

**Modelling the distributional and
revenue effects of taxes on wealth:
New evidence from the UK Wealth
and Assets Survey**

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Overview

- Background
- Rationale
- Model specification and functionality
- Data
- Revenue effects of example policies
- Distributional effects of example policies
- Future development

Background

- Microsimulation modelling of impacts of tax and benefit policies has been well established for around 30 years, e.g.
 - DWP/HMT model
 - TAXBEN (IFS)
 - Euromod (Essex)
 - ippr/Resolution foundation model

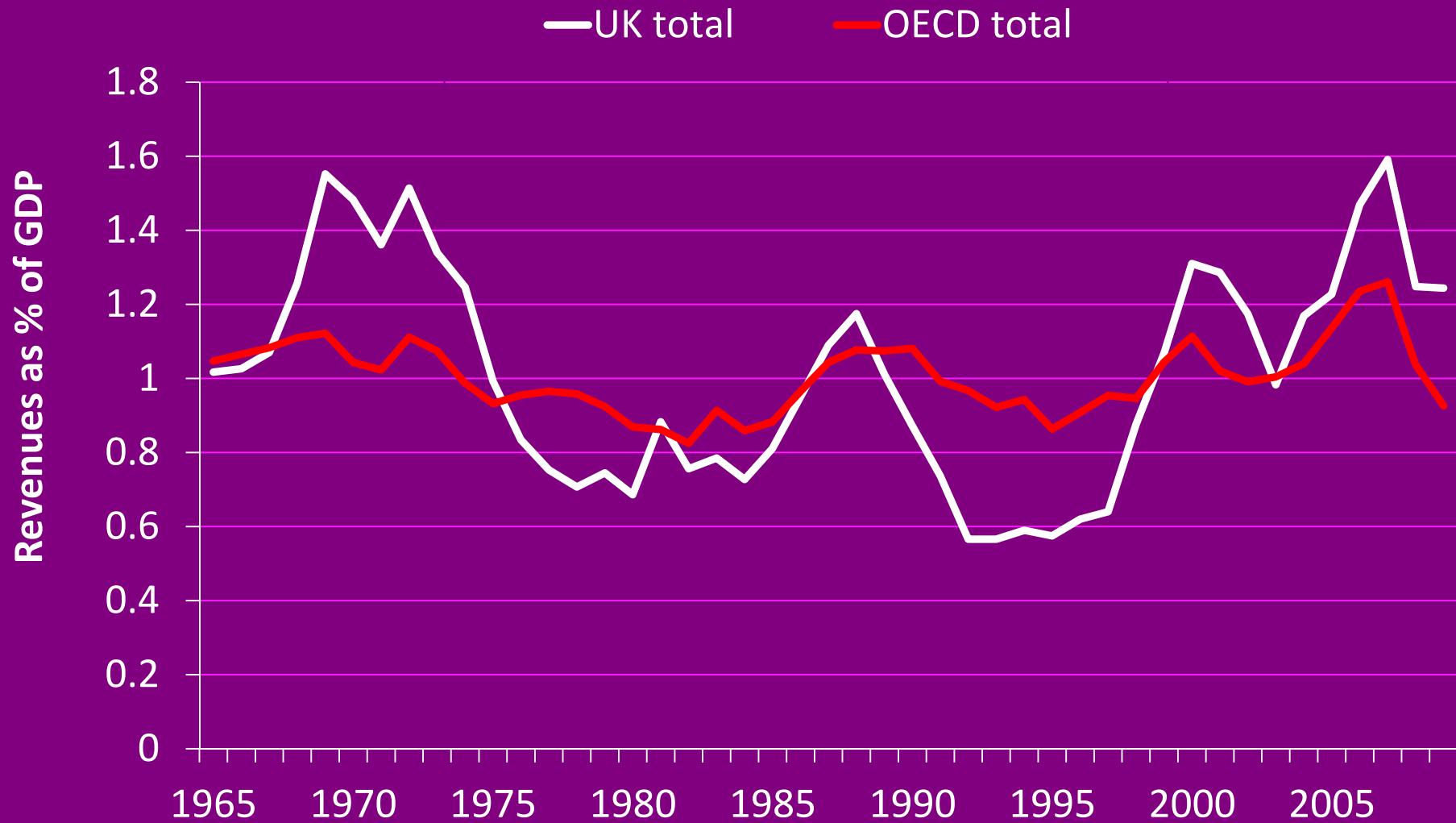
Background

- Existing models use household surveys with high-quality information on:
 - Income (Family Resources Survey)
 - Expenditure (Living Costs and Food Survey)
 - Housing Costs
 - Benefit/tax credit receipt
 - Other demographic variables (e.g. region, age)
- This is used to model effects of tax and benefit reforms:
 - Effects on distribution of income/expenditure
 - Aggregate costings
 - Also an input into other empirical research (e.g. budget constraints for labour supply modelling)

Rationale

- A gap in current microsimulation modelling is taxes on *wealth* (as opposed to income or expenditure) are relatively under-explored
- One reason for this is a lack of good quality household-level data on wealth holdings
- Publication in 2010 of the first results from the **Wealth and Assets Survey** provides an opportunity to model wealth taxes in detail for the first time in Britain
- Wealth taxes not a huge part of the current tax system – but a much discussed part

Wealth taxes – UK and OECD



Model functionality

Types of wealth taxes that can be modelled:

- Wealth stocks
 - Taxes based on property
 - Taxes based on financial/physical wealth stocks
- Wealth transfers
 - IHT
- Transactions-based taxes
 - Stamp duty land tax

Not modellable at present (hopefully in future):

- Land Value Tax
- Capital Gains Tax

Data

Main dataset: Wealth and Assets Survey (WAS)

- We used Wave 1 (2006-08)
- Wave 2 (2008-10) now available (but not used in this research)
- Sample size: 30,595 households
- Detailed information on wealth stocks:
 - Property wealth (and purchases)
 - Financial wealth
 - Private pension wealth
 - Physical wealth (half sample only)

Limitations of WAS data

Problem	Solution
Inheritance data unusable due to question routing mistake	Use BHPS info instead and match in with WAS by income, wealth etc.
No info on capital gains	None (in Wave 1)
No household disposable income measure	Imputation using data on component parts of income, benefit receipt, and other variables (including some imputation)
No housing costs info for tenants	Imputation using FRS data on rents from the same time period

