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QUARTERLY ECONOMIC COMMENTARY

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Spring 2026

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The Quarterly Economic Commentary has been accepted for publication by the Institute, which does not itself take institutional policy positions. It has been peer reviewed by ESRI research colleagues prior to publication. The authors are solely responsible for the content and the views expressed.

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Summary table

	2024	2025	2026	2027
Output (real annual growth %)				
Private consumer expenditure	2.9	2.9	2.4	2.6
Public net current expenditure	5.3	4.1	3.4	2.7
Investment	-28.5	42.6	-11.3	1.8
Modified investment	-4.2	10.9	0.4	3.2
Exports	8.6	9.7	-1.5	4.9
Imports	2.7	9.5	-4.5	2.3
Gross domestic product (GDP)	2.6	12.3	1.0	5.5
Modified domestic demand (MDD)	1.8	4.9	2.1	2.8
Labour market				
Employment levels (thousands)	2,757	2,817	2,857	2,899
Employment growth (per cent)	2.7	2.2	1.4	1.5
Unemployment levels (thousands)	123	137	145	150
Unemployment rate (% of labour force)	4.3	4.7	4.8	4.9
Prices				
Inflation (CPI)	2.1	2.2	3.2	2.7
Public finances				
General government balance (euro, bn)	23.2	9.4	5.1	6.7
General government balance (per cent of GDP)	4.3	1.5	0.8	1.0

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Abbreviations

AI	Artificial intelligence
BER	Building Energy Rating
bioLPG	Biopropane
CJEU	Court of Justice of the European Union
CPI	Consumer Price Index
CRU	Commission for the Regulation of Utilities
CSO	Central Statistics Office
CT	Corporation tax
DEAP	Dwelling Energy Assessment Procedure
DoF	Department of Finance
ECB	European Central Bank
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificate
ESRI	Economic and Social Research Institute
FRED	Federal Reserve Economic Data
GDP	Gross domestic product
GNI*	Modified gross national income
GNP	Gross national product
GVA	Gross value added
HICP	Harmonised Indices of Consumer Prices
HVO	Hydrogenated / Hydrotreated vegetable oil
ICE	Intercontinental Exchange
ICT	Information and communications technology
IFAC	Irish Fiscal Advisory Council
IMF	International Monetary Fund
IrBEA	Irish BioEnergy Association
ISCC	International Sustainability and Carbon Certification
LPG	Liquid petroleum gas
MDD	Modified domestic demand
MNE	Multinational enterprise
MTP	Medium-Term Fiscal and Structural Plan
NCPC	National Competitiveness and Productivity Council
NIE	National income and expenditure accounts

NIESR	National Institute for Economic and Social Research
NiGEM	National Institute's Global Econometric Model
NNI	Net national income
NNP	Net national product
OECD	Organisation for Economic Co-operation and Development
PLC	Public limited company
PPP	Purchasing Power Parity
QEC	Quarterly Economic Commentary
rDME	Renewable dimethyl ether
RED III	Renewable Energy Directive
RPZ	Rent Pressure Zone
SA	Seasonally adjusted
SAF	Sustainable aviation fuel
SEAI	Sustainable Energy Authority of Ireland
TES	Thermal energy storage
TTF	Title Transfer Facility
UCO	Used cooking oil
USC	Universal Social Charge
WTI	West Texas Intermediate
YOY	Year on year

Forecast overview

This *Commentary* has been prepared during the second and third weeks of the Iran crisis. At the time of writing, it remains unclear how long the crisis will last and how intense the related global economic shock will be. However, it is already clear that energy prices have risen sharply and that higher prices are likely to persist for some time, even if the conflict ends soon. In preparing our forecasts, we draw on futures markets, which reflect the current elevated prices levels and an expected downward drift over the course of this year and into next.

The main impact of the Iran crisis for our forecasts is with regard to inflation. In our winter *Commentary*, we had expected Consumer Price Index (CPI) inflation to be 2.1 per cent in 2026. We now expect this to be 3.2 per cent in 2026 and 2.7 per cent in 2027, but a more prolonged conflict would imply higher rates with energy price rises leading to price rises across a wide range of goods and services. This generalised inflation would dampen economic activity.

The economy performed strongly in 2025. Exports grew by 9.6 per cent, although the pace of growth eased through the year. Modified domestic demand (MDD) grew by 4.9 per cent. Underlying this MDD growth was strong growth in consumption of 2.9 per cent and also a jump in modified investment, specifically in ICT. We expect the economy to continue to grow in 2026 and 2027, although at a slower pace – our forecast for MDD growth in 2026 is 2.1 per cent followed by 2.8 per cent in 2027. As with our inflation forecast, our broader forecasts will be reviewed in the light of the ongoing Iran crisis.

Housing output remains a core concern of policy and it is well understood that annual completions need to be approaching 50,000 units if national targets are to be met. An increase in output was registered in 2025 with 36,248 completions, compared to just over 30,000 in 2024. Based on the forward indicators that are currently available (commencements and planning permissions), it is difficult to see further upward momentum in

housing output. For now, we expect housing output to remain in the mid-30,000s in 2026 and 2027.

Data in the latter part of 2025 appeared to show a softening in the labour market, but the data for the last quarter of 2025 showed employment growth rising again to 2 per cent. One concerning point in the latest Central Statistics Office (CSO) monthly unemployment release is an apparent rise in youth unemployment although we will need to track if this is also evident in the results of the quarterly Labour Force Survey.

In our assessment, we discuss how the Government might insulate households from the effects of the energy price increases if these increases persist at a high level. Based on previous ESRI work, we recommend against cutting indirect taxes on energy products due to poor targeting and adverse incentives. Flat-rated energy credits are better targeted than indirect tax cuts, but welfare changes are the most effective means of approaching this challenge if the goal is to insulate the most needy effectively.

Looking at longer-running challenges, we raise concerns about the capacity of the economy to deliver on so many infrastructure needs in a limited time-frame, and point to the need for prioritisation. This point becomes more important if the Iran crisis lead to construction inflation. We also note how tariff-related uncertainty has not ended and that policy in respect of domestic firms remains critical.

Overall outlook

International outlook deteriorates on energy price shock

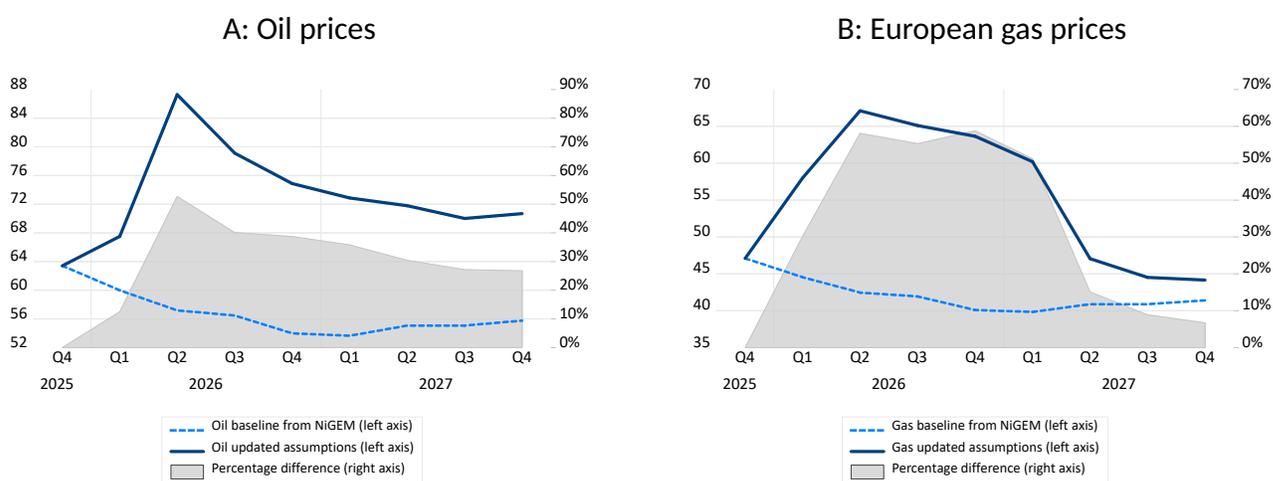
The global economy had shown remarkable resilience in recent years to repeated economic shocks. In 2025, the trade policy changes introduced by the Trump administration caused major disruption to well-developed economic linkages, and added major uncertainties into the functioning of the global trading system. These changes were estimated to have a notable impact on Ireland (Egan and Roche, 2025). While a deal between the EU and the US appeared to have been agreed in 2025, the ruling of the US Supreme Court which called into question the legal basis for the existing tariffs, and the reaction from the Trump administration, has added to the extremely uncertain trading outlook. Indeed, any passage of the deal has been paused on the EU side. Despite these factors, global growth has continued, albeit at lower levels than would have been the case without such disruptions.

Following on from changes to US trade policy, the recent conflict in the Middle East has increased the downside risks and headwinds facing the global economy. Prolonged disruptions in the Strait of Hormuz would put considerable upward pressure on oil and gas prices, and raise uncertainty. This is likely to weigh on economic activity through investment and consumption channels. These patterns are likely to be mirrored in an Irish context, with both price effects and lower world demand dampening economic activity. The scale of the impacts is dependent on the magnitude and duration of the energy price shocks. Recent research by Bernard et al. (2026) for the National Institute for Economic and Social Research (NIESR), has provided some early estimates of the impacts on key macroeconomic aggregates for the UK. They estimate that UK inflation will increase by 0.8 percentage points in 2026 and by 0.5 percentage points in 2027. Further work by Cornforth (2026) highlights a broader group of countries, and estimates that the impact on inflation in 2026 will be greater than 1 per cent for major economies such as China, France, Italy, Japan and the US. More limited effects are evident for energy producers such as Norway and Canada. Effects in 2027 are more muted and vary depending on the market.

Recent experience with energy-driven inflationary shocks during the Russian invasion of Ukraine provides evidence that can inform the potential scale of the impacts on Ireland in the current context. Research by Egan et al. (2023) considered the impact of the energy price shocks following that invasion on the Irish economy. This research provides a basis for exploring the magnitude and scope of the effects of sharp energy price rises. We draw on this research in terms of quantifying the impacts on the Irish economy for the present forecasts.

Figure 1 shows how the trajectory suggested by commodities futures markets¹ differs from the trend we would have expected before the war began. The deviations of the path implied by futures markets from the baseline peak at over 50 per cent for both oil and gas. The return to the pre-war baseline is sharper for gas prices, which may reflect the greater seasonality in gas prices in general as this return to the baseline occurs in summer 2027. In the current *Commentary*, given the fast changing nature of events, as a technical assumption we use figures for oil and gas as implied by current futures markets in Figure 1 as our input assumptions.

¹ Futures markets are financial markets where agreements can be made to trade oil and gas for a given price at a given point in the future.

Figure 1: Oil and gas prices scenarios (equivalised US dollars per barrel)


Source: ICE Dutch TTF gas futures, Yahoo Finance oil futures, the National Institute's Global Econometric Model (NiGEM) database.

