of the HFCS wealth base. When these assets (and voluntary pensions) are excluded from the wealth base, as in the alternative scenarios with large exemptions, the composition of the estimated wealth tax base can differ substantially from the asset make-up of net wealth. In these 'large exemption' scenarios the remaining wealth tax base is almost entirely comprised of financial assets and property excluding the HMR and farms (see Figure 2).

By comparison, in the scenarios where the HMR, farms and business assets are included in the base, combined they still make-up some 60% to 70% of the wealth of those liable, independent of how large the threshold is. Though as the threshold increases, a greater proportion of the (smaller) asset base is comprised of farm and business assets and a commensurately lower proportion is the value of the HMR. Such differences in the asset composition of the wealth tax base, would influence the extent of any impacts on economic efficiency (incentives etc.) as well as the revenue stability of a wealth tax.

Figure 2: Composition of Assets for Alternative Scenarios



7. Ability to Pay and Income Capping

While the distribution of wealth tax paid by income decile and household type, as described in Section 6, indicates where the bulk of the wealth tax burden will fall, it is also useful to relate the wealth tax payment to the income levels in those deciles and household types. This provides a further insight into ability to pay (as measured by income) considerations. For those households liable in each of the alternative scenarios, the Table 17 presents the average wealth tax payment as a proportion of the average gross income (before income taxes) by income decile.

In each of the scenarios the average wealth tax payment for all deciles lies between 1.6 per cent and 6.9 per cent of gross income of liable households. The proportion of income which wealth taxes would comprise is typically largest for liable households in the 1st income decile and smallest for those in the top income decile, though this does not apply uniformly. Additionally in some scenarios households liable in one income decile pay significantly more or less as a proportion of their income than neighbouring income deciles. This table should not be interpreted as the progressivity of the wealth tax, as in all scenarios the wealth tax is fixed at a 1% rate and under a progressive wealth tax the average wealth tax rate paid would increase with wealth, irrespective of income.

Table 17: Wealth Tax Payment as a Proportion of Gross Income by Income Decile for Alternative Scenarios

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	All Deciles
High Threshold – Large Exemptions					2.4%			4.4%	10.1%	4.8%	5.4%
No Threshold – Large Exemptions	3.3%	1.4%	0.9%	1.4%	1.3%	1.3%	1.3%	1.5%	1.9%	1.7%	1.6%
High Threshold – No Exemptions	16.4%	27.4%	3.5%	4.4%	17.0%	17.1%	8.3%	10.7%	7.5%	5.8%	6.9%
Middle Threshold – No Exemptions	40.4%	20.8%	12.2%	8.4%	12.9%	10.4%	9.5%	7.8%	8.4%	4.5%	6.3%
Low Threshold – 50% Deduction	17.2%	8.7%	5.7%	6.1%	5.7%	5.1%	4.1%	3.9%	4.0%	3.0%	3.9%
No Threshold – HMR Exempt	6.1%	4.8%	3.0%	3.5%	3.0%	3.5%	3.3%	3.7%	3.7%	3.4%	3.5%
Low Threshold – Large Exemption	15.5%	5.5%	6.6%	9.9%	5.2%	5.5%	3.6%	3.7%	4.2%	2.3%	3.2%
Low Threshold – No Exemptions	19.6%	12.2%	9.7%	9.4%	7.7%	7.0%	6.2%	5.4%	5.3%	3.8%	5.4%
All Net Assets	15.7%	9.2%	6.3%	6.1%	5.1%	5.5%	4.5%	4.4%	3.9%	3.7%	4.7%

Table 18 repeats the exercise by household type again focusing on those households liable to the wealth tax. As a proportion of gross income the wealth tax payment is typically largest for single adult households where the reference person is over 65. It is lowest for younger single adult households (with or without children) and households with 3 or more adults with children.

Table 18: Wealth Tax Payment as a Proportion of Gross Income by Household Type for Alternative Scenarios

Threshold:	High	None	High	Middle	Low	Low	Low	None	None
Exemptions:	Large	Large	None	None	50% Deduction	None	Large	HMR Exempt	None
1 adult, aged 65+	9.6%	3.3%	14.1%	13.8%	7.9%	11.1%	8.1%	6.3%	13.0%
1 adult, aged <65	0.8%	1.3%	2.5%	5.2%	3.6%	5.3%	2.9%	2.5%	4.1%
2 adults, RP aged 65+	3.1%	2.6%	7.3%	9.0%	4.9%	7.5%	4.1%	5.1%	9.7%
2 adults, RP aged <65	10.2%	1.7%	8.7%	6.8%	4.0%	5.2%	4.1%	3.0%	4.1%
3 or more adults	3.9%	1.3%	5.0%	4.9%	3.2%	5.0%	2.6%	4.0%	5.6%
1 adult with children		0.8%		2.1%	4.0%	5.5%	4.7%	1.2%	2.4%
2 adults with children	0.8%	1.1%	13.0%	10.9%	3.6%	4.6%	2.4%	3.2%	3.2%
3 or more adults with children		1.3%	3.4%	3.1%	2.9%	4.2%	1.5%	3.5%	4.2%
	5.4%	1.6%	6.9%	6.3%	3.9%	3.5%	3.2%	5.4%	4.7%

When considering tables 17 and 18 the following points should be borne in mind. Firstly note that the figures in the table are related to the assumed wealth tax rate of 1 per cent, if the rate was 0.5 per cent then the percentage in the table would be halved. Secondly, given that the figures are averages for those liable within each decile or household type there could be considerable variation around these averages, with further implications for of ability to pay concerns. A third point is that average wealth tax payment as proportion of disposable (after income tax) income would be proportionately larger, in particular for the higher income deciles and younger household types.

