

Appendices: Boston or Berlin? How does Ireland's tax and spending compare?

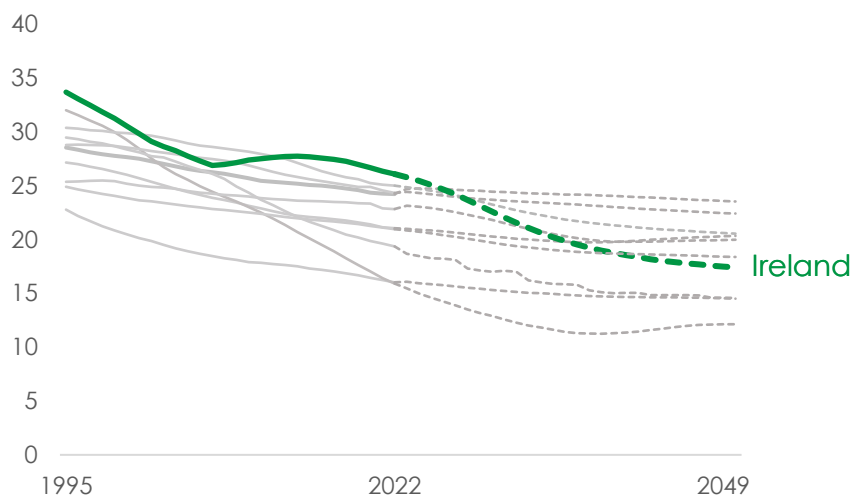
These appendices provide additional information related to the working paper "Boston or Berlin? How does Ireland's tax and spending compare?"

Appendix 1: Demographics

Here we compare Ireland's demographics to other high-income countries outside of Europe. Ireland has a high share of young people, which will decline in the coming years.

1: Ireland has a high share of young people, which will decline in the coming years.

Percentage of population aged 19 or under.

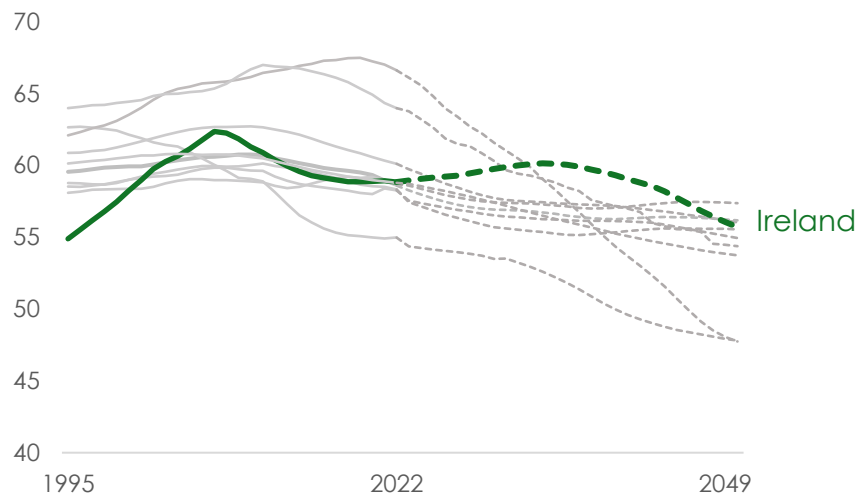


Source: OECD, CSO and Eurostat.

Notes: Dashed lines indicate projections by the OECD, CSO and Ageing report. The jurisdictions shown are Australia, Canada, Korea, Japan, New Zealand, United Kingdom, United States, Singapore, Ireland and the average of high-income European countries.

2: Ireland has pretty normal share of its population of working age

Percentage of population aged 20-64.



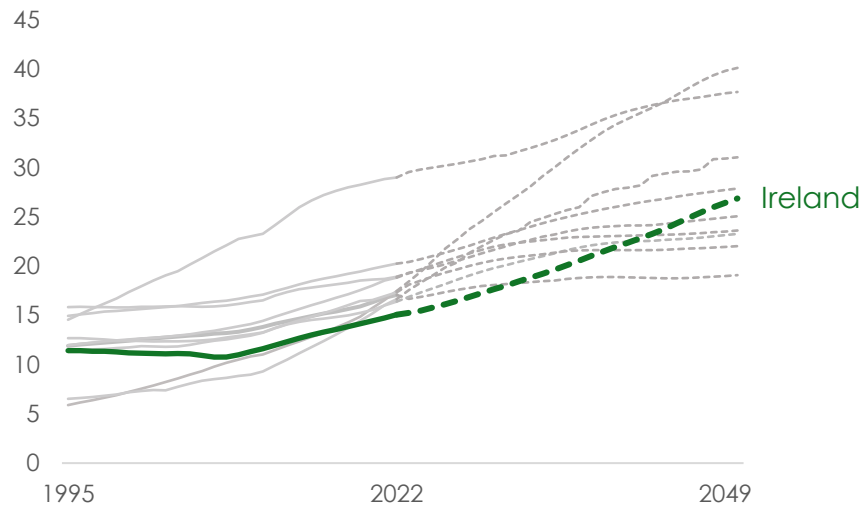
Sources: OECD, CSO and Eurostat.