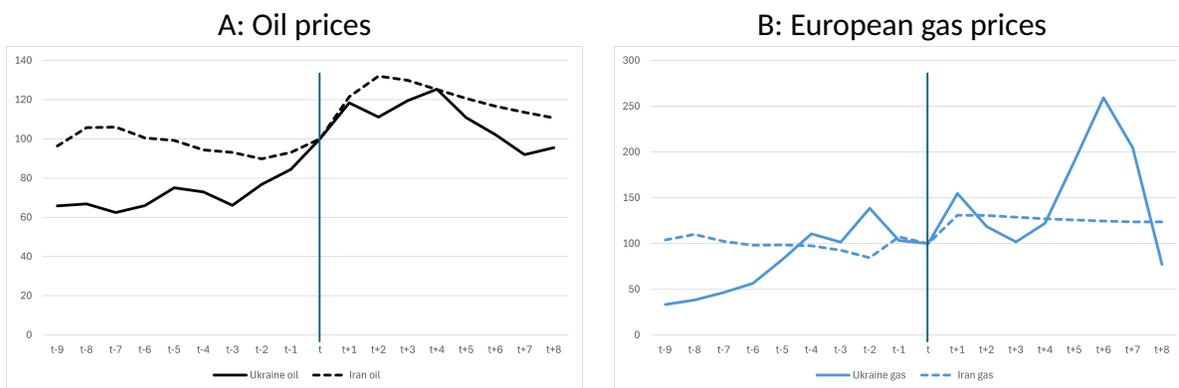
Note: The baseline before the onset of the war is drawn from the NiGEM database. The updated assumptions are calibrated based on the paths assumed by oil and gas futures markets as of 11 March.

The critical assumption from our side regards how much higher prices are than what we previously expected and what this means for inflation in Ireland; current data indicates price increases close to 40 per cent higher on average for 2026 and 25 per cent for 2027. To explore this, we compare the scale of the effects between the current conflict and developments following the Ukrainian invasion. We do this using an event study type analysis. This is presented in Figure 2, which bases the first month of each conflict at the starting point t and compares a nine-month time window each side of this point. It shows that energy prices were increasing in the period leading up to the war in Ukraine. Gas prices in particular had already doubled in the nine months before the war. This contrasts with the past nine months where prices have been relatively stable before the onset of the war in Iran. After the onset of the war in Ukraine, gas prices continued to rise and peaked in September 2022, at 2.5 times the level in February of that year (solid blue line). Financial markets are not currently pricing in such a sustained period of increase (dashed blue line). The path that markets assume for oil prices is

similar to how the series developed in the months following the war in Ukraine (dashed and solid black lines).

Combining these profiles with the parameter sensitivities implied in Egan et al. (2023) suggests an initial pass through of approximately 1 per cent to CPI for every 30 per cent increase in oil and gas prices. These magnitudes are deployed in our baseline figures.

Figure 2: Oil and gas prices scenarios (monthly average, index 100 = time t)

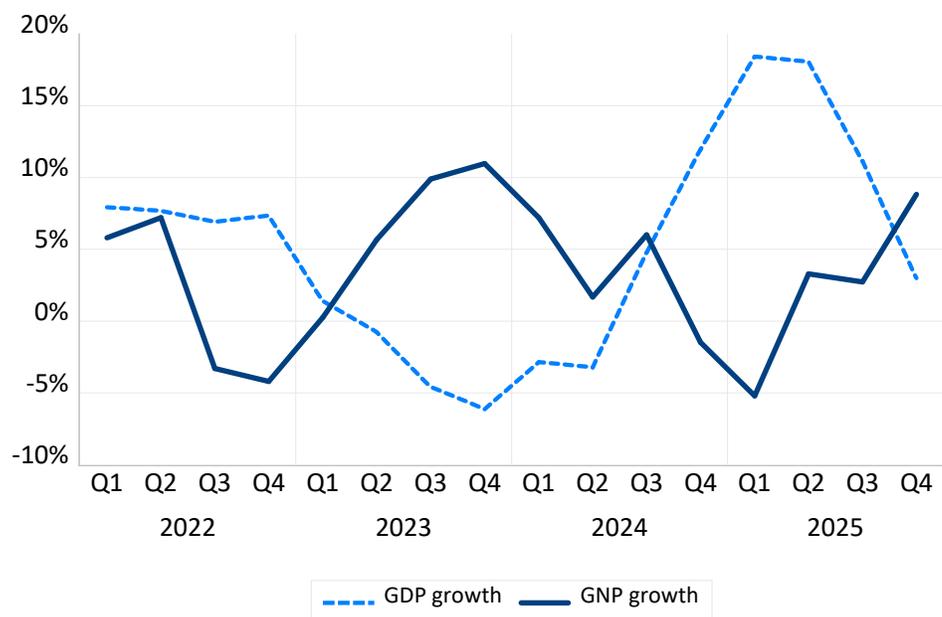


Source: FRED WTI oil prices, IMF commodity price database, ICE Dutch TTF gas futures, Yahoo Finance oil futures

Note: The solid line shows the actual data in the months before and after the onset of the war in Ukraine. The dashed line shows the actual data in the months leading up to the war in Iran and the path projected by futures markets for the months to come.

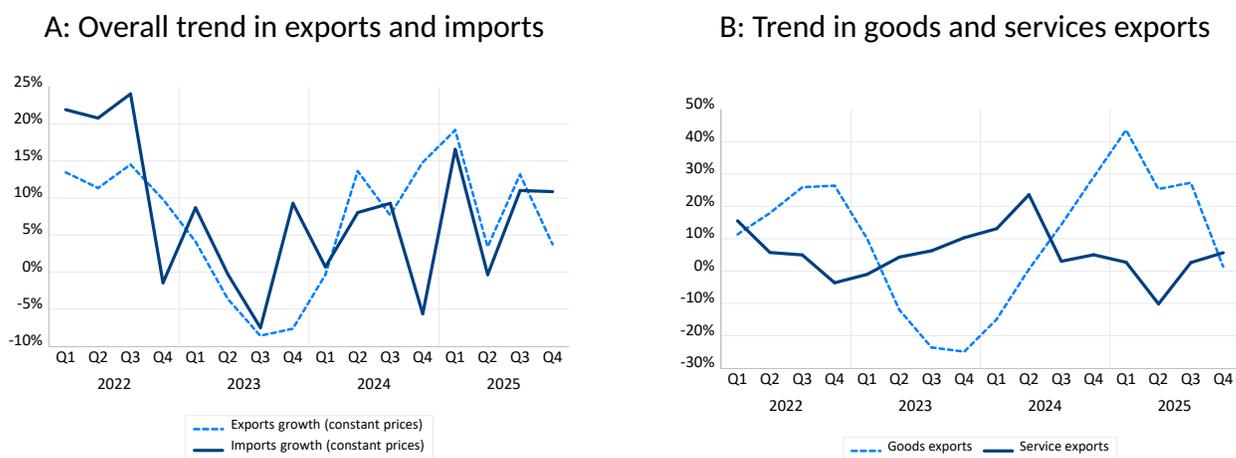
Despite the uncertainty Irish GDP surges

Despite the global challenges, Ireland’s export-led growth continued in 2025. Figure 3 presents year-on-year growth in gross domestic product (GDP) and gross national product (GNP), on a quarterly basis. While the final quarter of 2025 pointed towards a moderation in output, the first three-quarters of the year experienced very rapid growth above 10 per cent. The first quarter of 2025 in particular experienced a surge in GDP growth.

Figure 3: GDP and GNP growth – YOY – constant prices (SA)


Source: CSO, National Accounts data

Behind this trend has been a substantial surge in goods exports, in particular those related to pharmaceuticals in the early part of the year. Figure 4:A presents the overall year-on-year growth trend in imports and exports for Ireland on a quarterly basis. Considering panel B, we can see that goods exports have rapidly increased from the final quarter of 2024 into 2025. Growth continued to be elevated through the first three-quarters before declining in the final quarter. Service export growth followed a very different path, with a downturn in the second quarter followed by a rebound towards the end of the year.

Figure 4: Overall imports, exports, and export sub-groups – YOY – Constant prices (SA)

Source: CSO, National Accounts data

To explore this trend in more detail, we decompose the impacts by specific sub-sectors within exports. These are presented in Figure 6, which contains the growth rate of goods and services. For goods, the data are decomposed into three groups: a) pharmaceuticals goods; b) non-pharmaceuticals international trade; and c) residual goods trade, which includes contract manufacturing etc.² On the services side, the data are decomposed into three groups: a) computer services; b) underlying services; and c) other services, which consist primarily of royalties and aircraft leasing.³

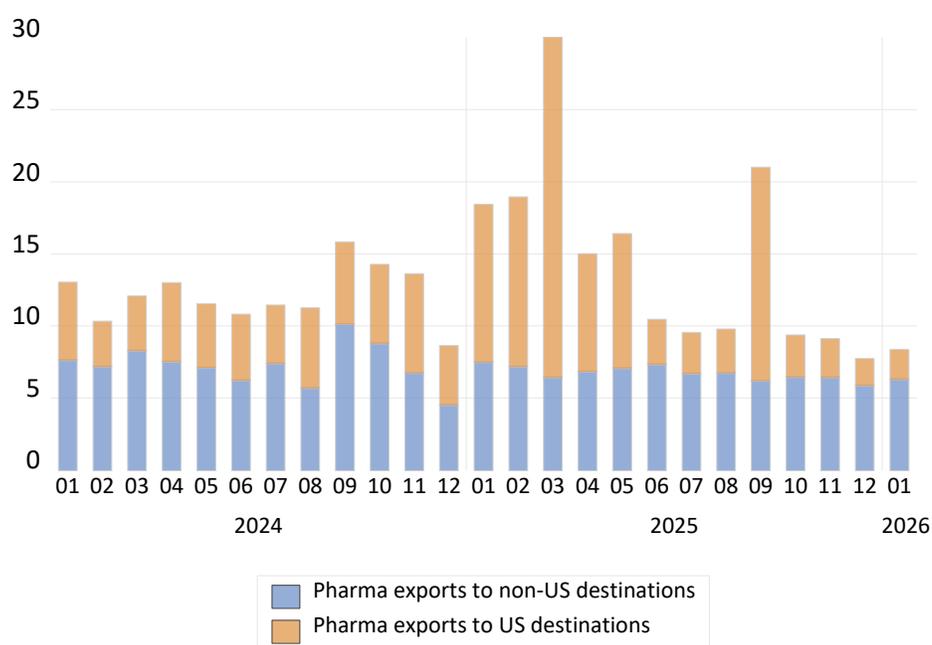
Pharmaceutical exports have fallen back in each of the quarters throughout 2025 from the peak in Q1. Indeed, in the fourth quarter and in January 2026, there was a very sharp decline on a year-on-year basis. It is our working assumption that pharmaceutical exports will be lower in 2026 than in 2025, as this pre-tariff spike will not be repeated. This decline is not driven by changes to the underlying fundamentals and we expect pharma exports to return to growth in 2027.