In order to mitigate against an excessive burden of taxation, both the French and Spanish systems have schemes which cap the combined (income and wealth) tax payable at 75% and 60% of income respectively[17]. These maximum payment caps operate in relation to the combination of income and wealth taxes. To illustrate the potential effect of such a cap, here we present the impact of capping wealth taxes alone at 33 per cent of household income for each of the alternative scenarios presented earlier. For a 1% rate of wealth tax, this is equivalent to removing from liability household assets which are more than 300 times household income.

The first effect of a maximum payment cap would be to reduce the revenue associated with each scenario[18]. From Table 19, it can be seen that the proportionate reduction in revenue associated with a 33 per cent income cap is largest when middle or high thresholds are combined with no asset exemptions (-18% to -26%). In the other scenarios, the proportionate reductions tend to be slightly larger where the initial wealth tax revenue is greater. In the High Threshold – Large Exemptions scenario there is no reduction in revenue as the income cap is not expected to apply to liable households.

The purpose of a maximum payment cap is to address concerns regarding ability to pay for high wealth – low income households. It follows then that the beneficiaries of an income cap on wealth tax payments are those in the highest wealth deciles (The distribution by wealth decile of tax paid and households liable for the country and alternative scenarios are set out in Appendix C). Table 20 shows that the reduction in tax due to income capping would be distributed in much the same proportion as initial burden of wealth tax with, 90% plus of the reduction typically benefitting the top wealth decile.

[17] The Spanish income cap is subject to a minimum payment of 20% of wealth tax due.

[18] Capping the maximum payment at a percentage of income could potentially be associated with deferral of the tax payment, as is the case with the Local Property Tax, rather than permanently foregoing the tax revenue.

Table 19: Revenue from Alternative Scenarios with and without 33% Income Cap

	Revenue Before Income Cap (millions)	Revenue After 33% Income Cap (millions)	Reduction in Revenue (millions)	Percentage Reduction in Revenue
High Threshold – Large Exemptions	€53	€53	-€0	0%
No Threshold – Large Exemptions	€823	€806	-€16	-2%
High Threshold – No Exemptions	€248	€182	-€65	-26%
Middle Threshold – No Exemptions	€622	€508	-€113	-18%
Low Threshold – 50% Deduction	€872	€849	-€23	-3%
No Threshold – HMR Exempt	€2,041	€1,935	-€167	-8%
Low Threshold – Large Exemptions	€329	€324	-€6	-2%
Low Threshold – No Exemptions	€2,054	€1,887	-€107	-5%
1% tax on all net assets	€3,781	€3,593	-€188	-5%

Table 20: Distribution of Benefit from 33% Income Cap by Household Wealth Decile

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions										
No Threshold – Large Exemptions		0%	0%	2%	0%	5%	5%	17%	11%	59%
High Threshold – No Exemptions		0%	0%	0%	0%	0%	0%	0%	0%	100%
Middle Threshold – No Exemptions		0%	0%	0%	0%	0%	0%	0%	0%	100%
Low Threshold – 50% Deduction		0%	0%	0%	0%	0%	0%	4%	6%	89%
Low Threshold – Large Exemption		0%	0%	0%	0%	0%	1%	3%	7%	90%
No Threshold – HMR Exempt		0%	0%	0%	0%	0%	1%	6%	9%	84%
Low Threshold – No Exemptions		0%	0%	0%	0%	1%	1%	3%	4%	90%

By contrast, the maximum payment cap would benefit households at the lower end of the income distribution to a much greater extent than the initial wealth tax burden on these households. Table 21 demonstrates the U-shaped distribution of benefit of the income cap by income decile in that households at either end of the income distribution are expected to benefit from the reduction in wealth tax. The interaction of an income cap with the threshold level is also evident. The income cap has a larger burden reducing effect among lower income decile households when there is a low or no threshold.

Table 21: Distribution of Benefit from 33% Income Cap by Household Income Decile

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions										
No Threshold – Large Exemptions	62%	0%	0%	16%	0%	0%	0%	0%	9%	13%
High Threshold – No Exemptions	2%	6%	0%	2%	12%	14%	1%	15%	13%	35%
Middle Threshold – No Exemptions	12%	16%	6%	5%	9%	12%	3%	9%	8%	20%
Low Threshold – 50% Deduction	40%	9%	1%	10%	2%	6%	0%	0%	20%	12%
Low Threshold – Large Exemption	29%	16%	8%	5%	6%	8%	2%	6%	5%	13%
No Threshold – HMR Exempt	25%	0%	0%	25%	1%	0%	0%	0%	18%	33%
Low Threshold – No Exemptions	23%	19%	7%	4%	4%	5%	3%	8%	7%	19%

By household type (Table 22), the main beneficiaries of capping the maximum wealth tax payment at 33 per cent of income would be single adult households where the reference person is aged 65 or older. These are the households where it would be expected that wealth relative to income is highest. Two adult households with and without children also benefit from the income cap though considering the higher incidence of these households the relative benefit is not as great.