Notes: Dashed lines indicate projections by the OECD, CSO and Ageing report. The jurisdictions shown are Australia, Canada, Korea, Japan, New Zealand, United Kingdom, United States, Singapore, Ireland and the average of high-income European countries.

Ireland has significantly fewer older people than most high-income countries. This is expected to change in coming decades as the Irish population ages rapidly.

3: Ireland's population is getting significantly older

Percentage of population aged 65 or over.



Sources: OECD, CSO and Eurostat.

Notes: Dashed lines indicate projections by the OECD, CSO and Ageing report. The jurisdictions shown are Australia, Canada, Korea, Japan, New Zealand, United Kingdom, United States, Singapore, Ireland and the average of high-income European countries.

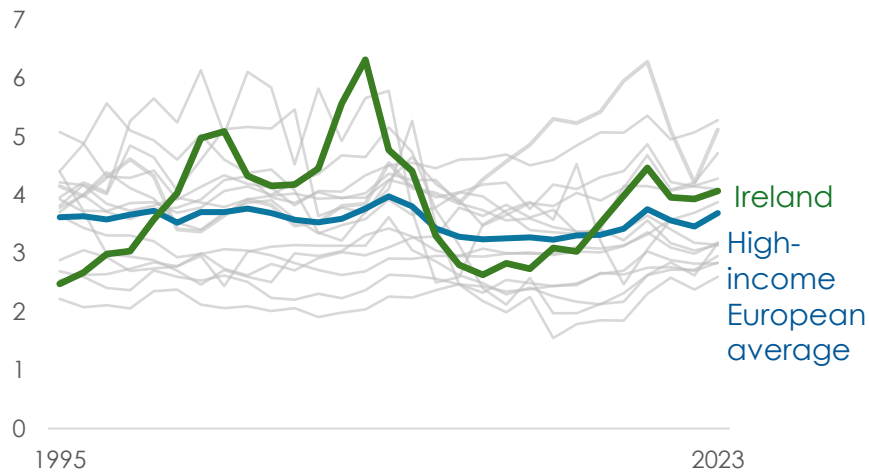
Appendix 2: Other areas of government spending in detail

Investment

Ireland has a long history of procyclical fiscal policy. This is particularly evident in its approach to investment.¹ Investment tends to rise during economic booms and fall during downturns. Currently, public investment in Ireland is higher than in other high-income European countries. This aligns with past experience, as the Irish economy is in a strong position.

4: Public investment in Ireland is high at present

General government investment spending, percentage of national income



Notes: GNI* used for national income in Ireland, GDP for other countries.

Between 1995 and 2023, government investment in Ireland averaged 3.8% of GNI*, slightly higher than the high-income European average of 3.6% of GDP. This elevated level of investment reflects efforts to catch up with the infrastructure standards of other countries. Conroy and Timoney (2024) estimate that, in 1995, infrastructure per person in Ireland was almost 50% lower than in other high-income European countries. This is unsurprising, as Ireland had not been a high-income country in the 1970s and 1980s and therefore had not fully developed its infrastructure.

¹ See Conroy, Casey and Jordan-Dook (2021)