Issues with BHPS inheritance data

- IHT is based on size of donor's estate (not amount each recipient gets), whereas BHPS data is based on **receipts** of inheritances
 - Solution: impute size of donor's estate based on receipts and average number of donees per estate
- Not many households get inheritances (225 out of 8,700; only 15 above current IHT threshold)
- Data quality: BHPS wealth data not as good quality as WAS and only measures property and financial wealth
 - Important for creating wealth deciles to match with WAS

Why a WAS income measure is useful

- To match by income quantile we need to impute disposable income for WAS
- This allows us to combine analysis of income-based taxes and benefit by income decile for the FRS with wealth-based taxes from WAS (and BHPS)
- Imputing disposable income for WAS also allows us to analyse impact of wealth and income taxes alongside each other on *the same* households
- This is useful (as with e.g. analysis of indirect and direct taxes for the same households using LCFS)

Imputing a WAS income measure

- WAS contains no overall disposable income measure (in Wave 1)
 - So, need to impute using info on:
 - Gross earnings
 - Investment income
 - Benefit/tax credit receipt
 - Imputed rent measure (see below)
 - Households are run through the ippr's income-based tax benefit model to generate simulated incomes

Imputing rents in WAS

- Use FRS for the same period as WAS Wave 1 (2006/07 and 2007/08 waves)
- Divide FRS and WAS into 396 “cells” conditional on:
 - Region
 - Tenant type (LA/housing assoc/private)
 - Number of adults (1, more than 1)
 - Whether adult(s) are in work
 - If in work, what part of the gross weekly earnings distribution adults are in (bottom 25%, above)
 - Number of children (0, 1, 2, more)
- Each WAS tenant is given a random draw from the equivalent FRS “cell”

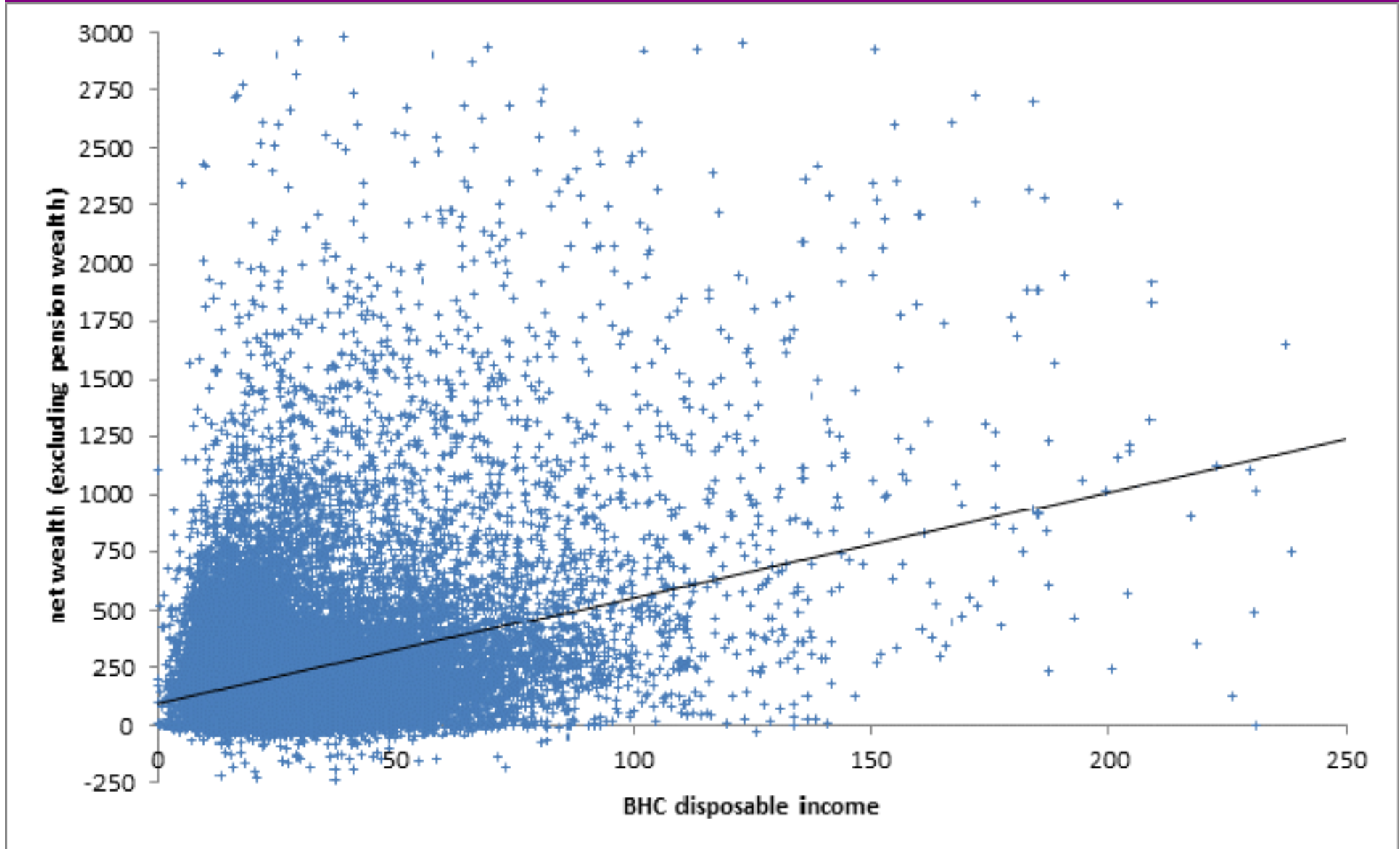
Comparing WAS and FRS: Real gross earnings distribution

Adult gross earnings (£/year)	WAS Wave 1	FRS 2008-09
5 th percentile	3,565	4,326
10 th percentile	5,617	6,126
25 th percentile	11,472	12,157
Median	19,446	19,562
75 th percentile	29,700	30,666
90 th percentile	43,072	44,623
95 th percentile	54,449	58,114
Mean	23,664	24,488