Table 22: Distribution of Benefit from 33% Income Cap by Household Type

Threshold:	High	None	High	Middle	Low	Low	Low	None
Exemptions:	Large	Large	None	None	50% Deduction	None	Large	HMR Exempt
1 adult, aged 65+		23%	19%	24%	40%	25%	22%	22%
1 adult, aged <65		19%	1%	5%	10%	9%	10%	9%
2 adults, RP aged 65+		8%	12%	11%	14%	12%	7%	7%
2 adults, RP aged <65		29%	11%	13%	13%	14%	29%	14%
3 or more adults		13%	12%	12%	10%	10%	29%	11%
1 adult with children		0%	0%	0%	0%	0%	0%	0%
2 adults with children		9%	42%	32%	14%	26%	3%	35%
3 or more adults with children		0%	4%	3%	0%	3%	1%	3%
		100%	100%	100%	100%	100%	100%	100%
Revenue Reduction due to Income Cap (€m)		- 16	- 65	- 113	- 23	- 167	- 6	- 107

After the 33% income cap is applied the proportion of gross income which the wealth tax payment would consume also falls noticeably. In Table 23 which applies the income cap, the average wealth tax payment for all deciles lies between 1.5 per cent and 5.4 per cent of gross income of liable households (compared to between 1.6 per cent and 6.9 per cent before the income cap, Table 18). In particular the wealth tax burden as a proportion of income is significantly reduced for the 1st and 2nd income deciles compared to when no income cap was in place. More generally there are smaller reductions across the income distribution indicating that in most scenarios there are households in almost all deciles benefitting from the income cap as their wealth tax liability is reduced.

Table 23: Wealth Tax Payment as a Proportion of Gross Income by Income Decile for Alternative Scenarios with 33% Income Cap

Deciles	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top	All Deciles
High Threshold – Large Exemptions					2.4%			4.4%	10.1%	4.8%	5.4%
No Threshold – Large Exemptions	2.4%	1.4%	0.9%	1.3%	1.3%	1.3%	1.3%	1.5%	1.9%	1.7%	1.5%
High Threshold – No Exemptions				1.4%	4.3%	6.8%	9.0%	7.3%	5.5%	4.9%	5.2%
Middle Threshold – No Exemptions		3.6%	7.8%	6.6%	8.2%	6.5%	8.5%	6.5%	7.7%	4.2%	5.2%
Low Threshold – 50% Deduction	11.9%	8.2%	5.7%	5.8%	5.6%	5.0%	4.1%	3.9%	3.9%	3.0%	3.8%
No Threshold – HMR Exempt	4.0%	3.8%	2.8%	3.4%	2.9%	3.4%	3.2%	3.6%	3.6%	3.3%	3.4%
Low Threshold – Large Exemption	12.0%	5.5%	6.6%	8.8%	5.2%	5.6%	3.6%	3.7%	4.1%	2.3%	3.1%
Low Threshold – No Exemptions	8.5%	8.9%	8.1%	8.7%	7.0%	6.4%	6.1%	5.2%	5.2%	3.7%	5.0%
All Net Assets	10.3%	8.1%	5.9%	5.9%	4.9%	5.2%	4.4%	4.3%	3.9%	3.6%	4.5%

Table 24 again repeats the exercise by household type. Compared to the situation where no income cap applied (Table 19), the burden on single adult households over 65 as a proportion of their gross income falls the most in absolute and relative terms in all scenarios. Again in most scenarios, almost all household types benefit from a reduced wealth tax liability under the income cap.

While recalling that a different sample of household are liable under the alternative scenarios with and without income capping, as households without positive incomes no liability under the income cap, from these simulations it is evident that the imperfect correlation between income and wealth is poses a problem. Even with an income cap in place, the wealth tax burden as a proportion of gross income would still be significant for liable households.

Table 24: Wealth Tax Payment as a Proportion of Gross Income by Household Type for Alternative Scenarios with 33% Income Cap

Threshold:	High	None	High	Middle	Low	Low	Low	None	None
Exemptions:	Large	Large	None	None	50% Deduction	None	Large	HMR Exempt	None
1 adult, aged 65+	9.6%	3.2%	9.0%	8.8%	7.2%	8.8%	7.8%	5.3%	11.1%
1 adult, aged <65	0.8%	1.2%	2.3%	4.6%	3.5%	4.8%	2.8%	2.3%	3.8%
2 adults, RP aged 65+	3.1%	2.6%	5.5%	7.8%	4.7%	7.0%	4.1%	5.0%	9.4%
2 adults, RP aged <65	10.2%	1.6%	7.6%	6.0%	3.9%	4.8%	4.0%	2.8%	3.9%
3 or more adults	3.9%	1.3%	4.1%	4.4%	3.2%	4.8%	2.6%	3.9%	5.5%
1 adult with children		0.8%	0.0%	2.1%	4.0%	5.5%	4.7%	1.2%	2.4%
2 adults with children	0.8%	1.1%		7.5%	3.5%	4.1%	2.4%	2.9%	3.1%
3 or more adults with children		1.3%	3.1%	2.9%	2.9%	4.1%	1.5%	3.5%	4.1%
	5.4%	1.6%	6.9%	6.3%	3.9%	3.5%	3.2%	5.4%	4.7%

8. Interaction with Other Taxes

One further issue to be considered is the effect of a new direct wealth tax on the existing taxes that include elements of household wealth. The tax system currently includes taxes on wealth transfers (capital acquisitions taxes on gifts and inheritances as well as stamp duties on the sale or transfer of certain types of property and insurance) and taxes on increases in the value of assets when they are sold (capital gains taxes), with varying thresholds and exemptions applying. There is also the Local Property Tax (LPT), which is a tax on a specific asset that is a major determinant of household wealth in our discussions above. However, we would draw attention to an important difference between the two because the wealth tax scenarios all relate to *net* wealth (i.e. subtracting off debts) whereas the LPT is based on the gross value of the asset. All of these elements of wealth are currently taxed in Ireland as detailed in Table 25 and combined they resulted in a revenue yield of €2.8 billion in 2013 though this includes taxes received from entities other than households.