Other Social protection

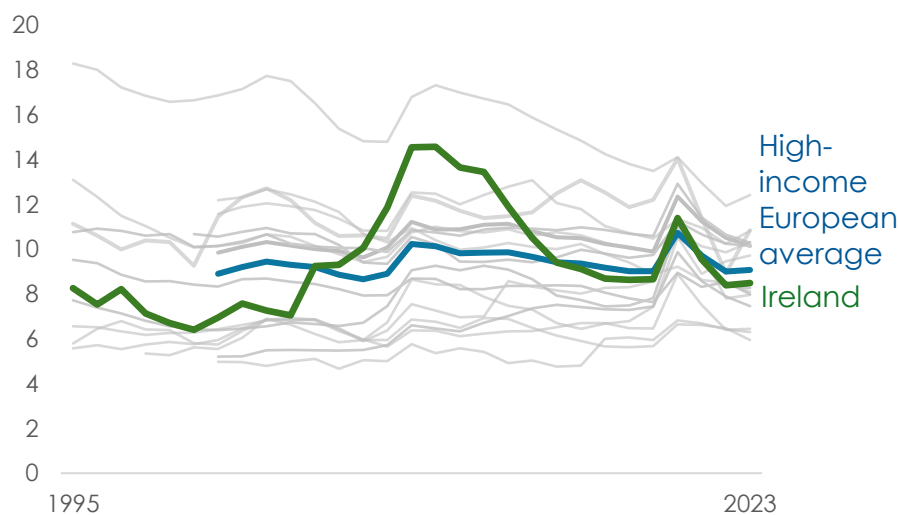
Here we consider social protection spending other than that for old-age payments and children/family. These social transfers would mostly be going to those of working age.

Working-age social transfers in Ireland appears to be similar to those in other high-income European countries. Unemployment support constitutes one of the largest components of this spending. Consequently, the performance of the economy significantly impacts this expenditure. During the Financial Crisis, a dramatic rise in unemployment in Ireland led to a substantial increase in social protection spending. Given that the recession was more severe in Ireland than in most other European countries, social protection spending grew more rapidly.

In more recent years, social protection spending in Ireland has been around the average compared to other European countries. The unemployment rate in Ireland has been slightly lower in recent years. Therefore, if Ireland experienced similar unemployment rates to other high-income European countries, one might expect social protection spending to be slightly higher.

5: Social protection spending in Ireland is similar to other European countries

General government spending on social protection payments (excluding old-age related payments), percentage of national income



Notes: GNI* used for national income in Ireland, GDP for other countries. Old-age social protection payments are excluded.

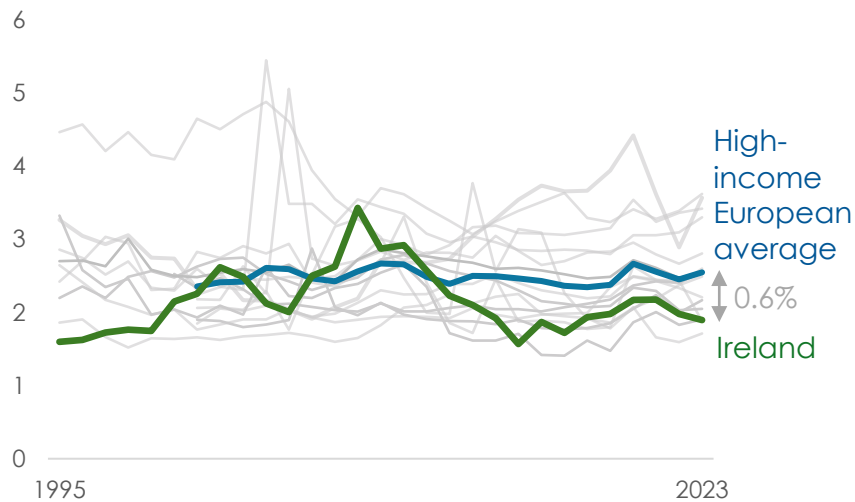
One major difference in the social protection system in Ireland, compared to other high-income European countries, is the allocation of resources towards housing. In Ireland, significant resources are directed towards assisting those in the rental sector. In contrast, other high-income European countries more commonly assist such households through standard social transfers. Consequently, Ireland appears to have high housing-related social transfers, while other countries have higher "other" social transfers. This is why we choose to present the combination of social transfers here.

Transport

Historically, government spending on transport in Ireland has been lower than in other high-income European countries. This is due to lower levels of current spending on transport. However, capital spending on transport has been slightly above the European average. Conroy and Timoney (2024) identified significant infrastructure shortfalls in this sector. If this shortfall is to be addressed, some additional investment may be required.