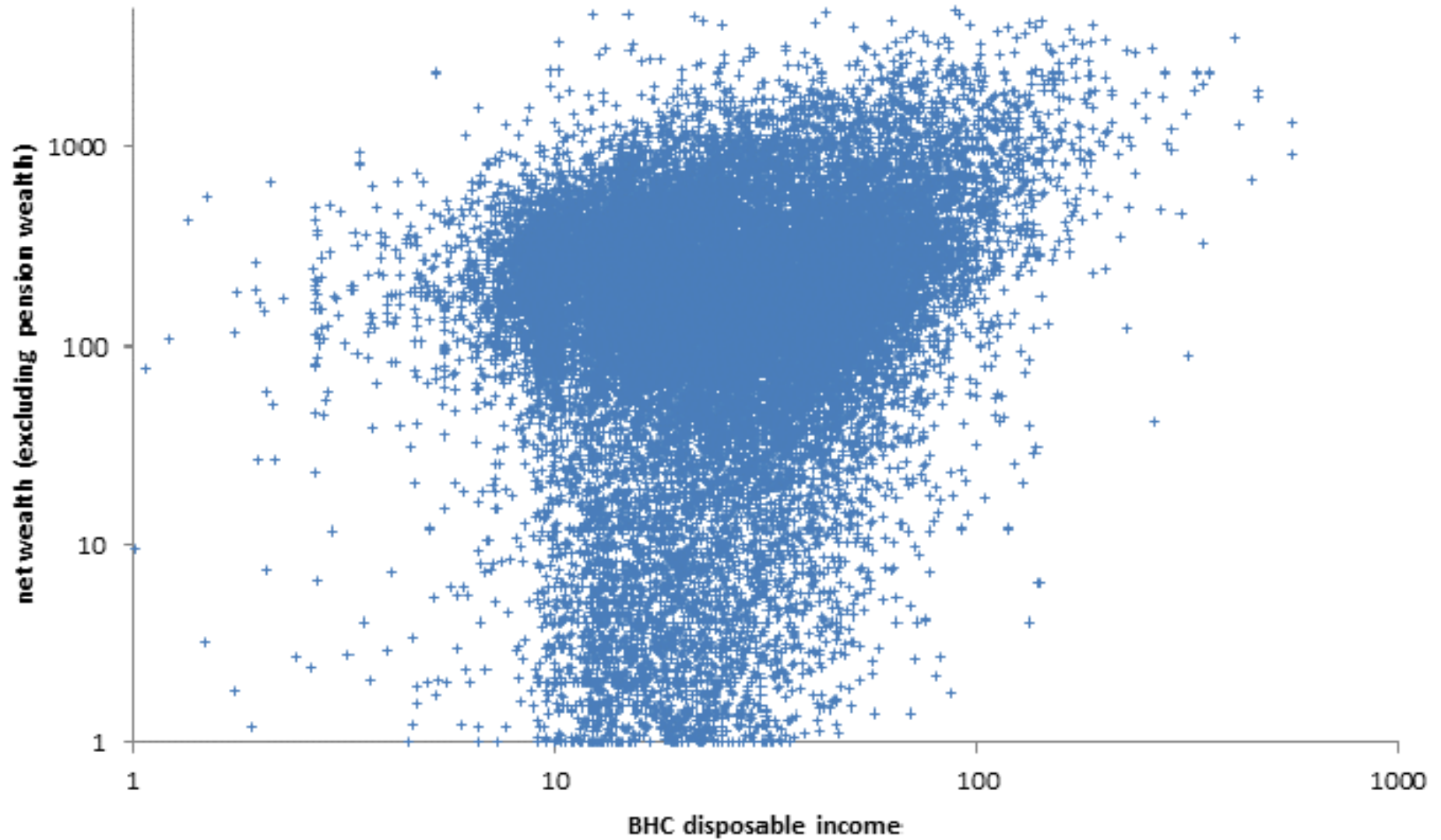
Comparing WAS and FRS: Modelled equivalised BHC disposable income

Income, 2012 prices (£/year)	WAS Wave 1	FRS 2008-09
5 th percentile	10,940	10,734
10 th percentile	12,938	12,655
25 th percentile	15,405	16,329
Median	20,644	22,348
75 th percentile	31,591	32,466
90 th percentile	46,914	47,214
95 th percentile	59,666	59,905
Mean	26,553	27,696

WAS Scatterplot: Wealth vs Income



Wealth vs Income: log-log



Breakdown variables for distributional analysis

The following variables are available:

- Decile of household wealth with or without physical wealth:
 - Total wealth including pension wealth
 - Total wealth excluding pension wealth
 - Gross household financial wealth
 - Net household financial wealth
 - Household property wealth (banded)

Breakdown variables for distributional analysis

- Household disposable income
 - Equivalised or unequivalised
- Household type
 - Single/couple with/without kids, single/couple pensioner, multiple families
- Number of children
- Working/not working

Existing wealth taxes: modelled yield vs HMRC data

Tax	Modelled yield (£bn/year)	Actual yield from HMRC, 2012/13 forecast (£bn/year)
Stamp duty land tax	4.2	6.4
IHT	2.9	3.0

Reasons for Stamp Duty underestimate:

- Large number of commercial property transactions not covered in WAS
- Uprating of house prices from 2006-08 to present is based on average house price indices (by region) – underestimates growth at top end of market

Modelled reforms

1. Annual wealth tax

- Excluding pension wealth and physical wealth
- Allowance of £500,000 per household
- Rate: 1%

2. Mansion tax

- 1% annual levy on properties valued in excess of £2m or more

Modelled reforms

3. Stamp Duty reform, version 1:

- Retain current thresholds
- Retain current rates but apply them to marginal value of property sale above each threshold rather than full value

4. Stamp Duty reform, version 2:

- As above except that rates are doubled (e.g. rate now 6% instead of 3% above £250,000)