² Non-pharmaceuticals are calculated as total cross border international trade minus pharmaceuticals. Residual goods trade is calculated as total exports from the national accounts minus total international cross border trade. More details can be provide by the authors on request.

³ Please see Box A in the summer 2025 *Commentary* for more details on the definitions of the groups presented in this figure.

Figure 5 contrasts the relative stability of pharma exports to non-US destinations with the volatility in pharma exports to the US. The spikes and subsequent decline suggest that exports in 2025 were significantly distorted by tariff anticipatory behaviour, regardless of the precise product mix. Interestingly, pharma exports to non-US destinations were unaffected by the tariffs, which suggests that firms did not redirect output away from other destinations and in to the US.

Figure 5: Pharma goods exports by destination (€, bn)



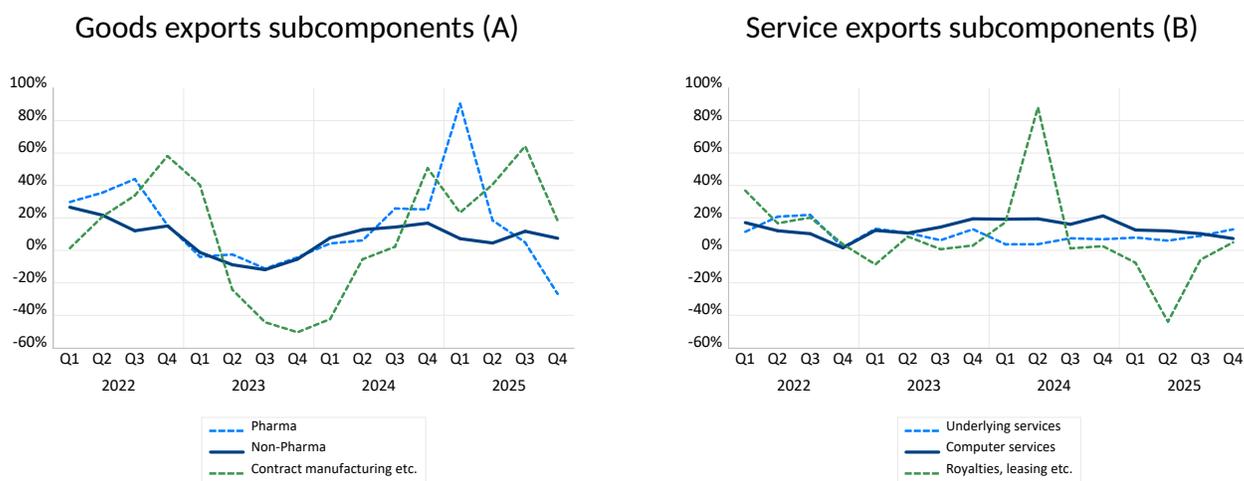
Source: CSO, Trade statistics; authors' calculations.

For non-pharma goods activities, we can see a downward trend emerging when comparing 2024 to 2025 despite a pick up in Q3 2025. We expect growth in these products to continue in line with broader economic conditions.

In regard to services sector activity, computer services exports (our largest export category) has been following a downward trend throughout 2025. This

comes on the back of very strong growth in the preceding years. Underlying services exports growth accelerated throughout 2025. Multinational-related transactions caused a major decline in exports of other services exports in the second quarter before recovering throughout the year.

Figure 6: Exports – Goods and services – YOY – Current prices (SA)



Source: CSO, National Accounts data; authors' calculations.

Given these developments, we expect exports to fall by -1.5 per cent in 2026 and return to growth of 4.9 per cent in 2027. For imports, we expect a decline of -4.5 per cent in 2026 and 2.3 per cent in 2027.

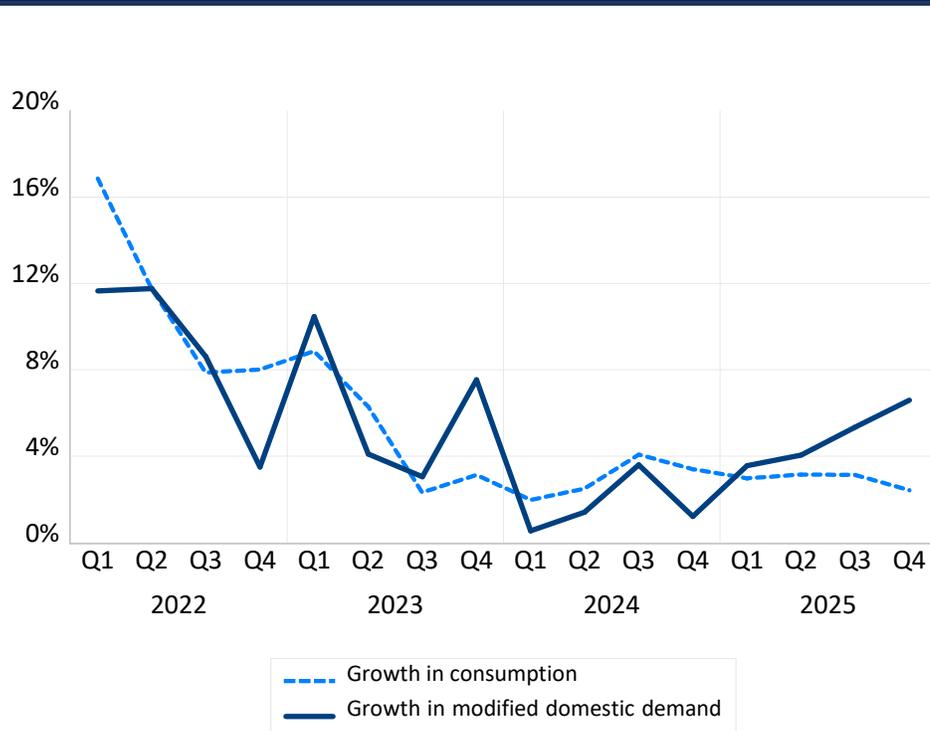
Domestic economic growth robust but downside risks remain

Over the past number of years, the domestic Irish economy has grown in a robust manner. Buoyed by a strong labour market performance, domestic expenditure in Ireland has continued to grow despite international uncertainties. With the moderation in inflation throughout 2025, and an economy operating at capacity, real incomes have been rising. This has provided a supportive context for household spending. Figure 7 presents growth in MDD and personal consumption. The growth rate in personal consumption has been trending downwards but still remains at robust levels. MDD, our preferred indicator of domestic economic activity, grew

strongly throughout 2025 with an upward trajectory. This growth was driven by investment, which we will discuss in more detail in the next section.

Given these developments, in our base forecasts, we expect consumption to grow by 2.4 per cent in 2026 and 2.6 per cent in 2027. For consumption growth in 2026, while we expect it to be lower than anticipated in the previous *Commentary*, due to the energy price shock, a high savings ratio and strong labour market dynamics are likely to provide a cushion to partially absorb the shock on a macroeconomic level. We expect MDD to grow by 2.1 per cent in 2026 and by 2.8 per cent in 2027.

Figure 7: Growth in consumption and MDD – YOY – Constant prices (SA)



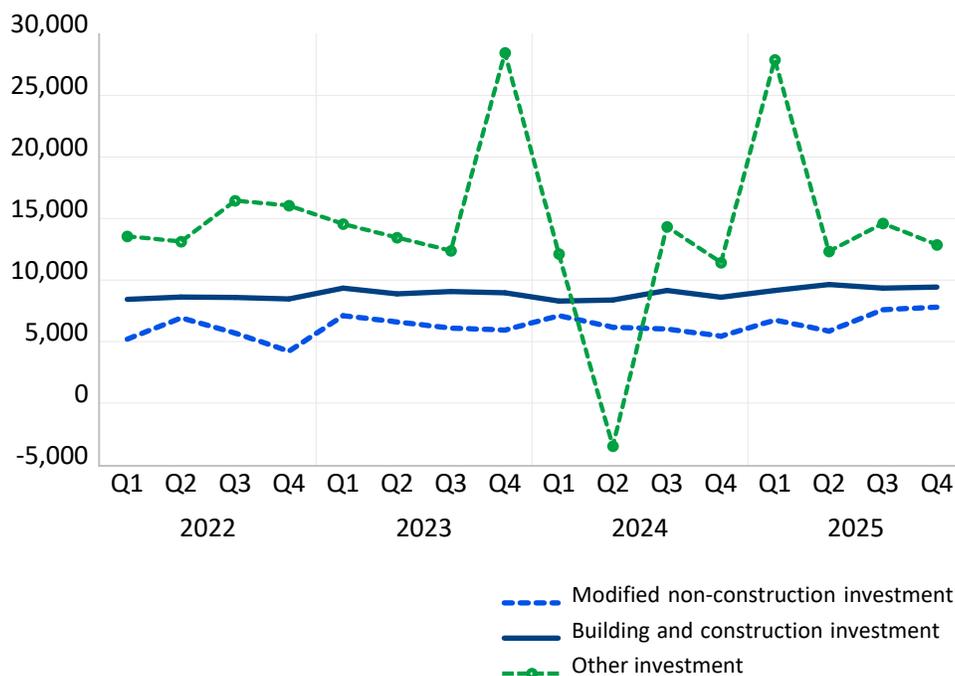
Source: CSO, National accounts data; authors' calculations.

Investment trends continue to be volatile

Investment flows in Ireland are often extremely volatile and dominated by the activity of large multinationals. To disentangle the developments across investment types, we split investment into three categories: modified

non-construction investment; building and construction investment; and other investment. The difference between modified and headline investment is 'other investment'. This category contains investment relating to intellectual property and aircraft leasing, and is extremely volatile in nature. The quarterly trend in these data are presented in Figure 8.

Figure 8: Components of investment - Levels (€, mn) - Constant prices (SA)



Source: CSO, National accounts data; authors' calculations.

It is very clear from the investment trends that major fluctuations in intangible assets have occurred again in 2025, leading to an extremely large increase in overall investment levels. For modified non-construction investment (which relates to machinery and equipment but also to intangible assets that are not specifically related to R&D and aircraft leasing), we have seen a rise in the third quarter of 2025. This has been classified as having occurred through the importation of computer software intellectual property that is not R&D related, and thus is likely to be a company-specific,

non-repeatable transaction. We therefore do not expect this investment flow to occur again.