6: Transport spending in Ireland remains low

General government transport spending, percentage of national income



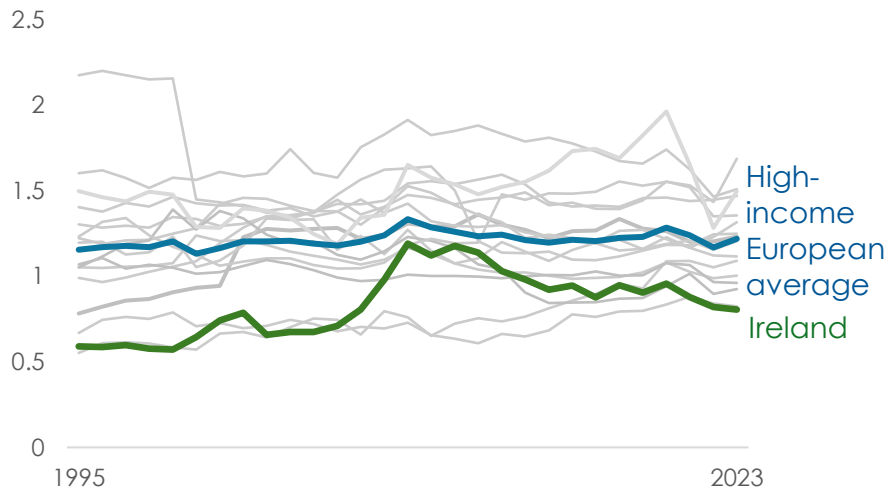
Notes: GNI* used for national income in Ireland, GDP for other countries. An adjustment is made to the Irish data to exclude some large capital transfers to the transport sector in 2009-2011

Recreation, Sport and Culture

Ireland's spending on recreation, sport, and culture has been consistently lower than European levels as a share of national income. Since 2011, this expenditure has been steadily declining as a share of national income.

7: Government spending on recreation, sport and culture is low in Ireland

General government expenditure on recreation, sport and culture, percentage of national income



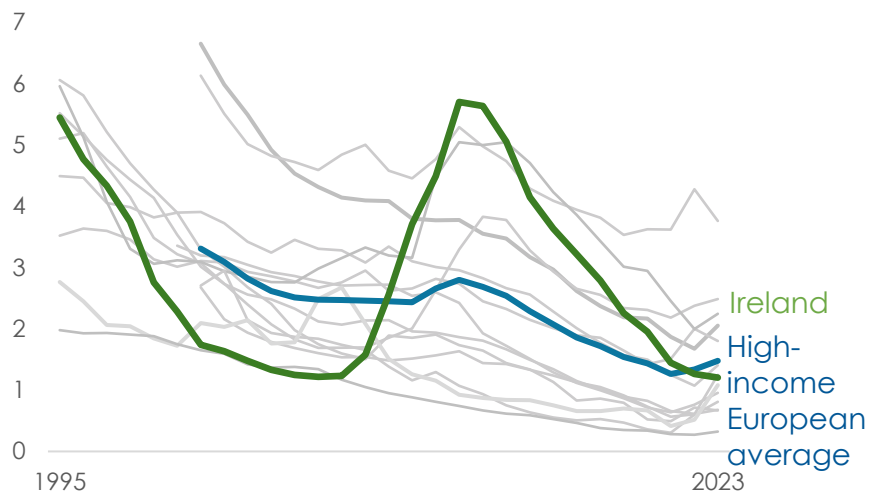
Notes: GNI* used for national income in Ireland, GDP for other countries. The COFOG classification of recreation, culture and religion is used (code GF08)

Interest

Interest costs are influenced by the amount of government debt and the interest rates applied to that debt. From 2008 to 2012, Ireland saw a significant rise in interest costs due to a substantial increase in the debt-to-GNI* ratio and higher average interest rates on government debt. However, both of these factors have since reversed, and Irish government spending on interest is now below average European levels.

8: Irish interest costs have fallen to average European levels

General government debt service costs, percentage of national income



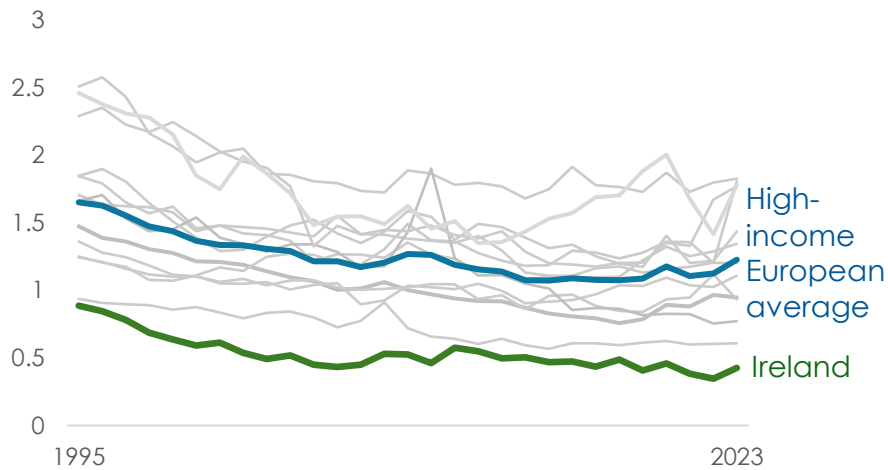
Notes: GNI* used for national income in Ireland, GDP for other countries

Defence

Ireland has historically maintained lower levels of defence spending compared to its European neighbours.² Consequently, this has contributed to Ireland's overall lower government spending relative to other high-income European countries.