These revenue streams from taxes on assets and wealth transfers are important to keep as a reference in the discussion of potential yields from net wealth tax as a regular broad-ranging tax on wealth might affect these tax headings (assuming they would be kept in place). It is also worth noting that in practice in those countries where net wealth tax regimes are in operation, many of these other forms of wealth tax may not be applied. To name just a few of these, in Switzerland there is no capital gains tax (except on immovable property), in Norway there are no inheritance taxes while the Dutch tax on assumed income from wealth savings and investments replaces taxation of the actual income flows from these assets. Additionally the rates of these and other forms of taxation would need to be considered in conjunction with a wealth tax.

Table 25: Revenue from Taxes on Capital and Wealth Transfers 2013	
Stamp Duties (inc. Pension Levy)	€1,333m
DIRT	€500m
Capital Gains Tax	€369m
Local Property Tax[19]	€318m
Capital Acquisitions Tax	€279m
Domicile Levy	€2m
Total	**€2,800m**

Not captured in Table 25 are the income tax revenues attributable to the returns on certain other assets such as dividends. These would currently be payable at the relevant marginal rate of income tax. For income-producing assets in particular, as the income flows are liable to income tax, the addition of a net wealth tax could have the effect of applying very high marginal tax rates for higher rate income tax payers (particularly as wealth taxes would be paid out of current income [McDonnell, 2013]). For a given rate of return and inflation rate, taxing wealth can be equated to the taxation of capital income by the following equation where t_w is the tax rate on wealth, W is wealth, n is the rate of return, π is the inflation rate and t_y is the tax rate on capital income.

$$t_w * W = (n - \pi) * W * t_y$$

$$\text{Example: } 1\% * 100\% = (4\% - 2\%) * 100\% * t_y$$

$$t_y = 50\%$$

For instance assuming a rate of return of 4% and an inflation rate of 2%, a 1% rate of tax on wealth would be equivalent to a 50% rate of tax on capital income. This would be in addition to other taxes due on the capital income flow. Thus the 1% rate of tax on wealth applied to illustrate the tax scenarios presented earlier could imply effective marginal tax rates on capital income of the order of 100% for many individuals.

Equating wealth taxes and taxes on capital income also highlights the possibility that the effective incidence of wealth taxation may not fall on the wealth holder. In the capital income taxation literature, incidence can fall on labour if capital is more mobile. A similar comparison can be drawn between wealth taxes and property taxes where the effective incidence can fall on the lessee rather than the property owner if the supply of properties is inelastic relative to demand. With regard to the behavioural and evasion responses to wealth taxes, Seim (2012) finds that high-skilled individuals responded more to the Swedish wealth tax which suggests that "the incidence of the tax falls disproportionally on the cognitively less able".

To the extent that the effective incidence does fall on wealth holders, the wealth tax can have an impact not just in terms of the amount payable from applying the tax rate to the individuals stock of

[19] The Local Property Tax was a half year payment in 2013. Full year 2014 revenue was €491 million.

wealth, but also in the form of tax capitalisation. The introduction of a wealth tax adds an additional cost to holding an asset. The pre-tax value of the asset would fall by the expected present value of the additional cost on the implementation of a wealth tax. The longer the period over which the asset produces income, the greater the effect tax capitalisation would have in reducing the asset's value. [20]

Finally, it is worth recalling the discussion in Section 2 which outlined a number of further considerations which would warrant further attention when considering the implications of the scenarios presented. In particular, further incentive effects (positive and negative) on asset composition as well as the administrative burden could have a bearing on the estimates presented.

9. Conclusions

This paper aims to provide as comprehensive an analysis as possible of the wealth holdings of Irish households and the potential implications that a wealth tax could have if applied on the existing structure of assets and household composition. To provide a broad range of estimates and to illustrate the different effects of adjusting threshold levels and including or exempting specific assets, we calculated our wealth tax revenues and households liable using two different approaches. The first took the existing wealth tax structures of a number of European countries and applied them to the Irish household structure. The second used a range of hypothetical combinations of threshold level and asset exemptions to go more deeply into their respective impacts on the revenues and numbers of households that would be liable under different tax designs. As we emphasised in the introduction, the aim is not to make recommendations on any particular system but rather to provide a broad range of estimates to demonstrate the factors that would need to be considered in formulating a wealth tax and how they would impact the overall tax returns and the numbers and types of households that would be affected.

Our results give a wide range of possible scenarios; applying other country models show how variations in the exemptions and thresholds can result in less than 1% to almost 50% of households being liable to a wealth tax. The alternative scenarios we investigate show that varying the level of the threshold is the key determinant of the number of households that will be affected, which is in keeping with the concentration of wealth at the upper end of the wealth distribution. Given the numbers of households affected, the treatment of the household's main residence (which is the largest asset for almost all households apart from the very wealthiest) is an important factor in the level of average tax payment and hence total revenues raised.