Modelled reforms

5. Inheritance tax:
 - Abolish it

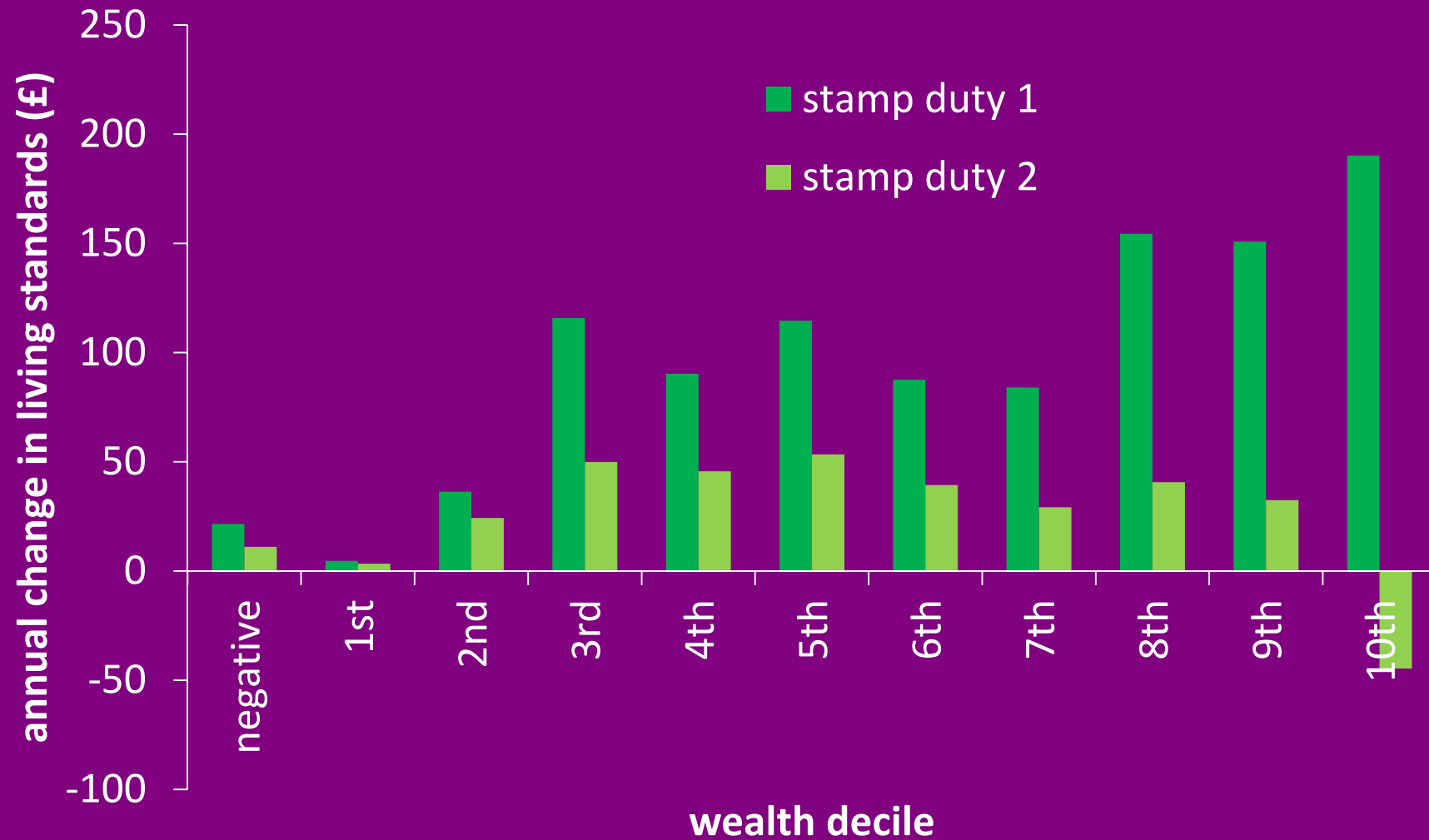
Fiscal impact of reforms

Reform	Impact (+ve = revenue gain, -ve = revenue loss)
Wealth tax	£6.9 bn
Mansion tax	£1.1 bn
Stamp duty: reform 1	-£2.6 bn
Stamp duty: reform 2	-£0.6 bn
Abolish IHT	-£2.9 bn

Distributional impact: cash terms, wealth deciles



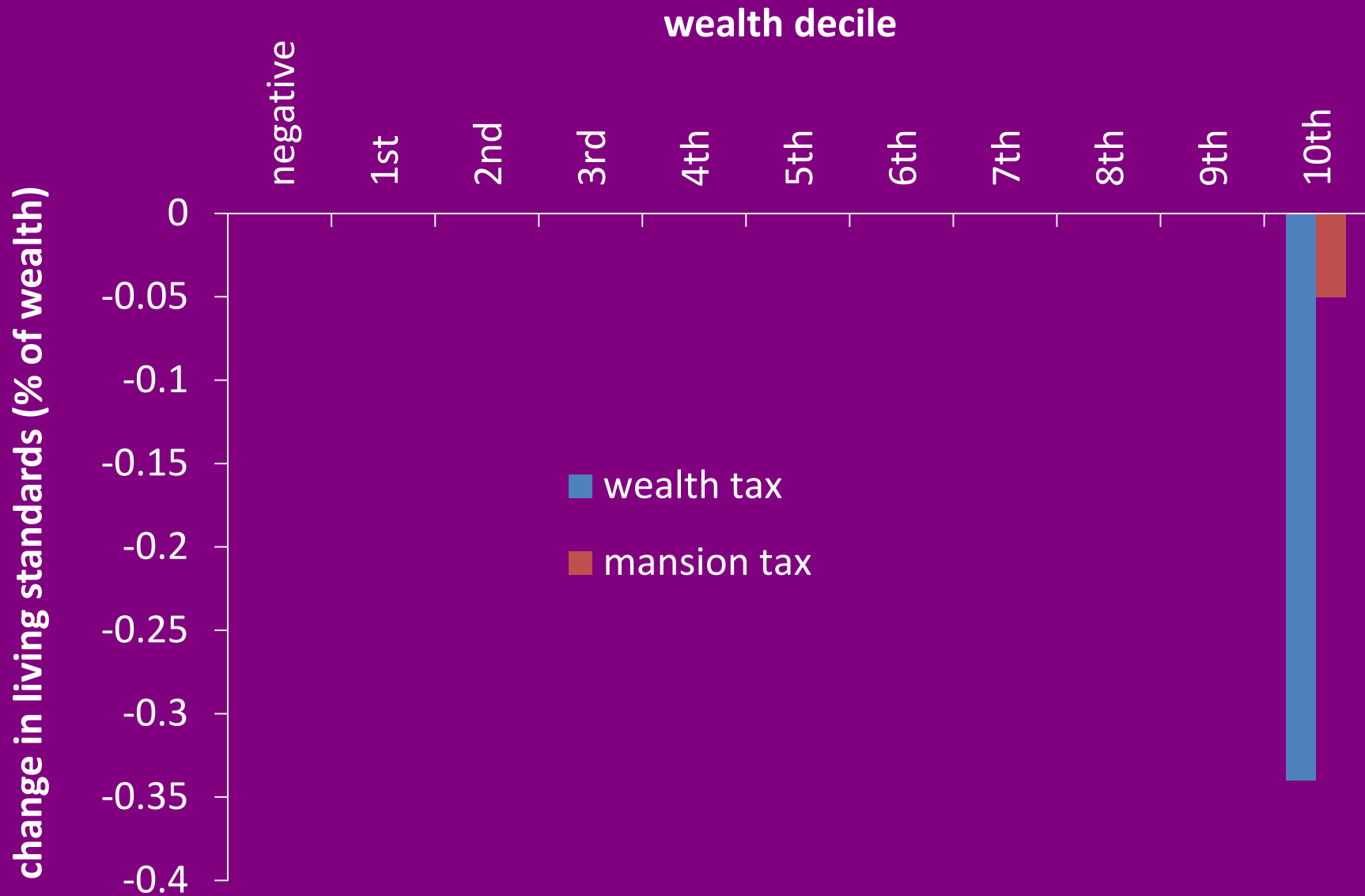
Distributional impact: cash terms, wealth deciles