9: Defence spending in Ireland has been consistently lower than European neighbours

General government defence spending, percentage of national income



Notes: GNI* used for national income in Ireland, GDP for other countries.

² Over 1995-2022, Ireland's defence spending has averaged 0.5% of national income. In high-income European countries, the average is 1.3%.

Appendix 3: Other areas of government revenue in detail

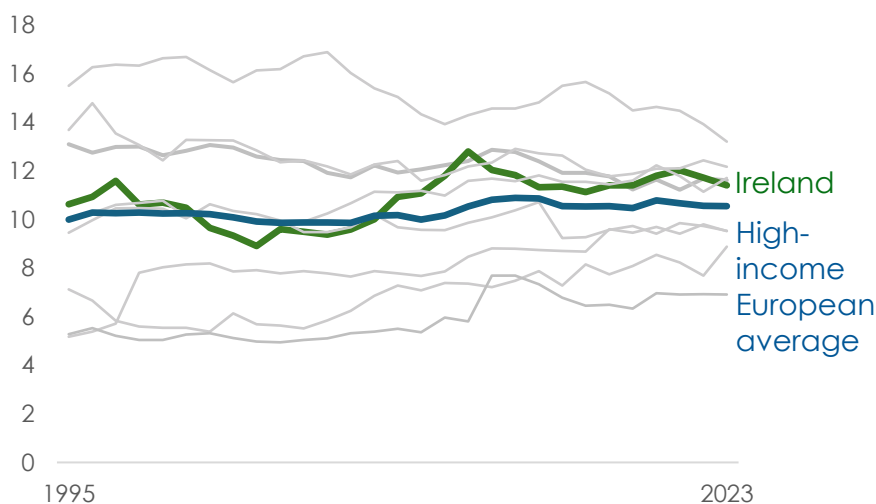
In the main text of the paper, combined income tax and social contributions are presented. Here we show income tax and social contributions separately.

Household income tax

We can compare household income taxes across countries by examining them as a percentage of national income. This comparison reflects two key factors: the effective income tax rate on labour income and the labour share of income. If wage income constitutes a larger share of national income, then, all else being equal, we would expect a higher income tax to national income ratio.

10: Ireland collects more income tax revenue than its European peers

Taxes on individual or household income, percentage of national income



Notes: GNI* used for national income in Ireland, GDP for other countries. Taxes on individual or household income corresponds to code D51A in the Government Finance Statistics. Countries shown are Austria, Belgium, Finland, France, Italy, Ireland, Netherlands, Portugal and Sweden. Germany and Spain do not have comparable published data. Denmark is excluded as its labour taxes are all classified as income tax, rather than being split between income tax and social contributions.

Sources: Eurostat and CSO.

When comparing countries, Ireland collects more income tax revenue relative to national income than most other high-income European countries. This is partly due to Ireland consistently having a slightly higher-than-average labour share of

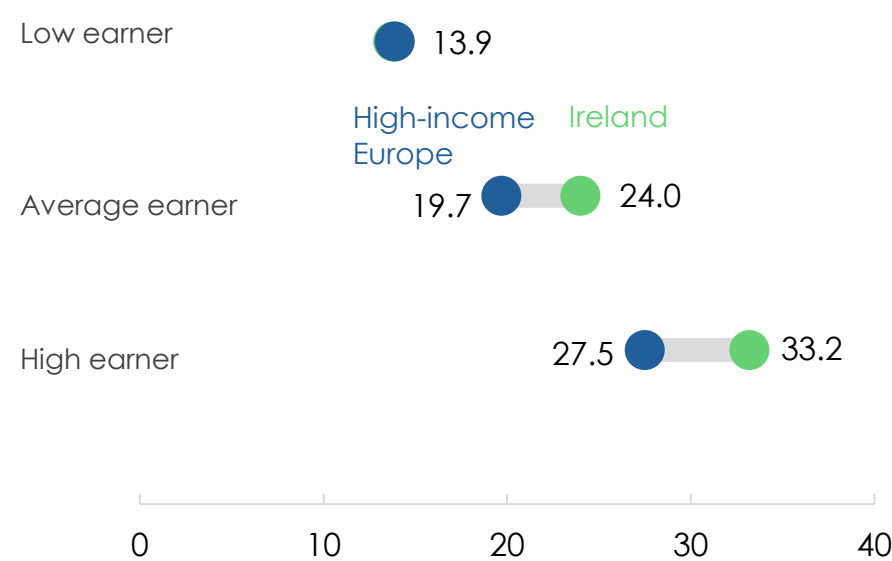
income.³ As the next section shows, this higher collection of income tax is more than offset by lower social contributions in Ireland.