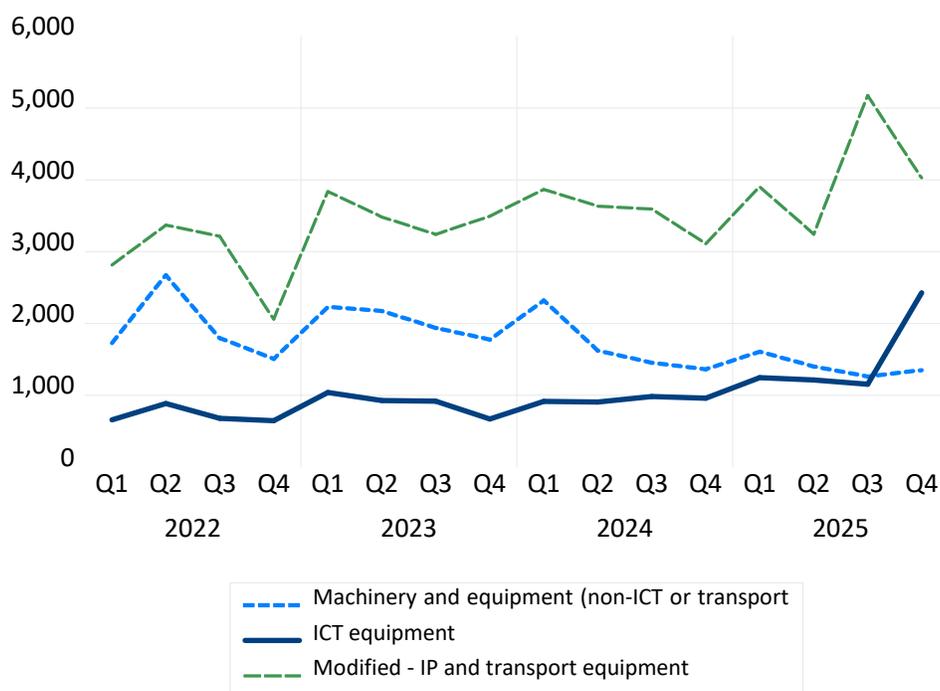
This can be seen more clearly if we break down the non-construction modified investment data. From this series, investment in computer equipment, and machinery and equipment (excluding transport), can be stripped out leaving the remainder of modified investment, which contains intellectual property (not related to R&D assets) and transport equipment.⁴

This shows a notable spike in ICT investment in Q4 2025 following the spike in other intellectual property and transport equipment in Q4 2024. Given the likelihood that these data relate to idiosyncratic asset movements rather than an underlying trend, we make a technical assumption that these spikes will not be repeated in 2026. Other machinery and equipment investment saw a decline throughout 2025, likely driven by global uncertainties.

One potential factor that could act as a headwind to investment expenditure is the impact of the recent energy price spikes. This can dampen investment demand directly through reduced profitability as firms face higher costs and uncertainty. A second-round effect can also materialise if central banks begin to increase policy rates to higher levels in response to the inflationary shock; this would act to lower investment and credit demand.

⁴ To strip out these series, seasonally adjusted data from Eurostat are used to obtain these data as a proportion of overall fixed capital formation. These shares are then applied to total gross fixed capital formation seasonally adjusted from the CSO. These data in levels are then removed from modified investment to obtain the residual investment. More details are available from the authors on request.

Figure 9: Components of modified investment excluding construction – Levels (euro mn) – Constant prices (SA)

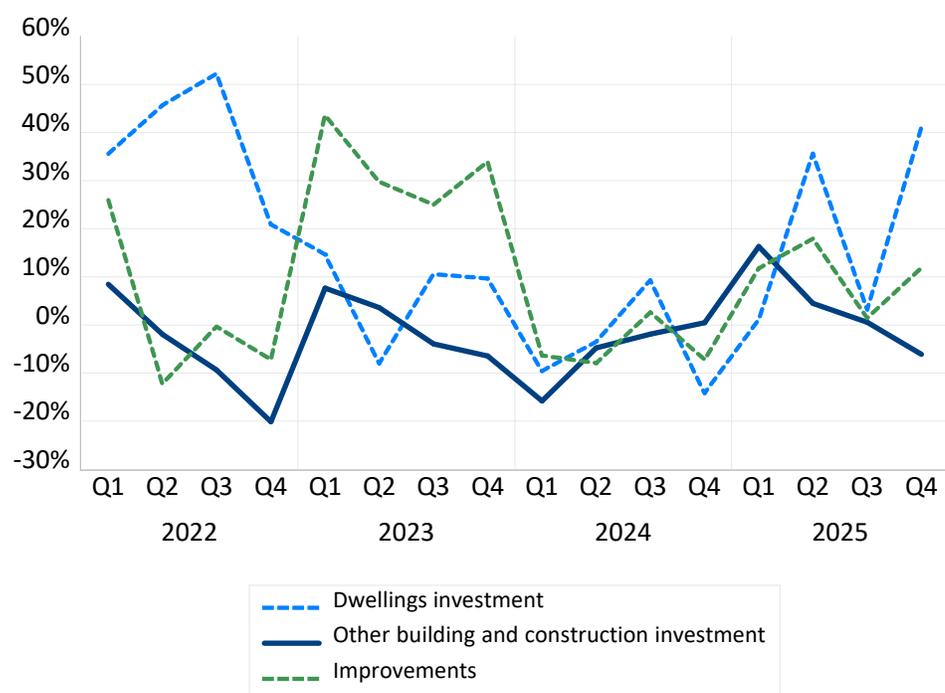


Source: Eurostat, CSO, National accounts data; authors' calculations.

Housing output rises but headwinds remain

Focusing in on activity in the housing market, Figure 10 presents the growth rates of the investment subcomponents: a) dwellings; b) improvements; and c) other building and construction. It is clear that dwellings output rose notably in 2025, with a sustained increase in Q4 in particular. Other building and construction, which includes infrastructure expenditure, followed a declining trend in 2025 and dropped in level terms in Q4. Improvements were higher in 2025 than 2024 for the full year.

Figure 10: Growth in components of building and construction investment - YOY - Constant prices (non-SA)



Source: CSO, National Accounts data.

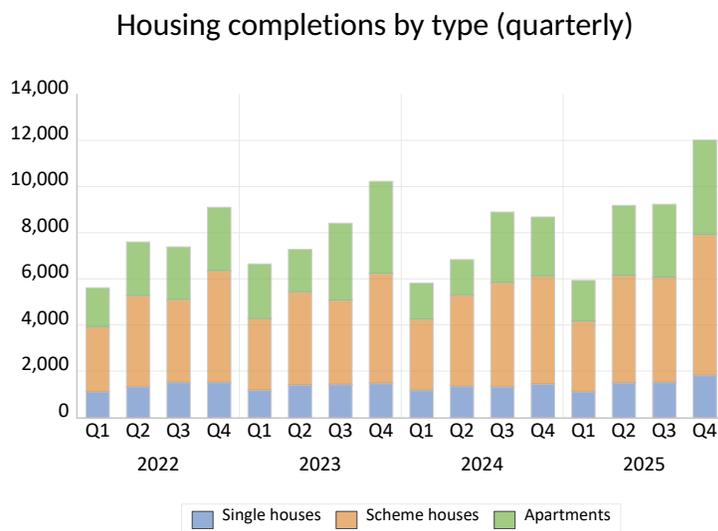
Closing in on government housing targets requires new supply to begin rising towards 50,000 units per annum. For 2025, output increased to over 36,000 units. This increase was driven by an expansion in both scheme housing as well as apartments, as shown in Figure 11. While the expansion from 2024 into 2025 is welcome, these figures remain below the level needed to begin bridging the gap between fundamental housing demand and supply. A range of policy measures were introduced in Budget 2026, such as the VAT rate reductions and other supports for infrastructure and water. Rental regulations were revised in March 2026 with an aim to change the incentives for landlords while providing protections for tenants. While it is too early to evaluate the efficacy of recently introduced instruments, the success of housing policy will also be linked to broader macroeconomic

developments. Indeed, factors such as continuing capacity constraints in the labour market and potential second-round inflationary effects of the recent energy price spikes could act to put downward pressure on output, as discussed in the inflation section. To understand the magnitude of the potential effects of costs on housing output, we can draw on the ESRI's macroeconomic housing model, as published in [Egan et al. \(2024\)](#). The sensitivities in this model suggest that a 1 per cent permanent increase in building costs leads to a 0.84 per cent reduction in housing completions three quarters after the shock. Any sustained increase in building costs from higher energy prices is therefore likely to put downward pressure on output.

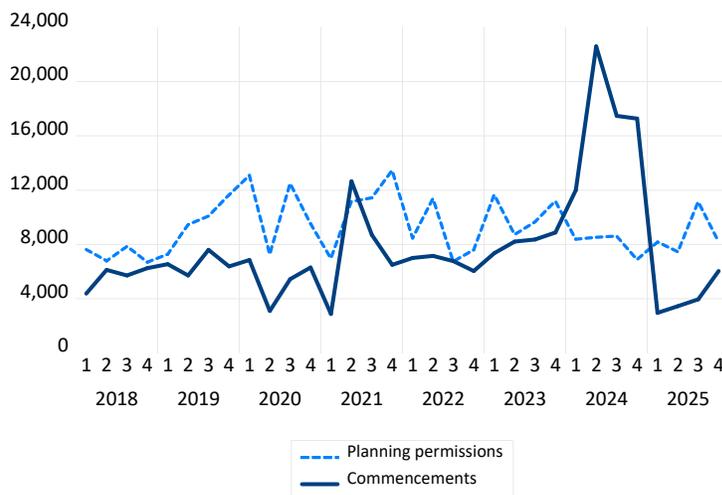
Furthermore, recent research by [Farrell et al. \(2026\)](#) also highlights the resourcing challenges between housing output and retrofits given the substitutability of labour and other inputs across the two activities at a time of capacity constraints.

Looking at forward indicators for housing output, two particular trends are evident. The number of housing units started dropped notably in 2025. This is not unexpected given the sharp rise in 2024 linked to policy waivers. The number of units given planning permission posted a welcome rise in 2025 to just over 34,000 units. However, the level of these indicators remains below what would be anticipated as on-trajectory towards 50,000. A substantial increase in units given planning permission, as well as a notable rise in housing starts, in 2026 and 2027, would need to be observed if targets are to be reached. In terms of our current projections, we expect approximately 37,400 units in 2026 and 38,000 in 2027.

Figure 11: Housing completions by type of dwelling (non-SA)



Planning permissions and commencements (quarterly)



Source: CSO

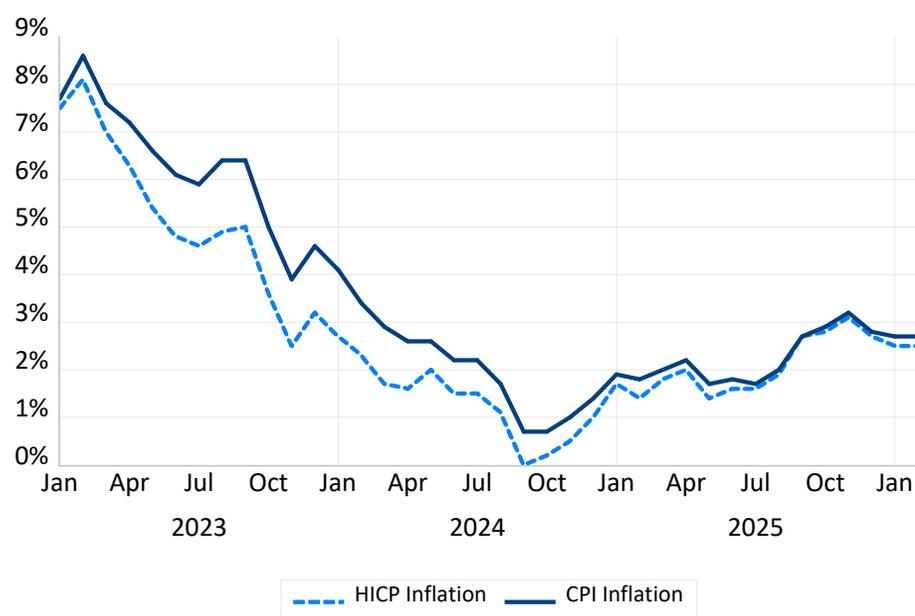
To summarise our investment forecasts, overall we expect modified investment to grow by 0.4 per cent in 2026 and 3.2 per cent in 2027. The slow growth in 2026 for modified investment is due to the technical assumption that high levels of intellectual property experienced in 2025 are not repeated in 2026. Thus 2026 is lower mainly due to base effects rather

than an underlying deterioration in investment sentiment. Total overall investment is expected to grow by -11.3 per cent in 2026 and 1.8 per cent in 2027.