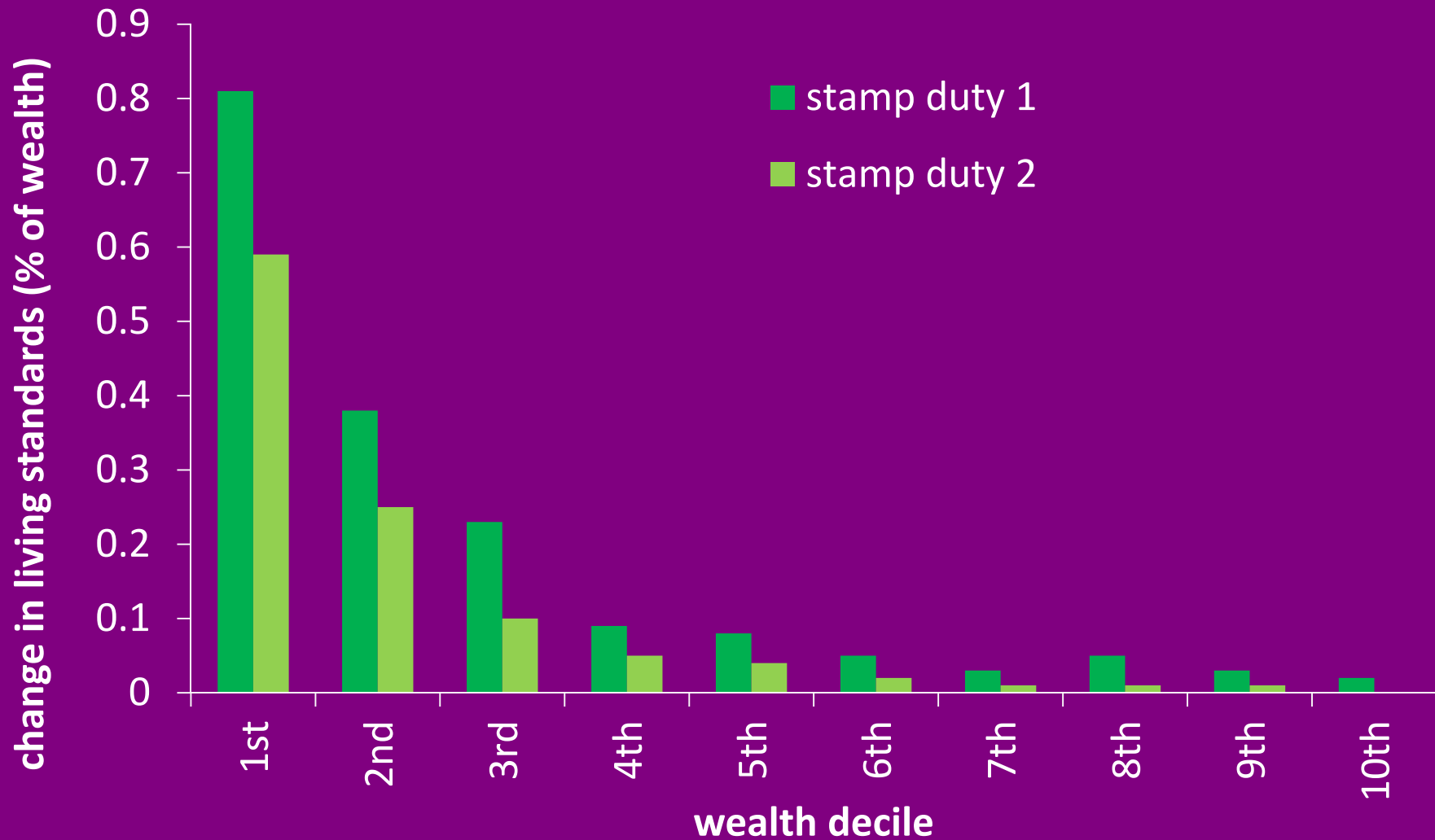
Impact of IHT abolition: cash terms, wealth deciles