An important aspect to consider is how different levels of income are taxed. OECD (2024) data allows us to compare income tax paid at different levels of income. In 2023, Irish households faced higher rates of income tax than most other high-income European countries. However, this is focused almost exclusively on those earning at or above average incomes. For those earning lower income, Irish tax rates are similar to those in other high-income European countries.

Overall, Ireland’s income tax system appears to be more progressive than most European countries. This is because the gap between share of income paid in income tax by high and low earners is wider than in other countries.

11: Higher income tax in Ireland is driven by high earners

Effective rates of income tax by household type



Sources: OECD taxing Income 2024 and authors calculations.
Notes: Irish tax rates are shown in green. High-income European tax rates are shown in blue. High-income European countries used are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden and Switzerland. Low earners are defined as those earning 67% of the average wage. High earner are defined as those earning 167% of the average wage. Data refers to 2023. A low earner in Ireland is assumed to earn €47,715, an average earner €71,216 and a high earner €118,931. These are expressed as purchasing power parities.

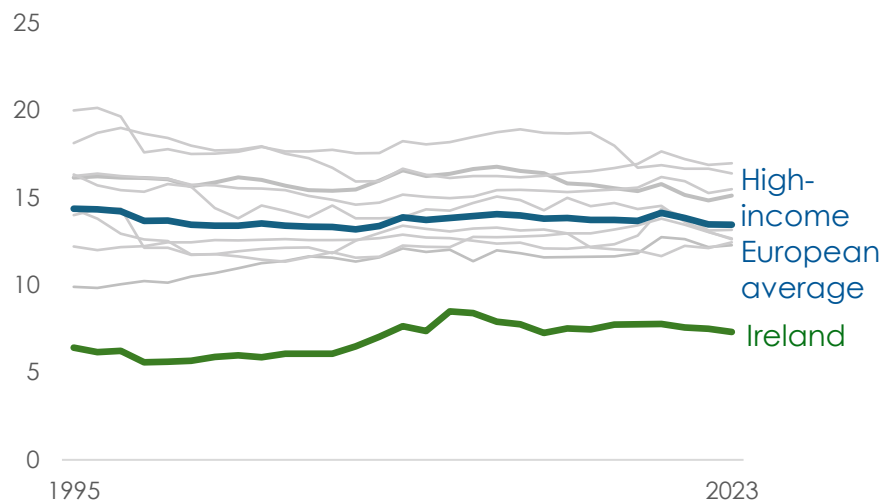
³ The labour share of income here is given by compensation of employees divided by national income (GNI* for Ireland, GDP for other countries). Over 1995-2022, the average labour share of income was 49% in Ireland, compared to 47.5% for high-income European countries.

Social contributions

Social contributions are typically paid by both employers and employees. These are often used to fund social insurance programs such as pensions and unemployment supports. In Ireland, these contributions are significantly lower than the European average. Both employer and household contributions in Ireland are well below the average levels seen in other countries.

1.2: Ireland collects fewer social contributions than its European peers

Social contributions, percentage of national income



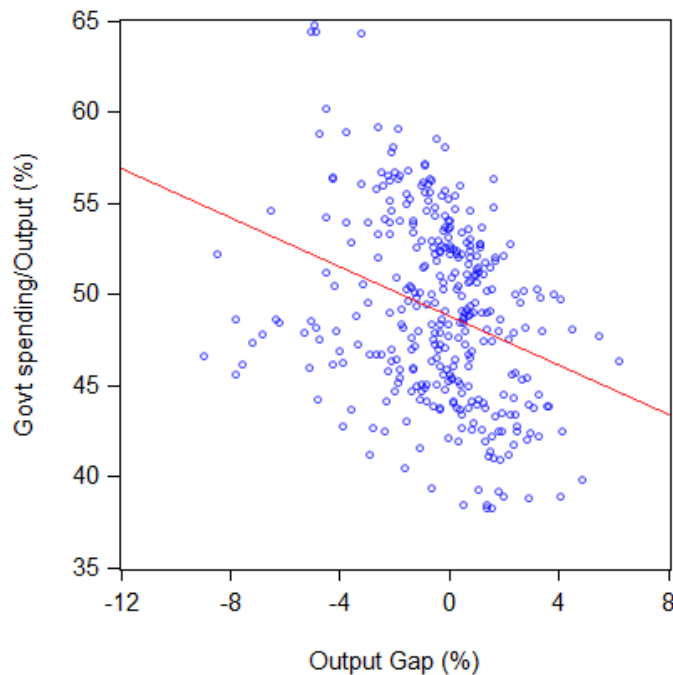
Notes: GNI* used for national income in Ireland, GDP for other countries. The countries shown are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Netherlands, Portugal and Spain.