Inflation

The CPI inflation rate was 2.7 per cent in February, while the Harmonised Index of Consumer Prices (HICP) rate of inflation was 2.5 per cent. Figure 12 shows that the high inflation of early 2023 decreased steadily over the course of 2023 and 2024. The year 2025 saw inflation close to the target rate of 2 per cent, with an uptick in the second half of the year.

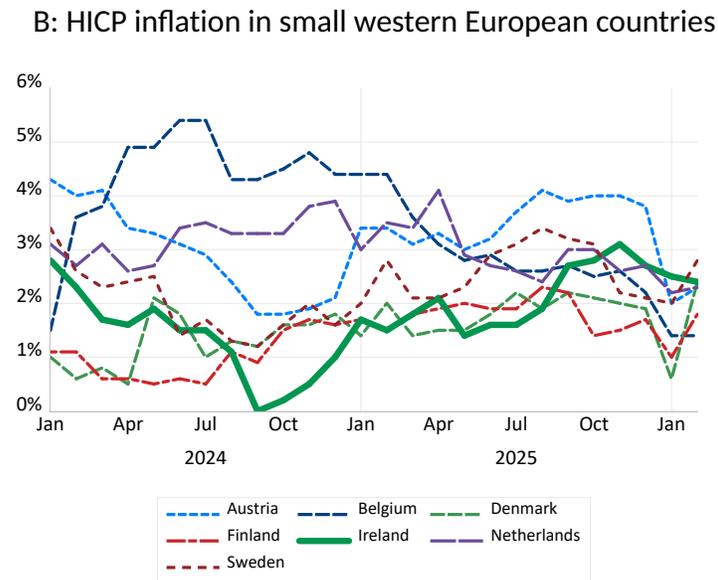
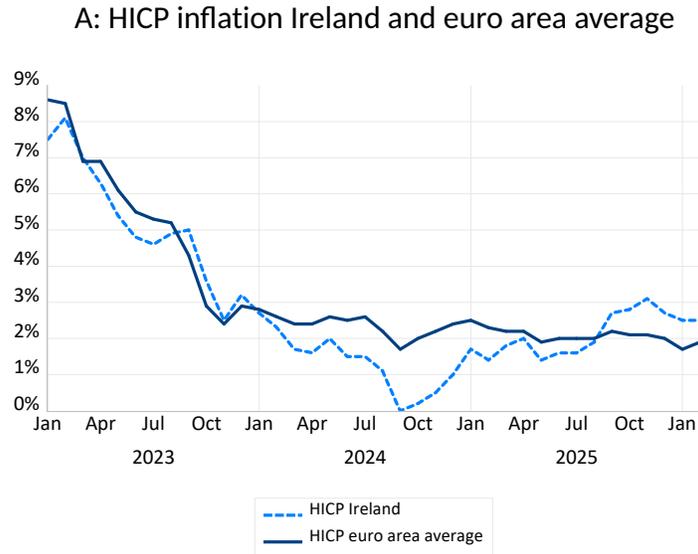
Figure 12: CPI and HICP inflation



Source: CSO

The HICP is the index that can be compared directly across euro area countries. By this metric, inflation in Ireland is higher than the average across the euro area. Figure 13:A shows euro area inflation of 1.9 per cent in February. Figure 13:B compares inflation in Ireland with a group of small western European countries. Inflation in Ireland in early 2026 has been similar to that of Austria, Denmark, the Netherlands and Sweden, while inflation has been lower in Belgium and Finland.

Figure 13: Inflation in Ireland and Europe



Source: CSO, European Central Bank

Oil prices have spiked significantly in March 2026 as a result of the war in the Middle East, while gas prices have also increased. In general, the effects on households of energy price increases can be substantial as energy consumption is relatively inelastic (Labandeira et al., 2017). In an Irish

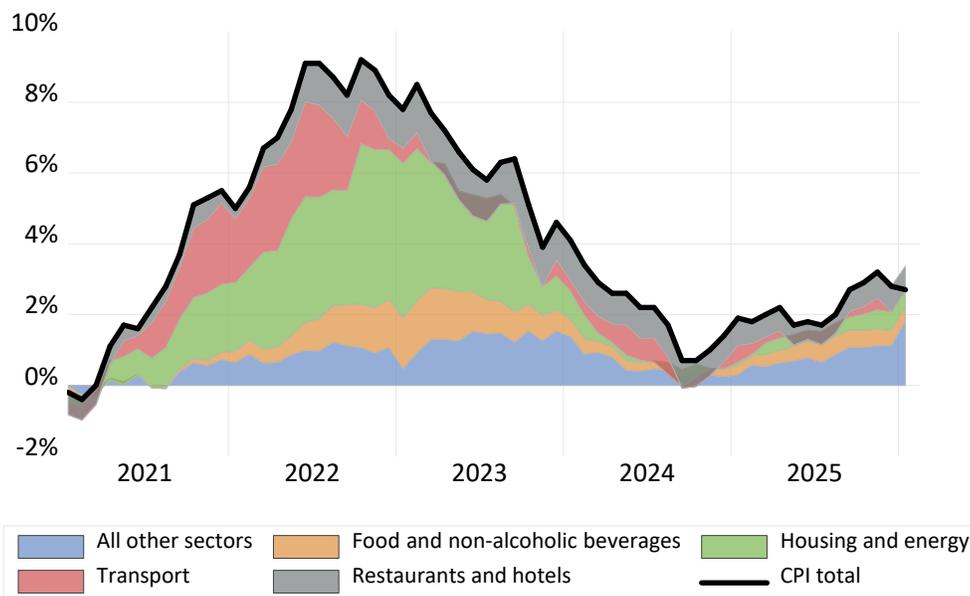
context, Curtis and Stanley (2016) find that consumption of residential energy products is not very sensitive to price changes, particularly for electricity, and emphasise that households are often restricted from switching their fuel source by the energy equipment already installed in their homes.

In the 'general assessment' section, we discuss the distributional effects of increased energy prices in 2021 and 2022 as well as policy options for supporting households.

The channels through which the 2022 energy price shock impacted consumer prices may be illustrative for the current shock. The sharp increases in prices in the CPI as a whole during this period were concentrated in four sectors; 'housing and energy', 'transport', 'restaurants and hotels' and 'food and non-alcoholic beverages'. Figure 14 contrasts the relative stability of price increases in all other sectors with the sharp changes in these sectors.

The initial effect was concentrated in the 'transport' and 'housing and energy' sectors, shown in the red and green shaded areas. Within the 'housing and energy' sector, the initial increases came in the energy sub-sectors as oil and gas prices increased. Increased housing costs contributed to subsequent increases as higher interest rates led to higher mortgage payments.

In addition to the immediate impact on households of higher energy prices through home heating fuel, electricity and transport, second-round effects were substantial and persistent. These second-round impacts largely occur through higher costs for businesses. Sectors where energy inputs represent a significant portion of the cost base saw sustained price pressures in the aftermath of the energy price increases of 2022. Figure 14 shows that price increases in the 'restaurants and accommodation services' and 'food and non-alcoholic beverages' sector were persistent even as inflation in energy fell, shown in the orange and grey shaded areas.

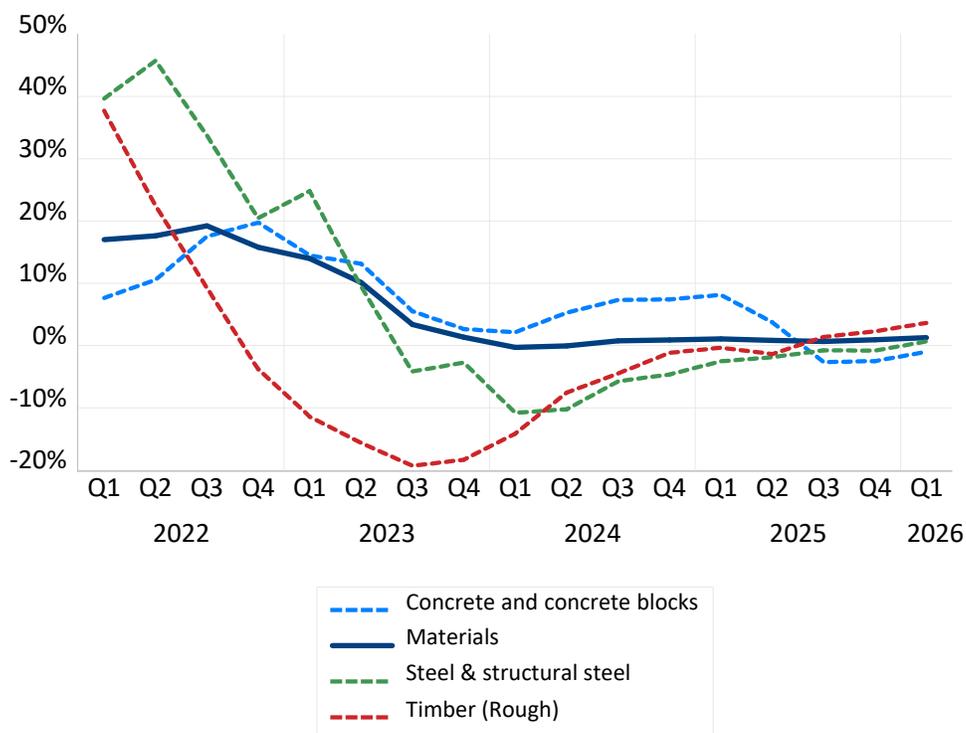
Figure 14: CPI inflation by sector

Source: CSO

Note: The shaded areas refer to the contribution to total inflation made by price changes in each sector. This contribution is a combination of the weight attached to each sector in the overall index and the magnitude of the price change. The line shows total CPI price inflation on a monthly basis and is equivalent to the sum of the values of the areas, both negative and positive. Where the line is below the top of the shaded area, this indicates negative price changes in a sector.