Distributional impact: % of wealth



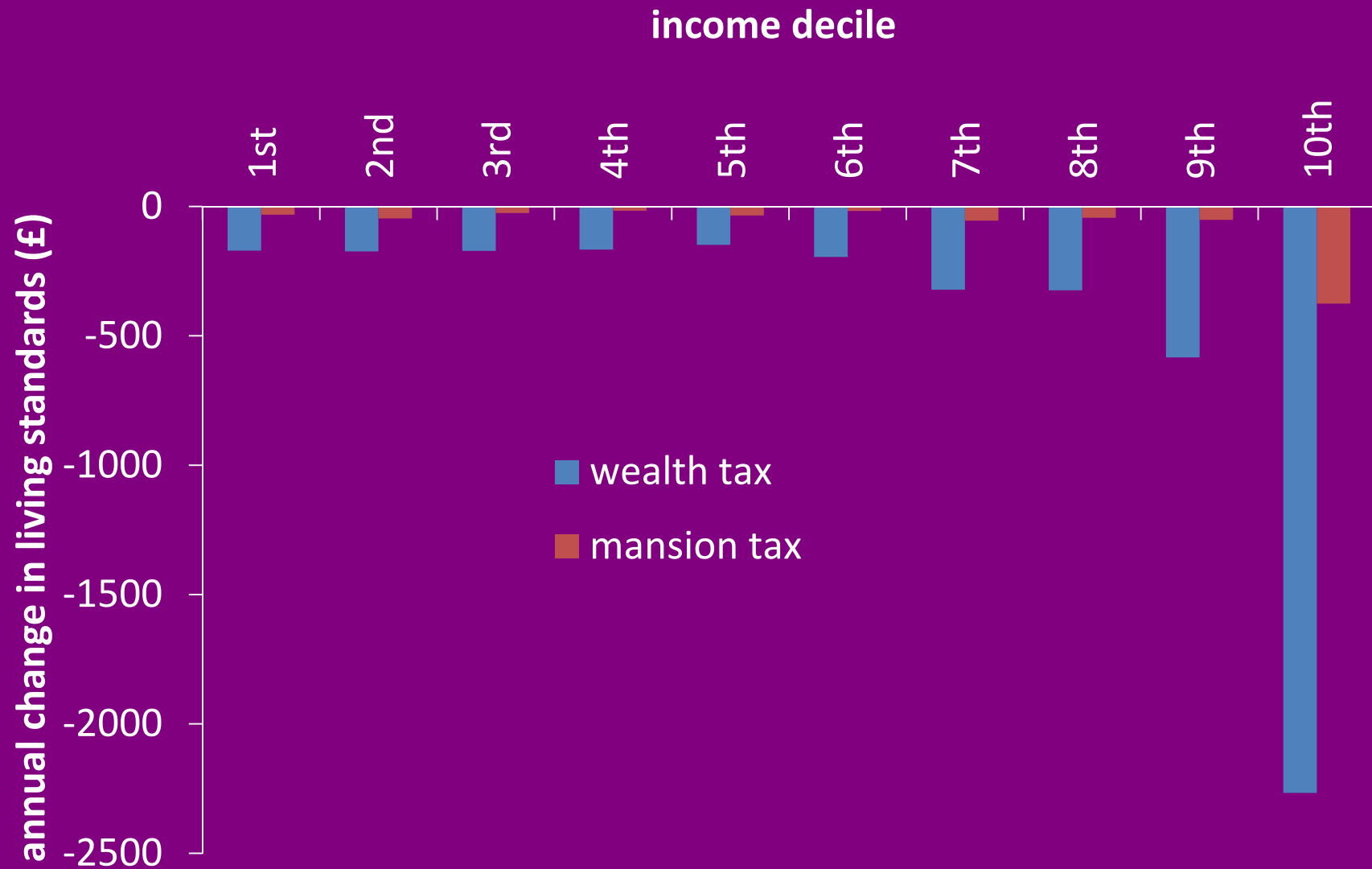
Distributional impact: % of wealth



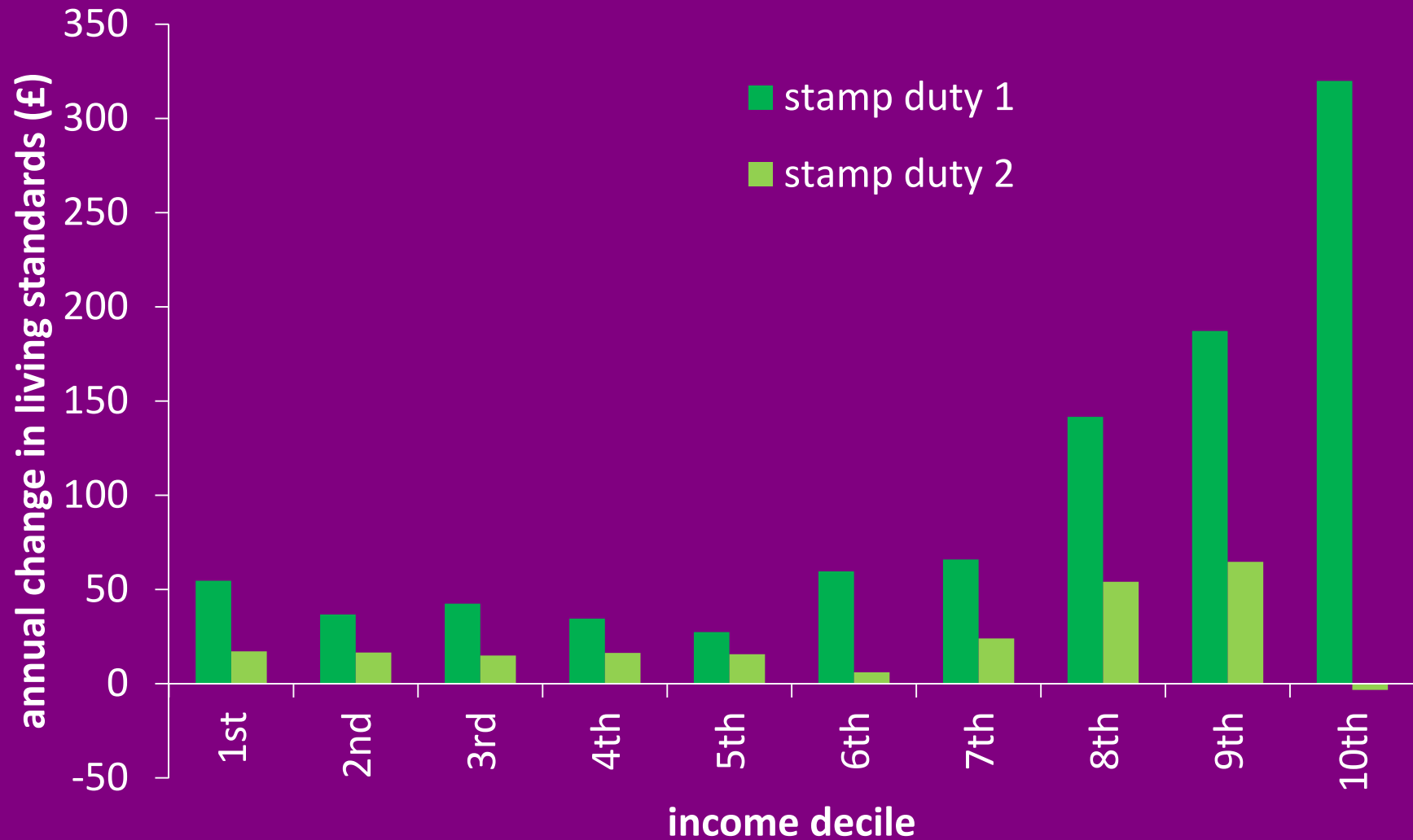