Appendix 4: The impact of the economic cycle on government spending to output ratio

Looking at high-income European countries from 1995-2023, we can see a negative correlation between the output gap for a given country and year and the government spending to output ratio. As one would expect, a negative output gap, where the economy is performing below capacity is associated with a higher government spending to output ratio. Conversely, when the economy is operating at or above capacity, government spending makes up a smaller share of economic output.

13: Negative output gaps typically associated with higher spending to output ratios

Output gaps and government spending as a share of national income



Sources: IMF and Authors calculations.

Notes: Countries shown are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain and Sweden. A negative output gap indicates the economy is producing less than its potential level. Conversely a positive output gap suggests the economy is operating above its long run capacity.

After controlling for country level fixed effects, there appears to be a one-for-one correlation between the output gap and government spending to output ratio.

14: Spending to output ratios are typically lower in booms and higher in recessions

	(1)	(2)
Output Gap	-0.98 (0.00)	-0.67 (0.00)
Constant	48.7 (0.00)	48.8 (0.00)
Country fixed effects	Yes	No
R2	0.69	0.10
N	342	342

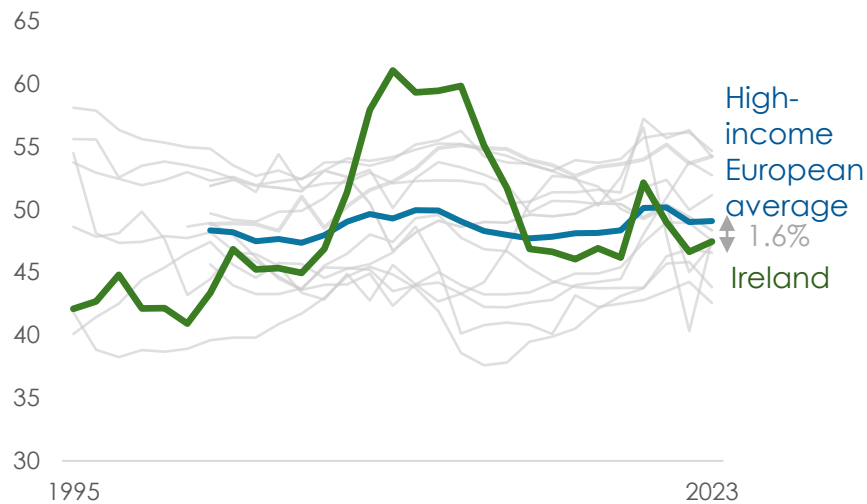
Sources: IMF and authors calculations.

Notes: Dependent variable is the government spending to output ratio. Government spending is adjusted for demographics. Costs associated with bank recapitalisations are excluded, using estimates from Villar Burke (2017). A negative output gap indicates the economy is producing less than its potential level. Conversely a positive output gap suggests the economy is operating above its long run capacity.

Here we show how Irish government spending would compare to other high-income European countries. In the main text, we showed results using an elasticity of 0.5 with respect to the output gap. Here, we show these results when an elasticity of 1 is used. We can see that government spending looks even closer to high-income European average levels in this instance (1.6 % of national income).

15: After adjusting for demographics and the economic cycle, Ireland's spending levels is much closer to European levels

Government spending as a share of national income, adjusted for demographics and the economic cycle.



Sources: Eurostat, IMF and authors calculations.