Looking at the composition of households under the different tax scenarios, we find that even with a narrow base and high threshold, some households in low income deciles are affected. This is because of the imperfect correlation between income and wealth. Applying an income restriction would remove many of the lower decile households from the tax net in most cases but would also reduce the numbers liable in the higher income deciles as well.

[20] For example at a discount rate of 5%, the present value of an asset which will produce €100 of income this year and next is €195.24 (Y0 = €100 and Y1 = €100/1.05 = €95.24). The first round effect of a 1% wealth tax would be to add a present value cost of €2.91 (Y0 = €1.9524 and Y1 = €0.9524). This would reduce the asset value by 1.5% to €192.33. If the income was €100 annually, asset values would be reduced by 5.1% over ten years, and 20.2% over one hundred years with a 1% wealth tax and 5% discount rate. These first round effects would be diminished slightly as the wealth tax due would fall to reflect a lower asset value.

Wealth taxes form part of a broader taxation system and may operate as both complements and substitutes to other forms of taxation. The potential implications of wealth taxes would need to be considered in conjunction with the burden of these other taxes. From the wide variety of scenario outcomes, in terms of the tax base, revenue raised and the number and characteristics of households that can be affected, it is evident that the impacts of a wealth tax in Ireland would depend crucially on the detail of its design.

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Appendix A: Detail on Wealth Tax Structures across Countries

<table>
<tr><th>Country</th><th>Rate</th><th>Threshold</th><th>Tax Unit / Base</th><th>Exemptions (HMR, Business, Farm etc.)</th><th>Restrictions</th><th>Source</th></tr>
<tr>
<td>France (Net Wealth Tax)

PPPs (2013) Bands*1.12</td>
<td>Rate due by band for households with net wealth greater than threshold.

<table>
<tr><td>-</td><td>€ 800,000</td><td>0%</td></tr>
<tr><td>€ 800,000</td><td>€ 1,300,000</td><td>0.5%</td></tr>
<tr><td>€ 1,300,000</td><td>€ 2,570,000</td><td>0.7%</td></tr>
<tr><td>€ 2,570,000</td><td>€ 5,000,000</td><td>1%</td></tr>
<tr><td>€ 5,000,000</td><td>€ 10,000,000</td><td>1.25%</td></tr>
<tr><td>€ 10,000,000</td><td>above</td><td>1.5%</td></tr>
</table>

A “smoothing” mechanism applies for assets worth between € 1,300,000 and € 1,400,000. The tax cut is equal to € 17,500 - 1.25 % P, where P is the net taxable value of the assets.</td>
<td>€1,300,000</td>
<td>“Fiscal Household” (Threshold <u>is not</u> doubled for couples)

For French Residents: Net Worldwide wealth is taxable

For Foreign Nationals: Wealth held in France is taxable (exc. Financial investments)</td>
<td>Business assets, Forestry (reduced by 75% of value), “Art”, IP Rights held by author, Pension annuities, Compensation payments, portion of SME Investment, Other. Most of these are caveated as under certain conditions.

The current value of the main residence is reduced by 30 per cent.*

Some related taxes are deductible e.g. property tax</td>
<td>Cumulative Income and Wealth Taxes Maximum of 75% of previous year’s income

Bouclier Fiscal “Tax Shield” limits the combination of all taxes and charges to 75% of income.</td>
<td>EY Cross Country Review of Taxes on Wealth October 2014

* Taxing Wealth Past Present and Future European Commission Workshop Proceedings July 2015

Taxes in Europe Database</td>
</tr>
</table>

<table>
<tr>
<td>Spain (Net Wealth Tax)

PPPs(2013) Bands*1.29</td>
<td>Rate due on amount over threshold:
<table><tr><td>Up to €167,129</td><td>0.20%</td></tr><tr><td>€167,129 - €334,247</td><td>0.30%</td></tr><tr><td>€334,247 - €668,500</td><td>0.50%</td></tr><tr><td>€668,500 - €1,337,000</td><td>0.90%</td></tr><tr><td>€1,337,000 - €2,673,999</td><td>1.30%</td></tr><tr><td>€2,673,999 - €5,347,998</td><td>1.70%</td></tr><tr><td>€5,247,998 - €10,695,996</td><td>2.10%</td></tr><tr><td>Above €10,695,996</td><td>2.5%</td></tr></table>[21]</td>
<td>€700,000</td>
<td>Individual (Thresholds double for a couple)

For Spanish Residents: Net Worldwide wealth is taxable

For Foreign Nationals: Wealth held in Spain is taxable</td>
<td>HMR €300,000

Business or professional assets (inc. shares in family Co.) provided activity using assets makes up >50% of net income[22]

Heritage Assets, Household contents, Pension Rights, IP Rights held by author</td>
<td>Cumulative Income and Wealth Taxes Maximum of 60% of income subject to minimum of 20% of Wealth tax paid.</td>
<td>EY Cross Country Review of Taxes on Wealth October 2014</td>
</tr>
</table>

[21] Autonomous Communities are responsible for collection and can vary the rate.
[22] Other conditions apply to this exemption

<table>
<tr>
<td>Netherlands (Tax on assumed income from wealth savings and investments) [AKA ‘Box 3’]

PPPs (2013) Bands*1.1</td>
<td>Effectively a 1.2% net wealth tax on savings and investments.
Assumption of 4% yield, taxed at 30%.