IHT impact: % of wealth



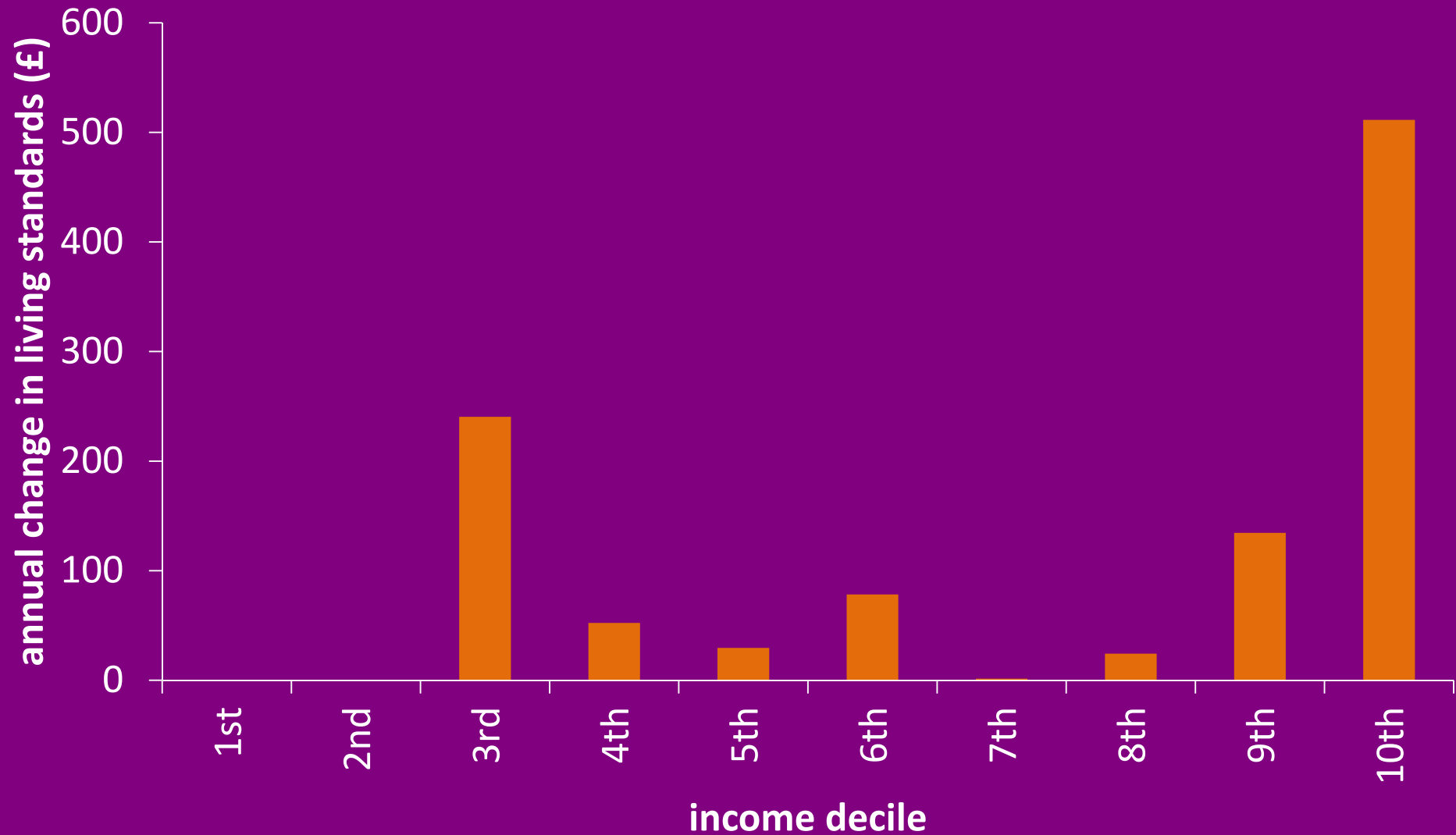
Distributional impact: cash terms, income deciles