Construction materials prices also spiked during this period, although disruptions to supply chains caused by the COVID-19 pandemic likely also played a role. Figure 15 shows that annual inflation rates in steel and timber were over 30 per cent in 2022, but that price growth has been slow since 2024. In the case of concrete blocks, inflation neared 10 per cent in 2024 but has since moderated. In the context of ongoing efforts to address the country's infrastructure deficit and to scale up the construction of housing, materials costs are a particular area of concern as the effect of energy price increases takes its course.

Figure 15: Construction materials inflation (YOY, %)



Source: CSO Wholesale price index

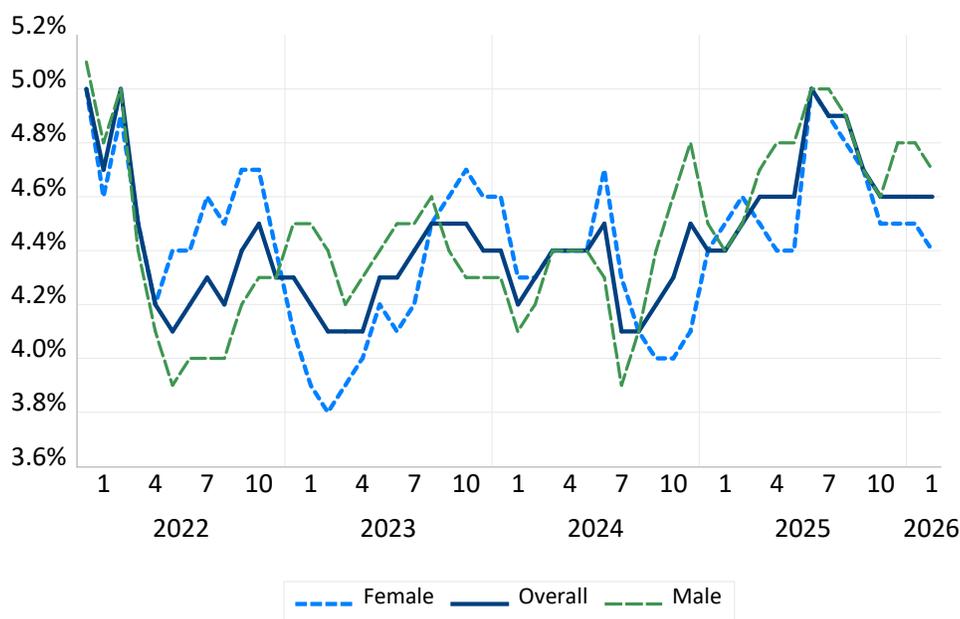
Finally, as well as oil being used in the production process and for transportation, it is also a raw material input into the construction of plastic products. This represents an additional channel through which higher oil prices can feed into consumer prices.

The impact of higher oil and gas prices is likely to lead to higher inflation over the forecast horizon. Our forecast for inflation for 2026 is 3.2 per cent, and 2.7 per cent in 2027.

Labour market

The unemployment rate is estimated to be 4.6 per cent in February 2026. This follows a notable increase in the third quarter of 2025. Figure 16 shows that this marks four consecutive years of unemployment being under 5 per cent for both males and females.

Figure 16: Monthly unemployment rate (seasonally adjusted)



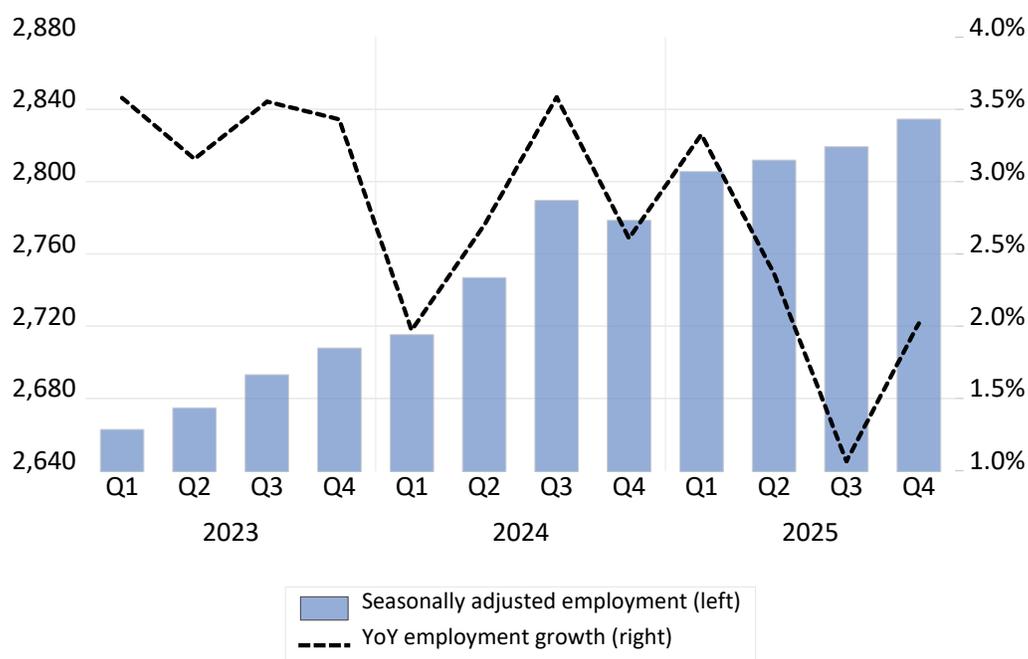
Source: CSO Monthly unemployment estimate

The youth unemployment rate is fluctuating and it is difficult to obtain a clear picture. The most recent available data showed a seasonally adjusted unemployment rate of 12.4 per cent for those aged 15–24 in February of this year. This suggests that the youth share of total unemployment has increased in the first months of 2026. However, this trend should be interpreted cautiously until the official estimate for the first quarter according to the Labour Force Survey is published.

The most recent Labour Force Survey data, from Q4 2025, suggest differential trends by age and by gender within the 15–24 age group. In particular, the female unemployment rate in the 15–19 age category increased while there was an equivalent decrease for males, leaving the overall rate for 15–19 year olds unchanged over 2025. Among the 20–24 age category, there is no evidence of an increase in the unemployment rate overall although again there are differences by gender, with the male rate increasing slightly and the female rate decreasing slightly over the last two years.

Employment growth continued in 2025, though its pace slowed in the second half of the year. Average employment in 2025 was 2.2 per cent higher than in 2024. Figure 17 shows that the level of employment continues to increase despite slower year-on-year growth rates.

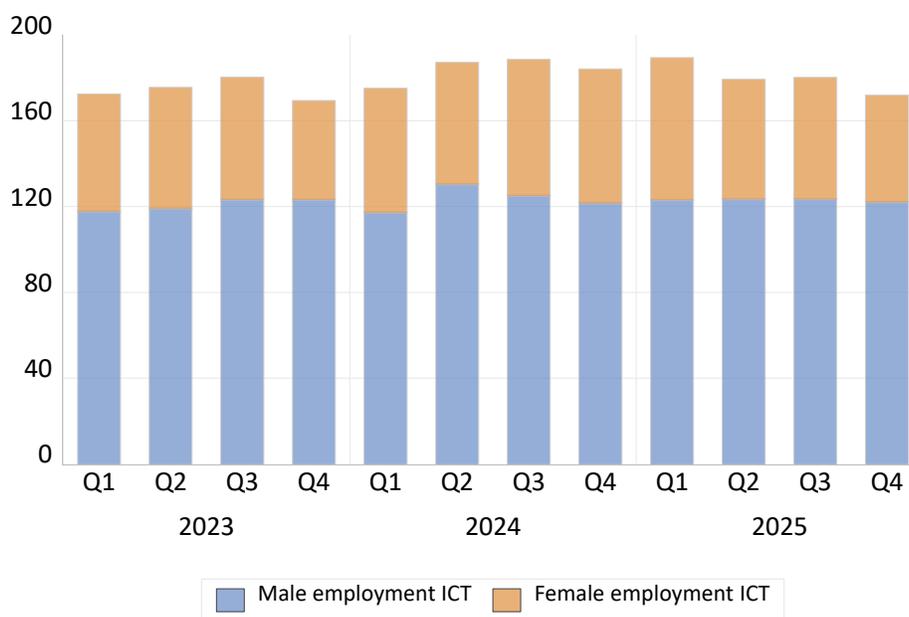
Figure 17: Growth rates in seasonally adjusted employment



Source: CSO Labour Force Survey data

Recent editions of the *Commentary* have discussed the apparent fall in employment in the ICT sector. The most recent data suggest that employment in this sector has fallen to approximately 175,000 workers on a seasonally adjusted basis, from a peak of over 190,000 at the beginning of the year. Figure 18 shows that the decrease has been concentrated almost entirely among female workers in the sector, whereas male employment has remained constant.

Figure 18: Employment in ICT (thousands of workers, seasonally adjusted)



Source: CSO Labour Force Survey data

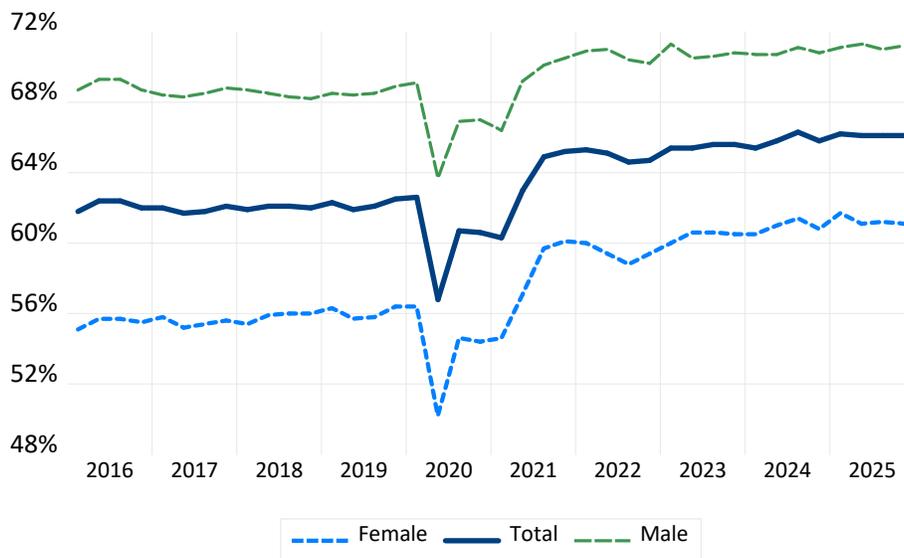
Labour force participation remains high by historical standards. Indeed, Figure 19 shows a remarkable stability in the total, male and female participation rates since the pandemic period.

There have been some slight shifts within age categories, including a continuation of the long-run trend of increased participation by workers aged 65–69. The overall participation rate for this age category now stands at 30.6 per cent, with the male and female rates at 38.9 and 22.6 per cent respectively. With increased flexibility having been introduced in 2023 to

allow those who wish to continue working up to age 70 to benefit from a higher state pension, it is likely that this trend will continue. In addition, the impact of so-called 'cohort effects' will likely lead to growth in the female participation rate for this age category (Boyd et al., 2022). This effect captures the extent to which members of a generation are attached to labour force participation across their lifespan. As older females aged 65–69 years 'age out' of that category over time, they will be replaced by younger groups who are more likely to be at work having been working throughout their lives.