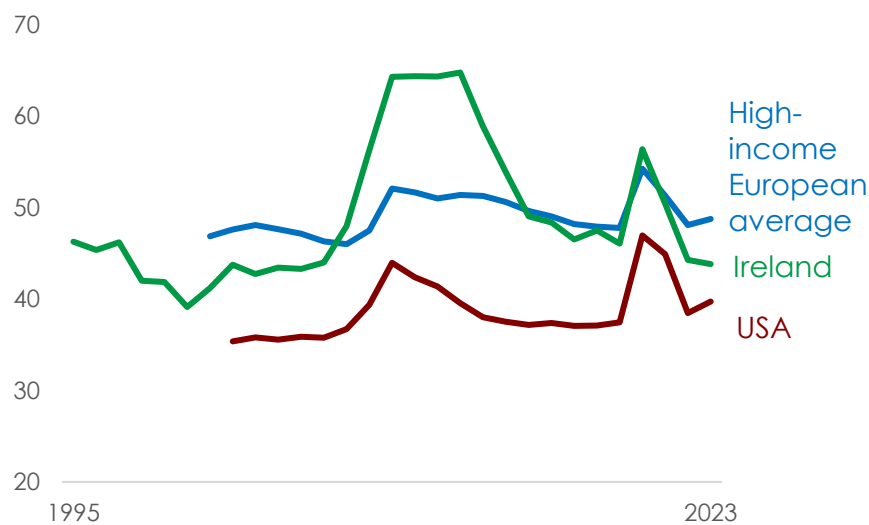
Notes: The costs of bank recapitalisations are excluded for all countries. Estimates are taken from Villar Burke (2017). Spending is adjusted for the demographic structure of the population (see Section 4 for details) and for the economic cycle (see Section 5).

Appendix 5: Spending comparisons beyond Europe

An age-old question is whether Ireland is a high tax and high government spending country. Historically, this has been framed as a choice between being like "Boston or Berlin".⁴ Apart from the financial crisis, government spending in Ireland has typically fallen between the high levels seen in European countries and the lower levels observed in the USA.⁵

16: Government spending in Ireland is now between "Boston and Berlin"

General government spending as a percentage of national income



Sources: CSO, Eurostat and OECD.

Notes: General government spending is shown as a share of national income. Modified Gross National Income (GNI*) is used for Ireland, GDP is used for other countries. Spending levels in Ireland and USA are adjusted for the age structure of the population, relative to the high-income European average.

One might look beyond Europe to compare Ireland with other high-income countries. It is evident that European high-income countries typically have larger government spending than their counterparts outside of Europe.

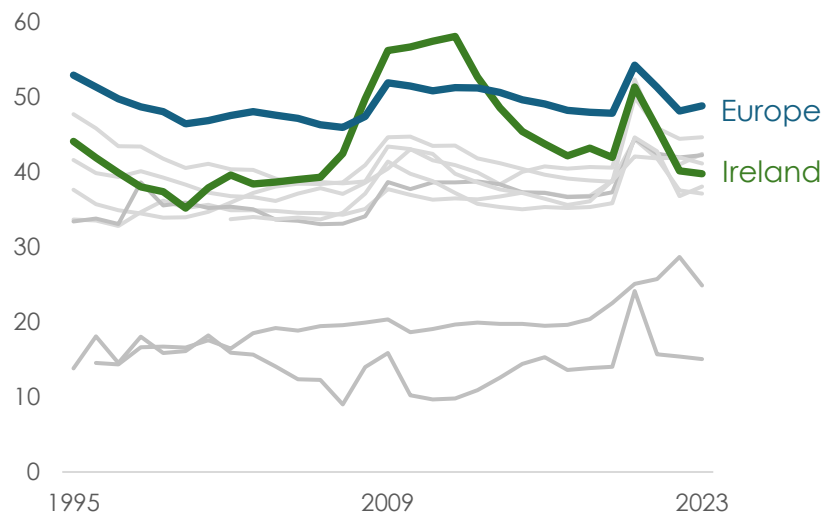
⁴ This phrasing has its origins from when Mary Harney (the then minister for Enterprise, Trade and Employment) was asked what direction Ireland was going. She replied that Ireland was "Geographically (...) closer to Berlin than Boston, spiritually we are probably a lot closer to Boston than Berlin". See Fischer (2014) for further context around this quote.

⁵ The USA has a younger population than the average in Europe, but not as young as in Ireland currently. As a result, if one adjusted for demographics, the gap between the USA and Europe would narrow.

Government spending in Ireland is relatively similar to that of several advanced economies, such as Canada, Japan, the UK, and New Zealand. In contrast, Korea stands out for having significantly lower levels of government spending.

17: Irish government spending is now similar to many other advanced countries

General government spending as a percentage of national income



Sources: CSO, Eurostat and IMF.

Notes: The grey lines represent high-income countries that are outside of Europe. The jurisdiction's shown are Australia, Canada, Ireland, Japan, Korea, New Zealand, United Kingdom, United States and the average of high-income European countries. General government spending is shown as a share of national income. Modified Gross National Income (GNI*) is used for Ireland, GDP is used for other countries. Korea stands out for having much lower levels of government spending.