Distributional impact: cash terms, income deciles



IHT impact: cash terms, income deciles

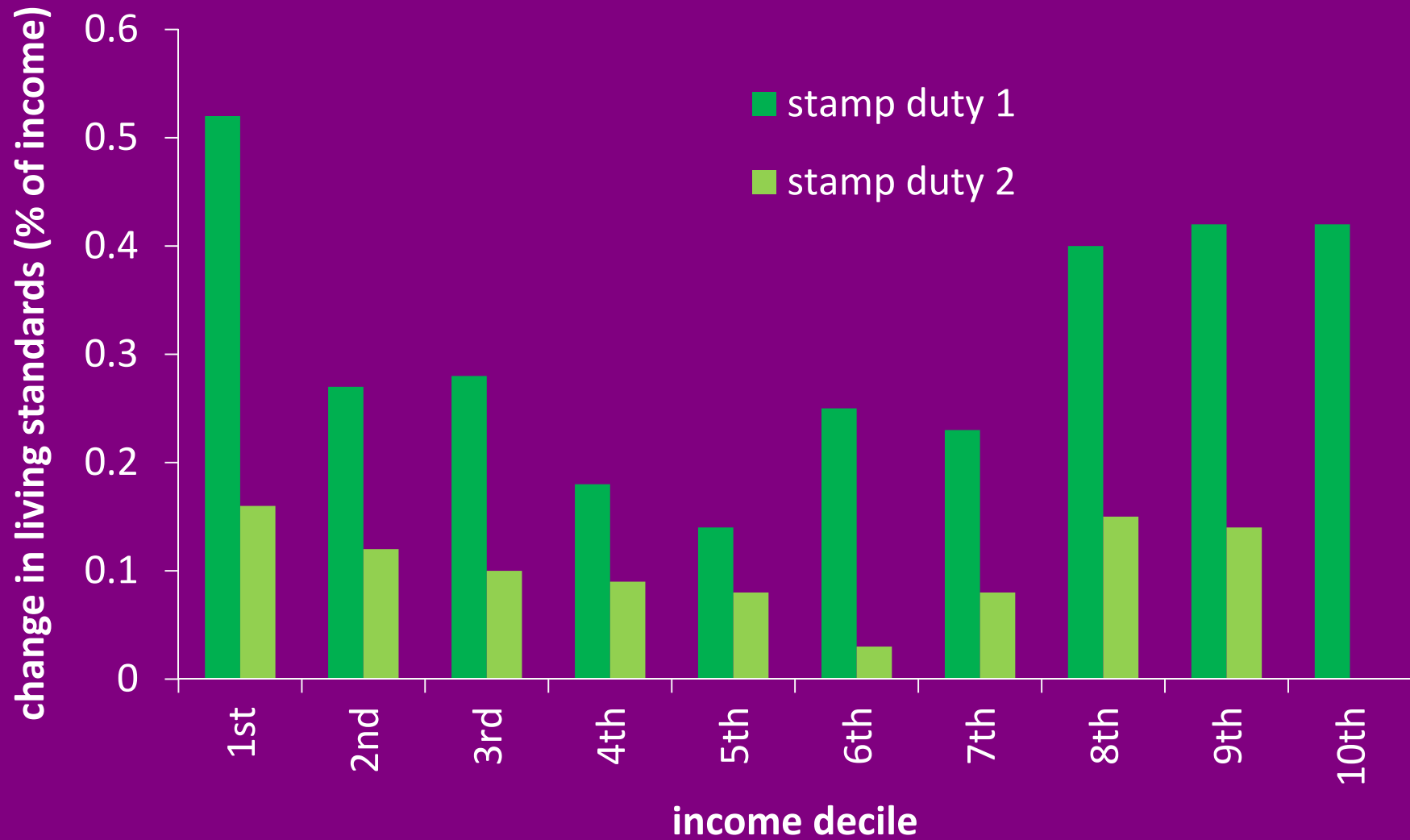


Distributional impact: % of income

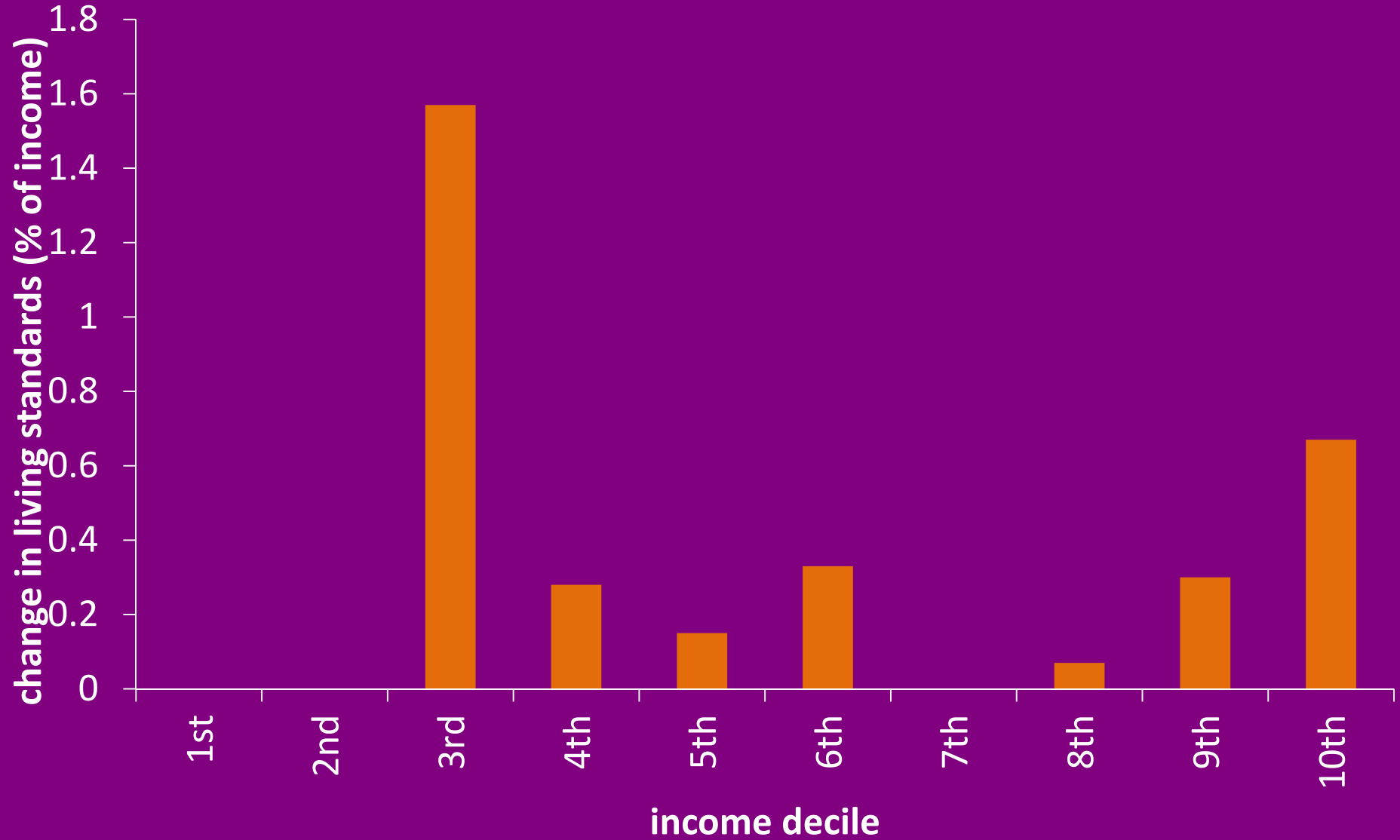
income decile



Distributional impact: % of income



IHT impact: % of income



Future Plans

Setting up model on WAS Wave 2

- Allows IHT to be modelled using WAS
- May allow CGT modelling (through imputation of capital gains between waves)
- Allows analysis in a panel framework

Imputation of land values

- e.g. through hedonic pricing model
- Would allow modelling of land value tax

Unexplored territory

- Behavioural effects
 - Probably large, particularly at the top end of the distribution
 - Very little research on this in a UK context
 - Needed to “walk” before we can “run” ...
- Incidence
 - e.g. who really pays SDLT – buyer or seller?
 - What difference does it make to distributional results?
- Filling in the gaps in WAS
 - e.g. SDLT and mansion tax at top end – a lot of tax avoidance through companies etc.
 - What about corporate wealth holdings?

Wealth taxes across OECD (2009)