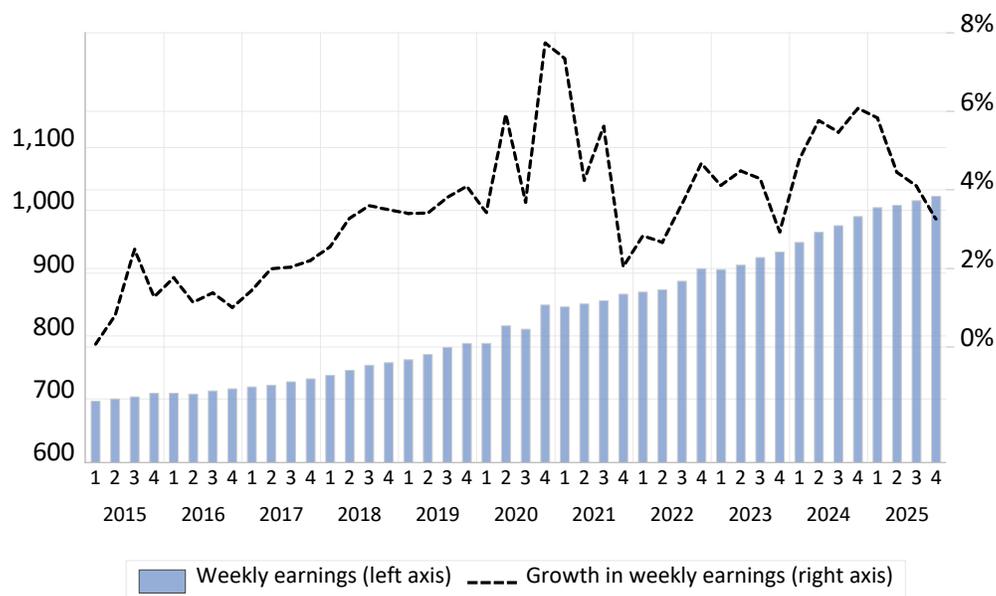
Increased participation by older workers has two broader impacts beyond the individuals concerned. As outlined in O'Shea (2025), increased participation by older workers would mitigate the effect of population ageing on potential output to some degree. The impact on the public finances of longer working lives has been considered by the Department of Finance, which shows that a plausible increase in employment for older workers could reduce pension expenditures by 0.2 per cent of modified gross national income (GNI*) in 2050 (DoF, 2024).

Figure 19: Participation rates by gender (seasonally adjusted)



Source: CSO Labour Force Survey data

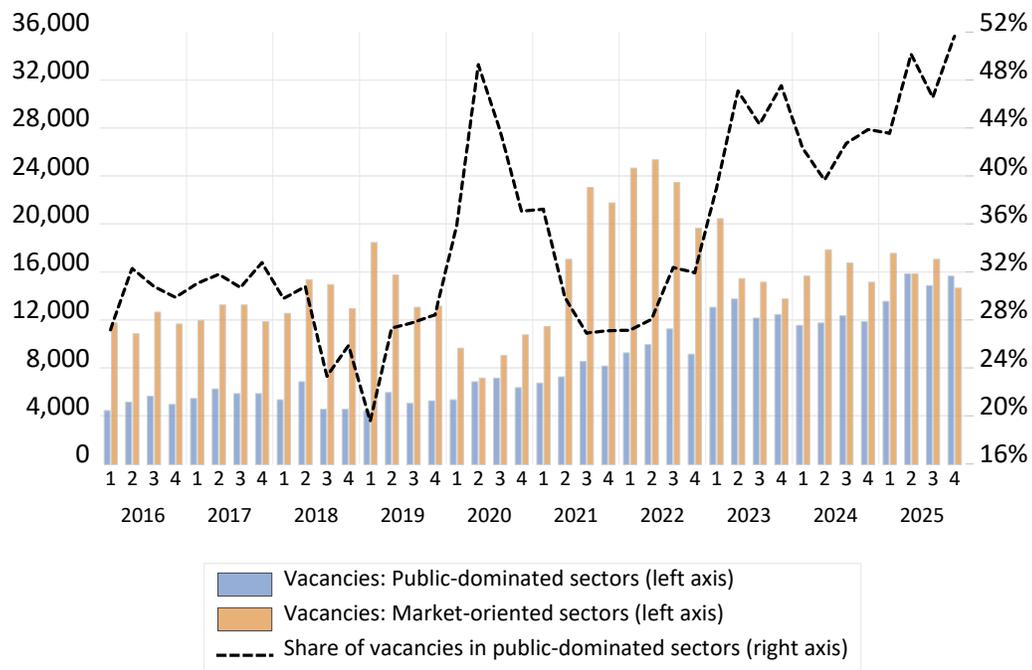
Average weekly earnings were 4.4 per cent higher in 2025 than 2024 on average, though weekly earnings growth moderated in the second half of the year. Figure 20 presents average weekly earnings on a seasonally adjusted basis alongside the growth rate.

Figure 20: Average weekly earnings in € (seasonally adjusted) and YOY growth rate


Source: CSO Earnings and labour costs data

The upward trend in public sector vacancies continued in the fourth quarter of 2025. Figure 21 shows that, for the first time, vacancies in the public-dominated sectors of the economy exceeded those in the market-oriented sectors. This underlines the active role of the State in the labour market. The public-dominated sectors consist of 'education', 'human health and social work activities' and 'public administration and defence; compulsory social security'. While education and health have seen increases in vacancies, the scale of the overall increase is driven by the 'public administration and defence; compulsory social security' sector. Vacancies in this sector are almost 70 per cent higher than they were one year ago and they are approximately five times higher than the average prior to the COVID-19 pandemic.

Figure 21: Vacancies divided into public and market sectors



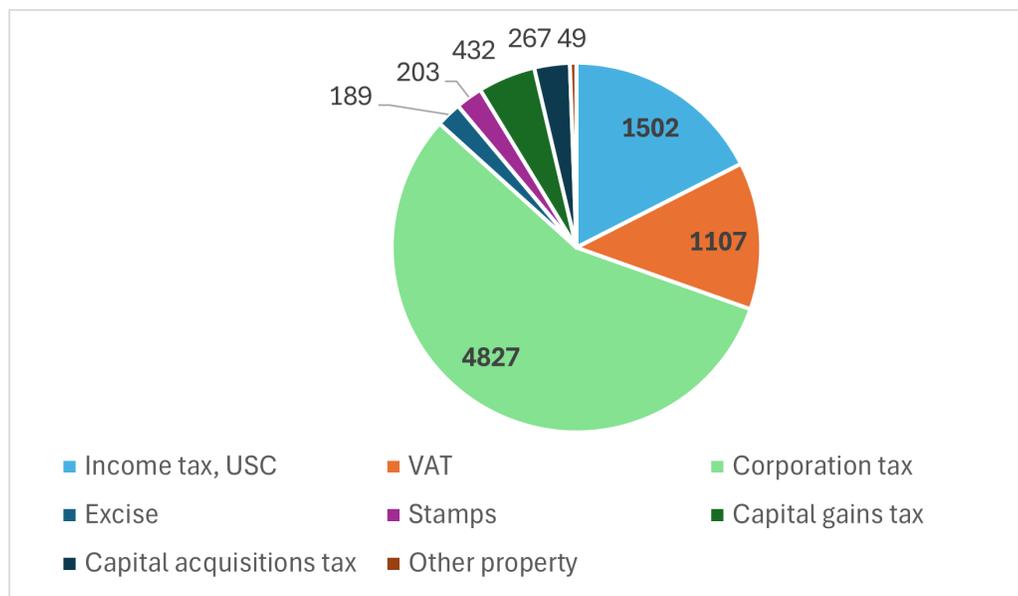
Source: CSO Earnings and labour costs data

Overall, we expect unemployment of 4.8 per cent and 4.9 per cent in 2025 and 2026 respectively, with employment growth of 1.4 per cent and 1.5 per cent.

Public finances

The Department of Finance's Fiscal Monitor December 2025 (DoF, 2025a) provides the detailed fiscal outcome for 2025; here, we present some of the key points. Tax revenue in 2025 amounted to €107.4 billion. As this includes almost €2 billion that relates to the Apple judgement, it is necessary to adjust this total (and the total for 2024) to get a correct measure of the underlying growth in tax revenue for 2025. Once this adjustment is made, growth in tax revenue between 2024 and 2025 is shown to be €8.6 billion (8.9 per cent).

In Figure 22, we show how the various tax heads contributed to the increase of €8.6 billion. Income tax/USC increased by €1.5 billion (4.3 per cent) and VAT increased by €1.1 billion (5.1 per cent), reflecting buoyancy in the labour market and in expenditure respectively. However, the increase in corporation tax revenue of €4.8 billion (17.2 per cent, excluding Apple-related revenues) is the most noteworthy point from the chart. Following a trend of rapid growth in corporation tax revenues over a number of years, this revenue stream now makes up 31.2 per cent of all tax revenues.

Figure 22: Components of tax revenue changes, 2024 to 2025

Source: (DoF, 2025a)

We have discussed in previous Commentaries why Ireland's corporate tax revenues are a source of concern. First, the Department of Finance continually notes how one-half of the revenues are 'windfall' in nature, i.e. 'not linked to domestic economic activity and hence potentially temporary' (DoF, 2025b). Second, the Irish Fiscal Advisory Council have estimated that just three companies paid almost half of all corporation tax in 2024 (Cronin, 2026). This potential fragility and concentration within an increasingly large revenue stream is concerning to say the least. We should also note that FitzGerald and O'Shea, in a paper published with this *Commentary*, have shown that the windfall corporation tax receipts increased national income growth by 1.2 percentage point on average between 2019 and 2024. This points to the possible impacts on national income if these revenues were to disappear.

On expenditure, the Department of Finance report that gross voted current expenditure was €92.9 billion in 2025, an increase of €3.8 billion on 2024 (4.3 per cent). Gross voted capital expenditure was €16.5 billion in 2025, up €1.9

billion on 2024 (12.7 per cent). Combined, this amounted to a 5.5 per cent increase on 2024.

Turning to the overall fiscal balance, an underlying Exchequer surplus of €3.8 billion was recorded in 2025, which was an improvement of €2.0 billion on 2024, having adjusted for Apple-related revenues. While at a surface level, this can be taken as an indicator of healthy public finances, the comments above regarding fragility are relevant.

The Department of Finance published Ireland's Medium-term Fiscal and Structural Plan (MTP) in December 2025 (DoF, 2025b). The publication of an MTP is a requirement under the EU's revised fiscal framework. Through the MTPs, Member States commit to a medium-term expenditure path by setting out annual expenditure ceilings, which can only be altered in limited ways such as if matched by revenue-raising measures. In the coming years, the European Commission will assess Ireland's annual budgetary policy based on the expenditure trajectory set out in the MTP. To some degree, this represents a return to the external surveillance of domestic fiscal policy, which was enhanced after the 2008–2010 financial collapse but which was partly set aside around the time of the pandemic.