Some unused income tax credits can be applied to this liability

Note: In addition to Box 3 and municipality property tax, the Netherlands operates a separate tax on imputed rent income (net of mortgage interest payments) from owner-occupied dwellings
<table>
<tr><td>Dwelling value</td><td>Tax on Imputed Re</td></tr>
<tr><td>€0 - €12,500</td><td>0%</td></tr>
<tr><td>€12,500 - €25,000</td><td>0.25%</td></tr>
<tr><td>€25,000 - €50,000</td><td>0.4%</td></tr>
<tr><td>€50,000 – €75,000</td><td>0.55%</td></tr>
<tr><td>€75,000 - €1.04m</td><td>0.7%</td></tr>
<tr><td>€1,040,000 - higher</td><td>€7,350+1.8%* above €1.04m</td></tr>
</table>
</td>
<td>€21,139

Double for couples.</td>
<td>Income tax unit.

For Dutch Residents: Net Worldwide wealth is taxable

For Foreign Nationals: Wealth held in the Netherlands is taxable</td>
<td>Excludes Principle Private Residence (and mortgage debt), capital invested in own company or in a substantial interest, movable property for personal use (household items, like a car); investments in forests and nature; objects of artistic or scientific nature unless these serve as an investment; annuity insurance (pensions); green investments) up to €57,213; Farms, Pension</td>
<td>Note: The Dutch tax is an income tax on assumed income from wealth. Investment income (including dividends) is not subject to any other form of income tax.</td>
<td>EY Cross Country Review of Taxes on Wealth October 2014

http://www.expatax.nl/box-3.php</td>
</tr>
<tr>
<td>Switzerland

PPPs (2013) Bands*0.664</td>
<td>***See Separate Sheet detailing Cantonal differences.

The max tax rate varies from 0.20 per cent in Obwalden to 8.00 per cent in Basel-Stadt.
(Wealth tax can vary by municipality within cantons due to multipliers)

Note: Tax on imputed rent applies in Switzerland.</td>
<td>Varies by canton ranging from 25,000CHF to 101,000 CHF for singles.

(1 CHF = approx.</td>
<td></td>
<td>There may be additional deductions for people with low incomes

Persons incapable of working enjoy tax breaks in some cantons.

Excludes: Household Contents, Pensions Includes: Business investment, redeemable</td>
<td></td>
<td>An Outline of the Swiss Tax System 2016

The Advantages of the Swiss Tax System

http://www.expatica.com/ch/finance/Taxes-in-Switzerland_101589.html</td>
</tr>
</table>

		€0.9)		life and annuity insurances It seems that agricultural property and land is valued at 'return value'.		
Norway (Net Wealth Tax) PPPs (2013) Bands*0.099	Rate due on amount over threshold: 0.85% (To be reduced to 0.8%) (Rate is 0.7% in municipalities and 0.15% state) This is the 2015 wealth tax system. In 2014 the threshold and rates were 1m kr and 1% respectively. The Norwegian Wealth Tax rates have fallen and thresholds risen in a steady pattern over the past decade or so.	1,200,000 kr (€129,296 as of 13/05/2016)	Individual (Thresholds double for a couple) For nonresidents: Real Property Wealth held in Norway is taxable but there is no tax free bracket for the 0.15% national tax.* Corporations (except limited companies) pay a state net wealth tax of 0.3% and a municipal tax of 0.4%.#	*** See additional sheet providing further detail. There is a 100k kr allowance for private property and contents and a 3000 kr cash allowance. For tax purposes, the value of real estate assets varies. It is 25% of the market value for the HMR, 30% for recreational residences, for other second dwellings 60%, between 40% and 60% for most commercial properties. (Wikipedia, Link) Other second dwellings and commercial property moving from 70% to 80%.^ [23]		Behavioral Responses to the Norwegian Wealth Tax 2015 ØYVIND BRUER-SKARSBØ *Deloitte Taxation and Investment in Norway 2015 #KPMG Tax facts Norway ^Norway Budget 2016 Prop. 1 LS ***http://www.smartepenger.no/skatt/103-skatt/621-formuesskatt

[23] As a general rule, the taxable value of assets is equal to their market value. Homes and other immovable properties are valued well below mar-ket value. On average, commercial property other than power plants, agricultural property and forestry property is valued at about 60 pct. of mar-ket value in 2014 for wealth tax purposes. The taxable value of a primary residence (the home in which one lives) averages 25 pct. of market value, whilst it is 60 pct. for second dwellings (homes other than the primary residence, which are not commercial property or holiday homes). A safety valve is

<table>
<tr><td></td><td></td><td></td><td></td><td>It seems that agricultural property and land is valued at ‘return value’.</td><td></td><td></td></tr>
<tr><td>Argentina (Impuesto a los Bienes Personales – Personal Property Tax) *Gross Wealth Tax*</td><td>Tax rate payable on all assets if in excess of threshold (step effect)
<table><tr><td>$305,000</td><td>$750,000</td><td>0.50%</td></tr><tr><td>$750,000</td><td>$2,000,000</td><td>0.75%</td></tr><tr><td>$2,000,000</td><td>$5,000,000</td><td>1.00%</td></tr><tr><td>$5,000,000</td><td></td><td>1.25%</td></tr></table>
These appear to be US dollar figures.

Residential mortgages are the only debt which is deductible

Real Estate is valued using indices which adjust from acquisition date / construction costs and depreciation of 2% p.a. is allowed</td><td>$305,000</td><td>For Argentinian Residents: Worldwide wealth is taxable

For Foreign Nationals: Wealth held in Argentina is taxable (1.25% rate with a non-taxable minimum of ARS 20,460)</td><td>Pensions, Intangible Assets, some other goods, Rural Properties (taxed on minimum presumed income), government bonds from Argentina, deposit and savings accounts (Current Accounts Not included), encumbered assets whose aggregate value is less than 500k pesos (305k dollars)</td><td></td><td>Manual - Impuesto Sobre Los Bienes Personales Argentina Wealth Tax (Ingles Translation)</td></tr>
<tr><td>Iceland (net wealth tax – expired</td><td>The Icelandic wealth tax was unusual in a number of ways. It was introduced along with capital controls</td><td>ISK 75,000,000 (Single</td><td>Assets of a child under 16 years of age in the tax</td><td>Provisions in the Icelandic legislation do not google translate easily.</td><td>If the taxpayer’s ability to pay tax was greatly</td><td>Taxes in Iceland 2014 PWC</td></tr>
</table>

intended to ensure that no primary resi-dence or holiday home has a taxable value in excess of 30 pct. of the market value documented by the taxpayer. The safety valve for commercial property and second dwellings is 72 pct. (The Norwegian tax system - main features and developments Chapter 2 of the budget proposal on taxes 2015 Oslo, 8 October 2014)

<table>
<tr>
<td>end 2014)

PPPs (2013) Bands* 0.0067

Iceland has imputed rental income tax</td>
<td>which limited capital flight. The thresholds for couples were less than double that for single taxpayers.

<table>
<tr><td>Net assets of individuals:</td><td>Rate</td></tr>
<tr><td>ISK 0-75.000.000</td><td>0%</td></tr>
<tr><td>ISK 75.000.001-150.000.000</td><td>1,5%</td></tr>
<tr><td>Over ISK 150.000.000</td><td>2%</td></tr>
</table>
<table>
<tr><td>Net assets of married / cohabitating couples:</td><td>Rate</td></tr>
<tr><td>ISK 0-100.000.000</td><td>0%</td></tr>
<tr><td>ISK 100.000.001-200.000.000</td><td>1,5%</td></tr>
<tr><td>Over ISK 200.000.000</td><td>2%</td></tr>
</table>
</td>
<td>Taxpayer)

Approx €488,600 in 2014 (€1 = 153.3 ISK)

Couples ISK 100,000,000 Approx = €615,466</td>
<td>year are filed with the child’s parents’ assets.</td>
<td></td>
<td>reduced, he or she could, under certain conditions, apply for a reduction of the wealth tax base.

It appears that debt deductibility was limited to an indexed value of debt from the previous year.</td>
<td>Ákvæði til bráðabirgða XXXIII í lögum nr. 90/2003, um tekjuskatt</td>
</tr>
<tr>
<td>Liechtenstein (Tax on assumed income from wealth)</td>
<td>An assumed rate of return on wealth (currently 4%) is applied and this amount is added to income and subject to the income tax schedule.

For income of x tax due is calculated by multiplying the income by the appropriate tax rate and deducting the credit.e.g. (30k * 0.03) – 650 = 250 tax due.</td>
<td>In effect for a household with no income the threshold would be 375,000 CHF

€337,500 approx</td>
<td>Income tax unit.

Wealth of minor children living in household is attributable to their parents.

Wealth of companies without legal personality attributed to</td>
<td>The value up to 25k CHF (50k for married) of household effects, personal articles used daily and private vehicles are exempt.

Agricultural, commercial or professional tools up to 2,000 CHF

Non-profit cultural</td>
<td>Debt deductibility is limited to the proportion of total wealth taxed in Liechtenstein.</td>
<td>Liechtenstein tax law 2010 English</td>
</tr>
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<table>
<tr>
<td></td>
<td>This is the schedule for single
<table><tr><td>Income CHF</td><td>Rate</td><td></td></tr><tr><td>< 15k</td><td>0</td><td></td></tr><tr><td>15k-25k</td><td>0.01</td><td>x - 150</td></tr><tr><td>25k-50k</td><td>0.03</td><td>x - 650</td></tr><tr><td>50k-80k</td><td>0.04</td><td>x - 1,150</td></tr><tr><td>80k-110k</td><td>0.05</td><td>x - 1,950</td></tr><tr><td>110k-140k</td><td>0.06</td><td>x - 3,050</td></tr><tr><td>140k-170k</td><td>0.065</td><td>x - 3,750</td></tr><tr><td>> 170k</td><td>0.07</td><td>x - 4,600</td></tr></table>taxpayers, it is doubled for couples and there is an intermediate schedule for single parent families. In addition there is an additional allowance of 9,000 CHF per child.

This is the national level schedule. Municipalities can apply a surcharge of between 150% and 250%.</td>
<td>(1 CHF = approx. €0.9)</td>
<td>partners.</td>
<td>collections of which are made available for regular public viewing

wealth in the form of agricultural products such as hay, cereals, and fruits
Real estate situated abroad, permanent establishments situated abroad.

There are a large number of exemptions on the income from wealth in the income tax system including inheritances and capital gains.</td>
<td></td>
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</table>

Appendix B: Applying Wealth Tax Structures to Irish Data

	France	**Spain**	**Netherlands**
Official Tax Unit	"Fiscal Household"	Individual or couple	Income tax unit
Modelled Taxable Wealth equal to			
Sum of:	Net Assets	Net Assets HMR Prop Value less €300k (PPP adjusted) (Min value is €0).	Financial Assets Property value (Exc. HMR and Farms Value)
Less	[(i)] The net value of business assets (ii) 30% of the HMR Property Value (iii) Value of 'other' (Jewellery, Works of Art, Antiques etc.) (iv) Value of voluntary pension.	(i) The net value of business assets (In reality only deductible if comprises >50% of net income) (ii) HMR Property Value (iii) Value of 'other' (Jewellery, Works of Art, Antiques etc.) (iv) Value of voluntary pension.	(i) HMR Property Value (ii) Voluntary Pension (iii) Outstanding property loans (Exc. HMR mortgage) (iv) Non-collateralised debt
Calculate liability on the basis of the thresholds, bands and rates set out in the table in the appendix adjusted for PPP terms.			
Deduct from wealth tax liability	Property tax (minimum liability reduction is to zero).	N/A	N/A
Income cap (max liability)	75% of income.	60% of income subject to minimum of 20% of wealth tax paid.	N/A

	Switzerland	**Norway**	**Iceland**
Correct Tax Unit	N/A	Individual or couple	N/A
Modelled Taxable Wealth equal to			
Sum of:	Net Assets	(i) Total Property Value * 60% (ii) HMR Property Value * 25% (iii) Value of 'other' (Jewellery, Works of Art, Antiques etc.) and vehicles. All less 100,000kr (PPP adjusted). Min value is zero. (iv) Financial Assets (v) Value in Current Account less 3,000kr (PPP adjusted). Min value is zero.	(i) Net Value of Business Assets (ii) Voluntary Pension
Less	(i) Voluntary pension (ii) (Should exclude household contents)	(i) HMR Property Value *60% (ii) Value in Current Account (iii) Voluntary Pension (iv) Total debt	
Calculate liability on the basis of the thresholds, bands and rates set out in the table in the appendix adjusted for PPP terms.			
Deduct from wealth tax liability	N/A	N/A	N/A
Income cap (max liability)	N/A	N/A	N/A

Appendix C: Distribution of Impact by Household Wealth Decile

Table C1: Distribution of Tax Paid by Household Wealth Decile – Country Systems

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
French	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Spanish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Dutch	0.5%	0.0%	0.0%	0.3%	1.2%	2.5%	2.3%	6.1%	13.4%	73.7%
Swiss -Schwyz	0.0%	0.0%	0.0%	0.0%	0.1%	1.2%	2.6%	7.4%	18.1%	70.7%
Swiss – Uri	0.0%	0.0%	0.0%	0.0%	0.3%	1.6%	3.8%	8.6%	18.5%	67.2%
Swiss – St.Gallen	0.0%	0.0%	0.0%	0.0%	0.7%	2.4%	5.3%	9.8%	18.8%	63.1%
Norwegian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.1%	5.7%	93.1%
Icelandic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	99.9%
1% tax	0.0%	0.0%	0.2%	1.2%	3.4%	5.6%	8.0%	11.5%	18.3%	51.9%

Table C2: Distribution of Liable Households by Household Wealth Decile – Country Systems

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
French	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Spanish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Dutch	1.8%	0.2%	0.2%	4.0%	6.3%	10.7%	7.5%	15.5%	23.1%	30.7%
Swiss -Schwyz	0.0%	0.0%	0.0%	0.0%	3.3%	10.0%	15.6%	23.0%	23.9%	24.2%
Swiss – Uri	0.0%	0.0%	0.0%	0.0%	5.8%	11.3%	19.0%	21.1%	21.3%	21.5%
Swiss – St.Gallen	0.0%	0.0%	0.0%	0.0%	8.2%	15.6%	18.9%	19.0%	19.1%	19.2%
Norwegian	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	2.1%	8.0%	20.5%	68.1%
Icelandic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.3%	94.7%
1% tax	0.0%	7.3%	11.6%	11.6%	11.6%	11.6%	11.5%	11.6%	11.6%	11.6%

Table C3: Distribution of Tax Paid by Household Wealth Decile under Alternative Scenarios

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
No Threshold – Large Exemptions		0.1%	0.9%	2.4%	2.3%	3.7%	4.4%	8.9%	16.3%	60.9%
High Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Middle Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	99.8%
Low Threshold – 50% Deduction		0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.6%	8.7%	89.6%
Low Threshold – Large Exemption		0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	1.3%	4.7%	93.7%
No Threshold – HMR Exempt		0.0%	0.4%	1.0%	1.0%	1.8%	2.5%	5.6%	14.2%	73.4%
Low Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	0.2%	1.4%	4.4%	16.4%	77.6%

Table C4: Distribution of Liable Households by Wealth Decile under Alternative Scenarios

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Top
High Threshold – Large Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
No Threshold – Large Exemptions		9.5%	14.7%	9.5%	7.3%	9.9%	11.3%	12.2%	12.8%	12.9%
High Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Middle Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	95.1%
Low Threshold – 50% Deduction		0.0%	0.0%	0.0%	0.0%	0.8%	1.3%	13.6%	30.1%	54.2%
Low Threshold – Large Exemption		0.0%	0.0%	0.0%	0.0%	2.8%	1.2%	7.3%	22.2%	66.4%
No Threshold – HMR Exempt		8.9%	13.9%	9.0%	7.0%	9.5%	11.0%	12.4%	13.5%	14.7%
Low Threshold – No Exemptions		0.0%	0.0%	0.0%	0.0%	6.5%	10.0%	21.9%	30.8%	30.8%

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