In Table 1, we present the expenditure ceilings that are envisaged out to 2030. The ceiling for total voted spending can grow to €147.3 billion in 2030. The average rate of growth over the period is 6 per cent but this is tilted towards higher rates in the earlier period and lower rates in the later years. Expenditure increases are heavily weighted in favour of capital in the earlier phase, reflecting the Government's policy of a near-term scaling up of public infrastructure investment and then maintaining the higher level.

Table 1: Medium-term expenditure ceilings (from Department of Finance Medium-Term Fiscal and Structural Plan)

	2024	2025	2026	2027	2028	2029	2030
Current spending, € bn	89	93.3	98.7	105.2	111.3	117.6	124.1
Current, YOY % change		4.8%	5.8%	6.6%	5.8%	5.7%	5.5%
Capital spending, € bn	14.9	16.6	19.1	20.3	21.5	22.4	23.2
Capital spending, YOY % change		11.4%	15.1%	6.3%	5.9%	4.2%	3.6%
Total (voted) spending	103.9	109.9	117.8	125.5	132.8	140	147.3
Total (voted) spending, YOY %		5.8%	7.2%	6.5%	5.8%	5.4%	5.2%

The tendency in recent years for expenditure to exceed initial estimates (in spite of a domestic spending rule) prompts the obvious question as to whether the revised EU framework will act as a constraint on overruns. In the MTP, the Department of Finance appears to welcome the overall approach by including positive remarks on the value of binding, medium-term ceilings. The following quote is illustrative on this:

"As part of reforms to the European fiscal framework, budgetary policy in Ireland must pivot towards the medium-term. While this involves a sea-change in an Irish context, a credible fiscal policy anchored within a medium-term framework has both tangible and intangible benefits. For instance, by providing clarity and preventing in-year drift, medium-term plans can help mitigate against the vulnerability of Ireland's tax revenue base. Moreover, medium-term planning can also assist in preparing the public finances for the additional costs associated with an ageing population." (p. 1)

In addition, the Department sets out a number of 'fiscal strategy key considerations' and three 'pillars' of its fiscal strategy. The 'considerations' include 'the need to acknowledge the risks to some revenue streams' and 'the need to avoid excessive fiscal impulse'. Both of these align closely to

some of the warnings made by the ESRI and others regarding corporation taxes and the loose fiscal stance of recent years. The 'pillars' include the need to 'more closely align day-to-day spending with economic and tax revenue growth' and to 'build fiscal buffers'. All of this is to be applauded but it remains to be seen if these principles will be applied, whether solely through domestic effort or drawing on external pressure in the form of EU surveillance.

Based on figures in the MTP, the general government surplus is expected to be €5.1 billion in 2026 and €6.7 billion in 2027 (0.8 per cent and 1 per cent of GDP respectively).

General assessment

The Irish economy ended 2025 and began 2026 with strong positive momentum. Early in 2025, fears had been generated by the prospect of high tariffs. Although more moderate tariffs were eventually imposed, the Irish economy continued to grow strongly through 2025. MDD grew by 4.9 per cent and employment grew by 56,700 (2 per cent). Unemployment remained low with a rate of 4.4 per cent at the end of 2025. Tax receipts for the year (excluding Apple judgement receipts) amounted to €105.7 billion, an increase of 8.9 per cent on the 2024 figure. Around Q3 of 2025, a softening in the labour market appeared evident but strong employment growth of 2 per cent year on year was registered in Q4.

In the absence of any significant economic developments, this general assessment would have proceeded with a discussion of the risks that threaten the strong performance. High among these risks are the highly concentrated nature of Ireland's tax revenues, the imbalance in productivity and performance between foreign-owned and domestic firms, budgetary overruns and the ongoing challenge of closing infrastructure deficits, especially with regard to housing. All of these issues need to be addressed by policymakers and we will return to them towards the end of this assessment.

The conflict in the Middle East, which began on 28 February 2026, has given rise to a different set of challenges, however. At the time of writing much remains unclear regarding the likely duration and intensity of the conflict but a large negative economic shock seems to be developing. The focal point of that shock is the increase in oil and gas prices but the likely ripple effect through to a broader set of prices is such that significant inflationary pressures could emerge. This in turn could lead to interest rate increases as central banks use monetary levers to contain inflationary expectations and inflation itself. In the case of the European Central Bank (ECB), it has been suggested that a speedier reaction could come if the ECB feels, as some commentators do, that they were too slow to react to the last inflationary surge.⁵

⁵ <https://www.reuters.com/business/finance/market-volatility-can-amplify-shocks-euro-zone-economy-ecbs-vp-warns-2026-03-11/>

The economic consequences for Ireland could well be severe and the immediate policy debate is already focusing on how the Government can insulate households from the inflationary impacts of the conflict. While any compensation measures should depend on the scale and duration of the price spike, it is useful to reflect on ESRI research that was undertaken at the time of the Ukraine crisis to assess how the State can react to the current crisis in as effective a way as possible.

Barrett et al. (2022) begins by showing how energy price increases affected households across the income distribution. They analysed energy price increases between January 2021 and April 2022, and showed how weekly bills for home heating, electricity and motoring increased on average by €38.63. There was a clear positive gradient whereby the weekly increase was larger for higher income households in cash terms. However, there was a distinct negative gradient when the authors considered the increase in energy costs as a proportion of household income. The energy price increases amounted to 5.8 per cent of income for households in the lowest quintile and 3.1 per cent for those in the highest.

Barrett et al. (2022) go on to discuss the possible ways in which households can be insulated from the energy price increases, where their emphasis is on protecting lower income households. The policy measures discussed include reductions in indirect energy taxes (including carbon taxes), energy credits and changes to the broader tax and welfare system. The points made can be summarised along the following lines.

Cutting indirect taxes can provide assistance to lower income households but this is a poorly targeted approach. According to estimates provided by Barrett et al., about 50 per cent of the cost of cutting indirect taxes on energy would be spent on the households in the top two income quintiles. Less than one-third of the tax cut would go towards helping households in the lowest two quintiles. This pattern is unsurprising given the higher level of energy expenditure by higher income households but the quantification of the beneficiaries of the policy is illuminating.

Apart from the subsidy to higher income households, Barrett et al. raise a second concern about cuts to indirect energy taxes. As such taxes, in

particular carbon taxes, are designed to incentivise a long-term shift away from fossil fuel use and towards greener fuels, cutting these taxes acts against Ireland's climate goals.

A second approach to insulating households from the energy price shock is through flat-rated energy credits. These flat-rate credits have two advantages over indirect tax cuts. First, as the same payment goes to all households, the proportionate impact on lower income households is higher, and so the policy is progressive. The second advantage is that the flat payment does not remove the incentive to conserve energy or to switch to less-polluting energy over time.

While the energy credits have advantages over indirect tax cuts, they are still relatively untargeted and large payments are made to well-off households. For this reason, Barrett et al. argued that a third approach – the social welfare and direct tax systems – offers a more effective way of cushioning the impacts of energy price increases, a view that we would reiterate here. Barrett et al. show how policies such as double welfare payments (along the lines of the Christmas bonus) allow for resources to be directed at those most in need. And if concerns remain about low income households in which people are employed, the Working Family Payment offers a further policy option.

If a decision is taken to insulate households from the spike in energy prices, in addition to our ranking of policy options just discussed, we would add some further considerations that relate to broader fiscal policy. First, if we take the Budget 2023 energy credits as an example, these policies can be costly – those three energy credits combined cost €1.2 billion. After a number of years of spending overruns, it would be preferable if any cost-of-living package was met from within current budgetary ceilings. Strict targeting would assist in achieving this. Second, if tight budgetary discipline is not observed and a cost-of-living package leads to spending that is additional to earlier plans, there is an argument for one-off measures that can be discontinued when the crisis subsides. The key points are: (a) to avoid the recent tendency of embedding spending or tax cutting commitments on the basis of potentially vulnerable revenue streams; and (b) to ensure that 'one-off' measures are time-limited.

The Middle East crisis could dominate economic discussions in the coming months but it is important that the other challenges mentioned above are not neglected. We have just mentioned the importance of avoiding budgetary overruns in the context of possible cost-of-living measures but the same principle applies across all spending. As discussed under the section on public finances above, according to the MTP, voted current expenditure will grow by 5.8 per cent in 2026. This is a sizeable increase by historic standards and relative to our forecast for MDD growth of 2 per cent for 2026. Increases in excess of this would indicate a weakness in budgetary management, even if revenue growth exceeds expectations. As discussed in previous *Commentaries*, our concerns regarding budgetary management relate not just to overruns but also to the potential vulnerabilities in the tax base. Recent work by the Irish Fiscal Advisory Council, also referred to above, shows a further concentration in corporate tax revenue across companies and serves to heighten this concern.

Regarding infrastructural deficits, our forecasts for housing completions in 2026 and 2027 imply that output will remain below targets. These forecasts are based on data currently available – including on commencements in 2025 and early 2026 – which do not point to a major increase in momentum in the construction of housing units. We will keep these forecasts under review and do not discount the possibility that new measures such as VAT reductions for apartment construction could lead to increased output. The recent increases in energy prices also risk weighing on housing output if building costs rise.

Looking at infrastructure more broadly, 2026 will see the rollout of actions following the publication of *Accelerating Infrastructure – Report and Action Plan* (DPER, 2025). It is hoped that this will lead to a step-change in the State's capacity to deliver much-needed public infrastructure, but we remain concerned about the capacity of the economy to deliver on all infrastructure plans over a limited time span. Trying to achieve too much too soon could result in an inflationary impulse, which will compound the cost pressures arising from the Middle East crisis. Prioritisation in projects is required and there would be value in the Government setting out how this might be achieved. A QEC Special Article published with this *Commentary* by Lynch et al. (2026) discusses trade-offs between housing construction on the one

hand and retrofits on the other, and notes how the pursuit of targets on the latter could be impacting on output in the former. Lynch et al. point to some limitations on the retrofit programme in pursuing climate goals and discuss some alternative approaches such as fuel switching. This type of analysis could feed into prioritisation methods and decision-making.

International economic uncertainty in 2025, in particular the Trump administration's actions on tariffs, prompted a renewed focus on the policy levers that the Irish Government can operate in order to bolster the creation and growth of domestic firms. The Middle East crisis has possibly deflected some attention from the tariff issue in recent weeks but it is important to be aware of ongoing tariff-related uncertainty. The *Action Plan on Competitiveness and Productivity* (DETE, 2025) sets out a range of actions that hold out the possibility of yielding benefits for domestic firms. One theme of the plan is 'increasing the state's capacity to deliver infrastructure' and so links back to our comments in the preceding paragraph. Other themes include 'embracing research, innovation and skills' and 'creating and scaling more SMEs', with actions on finance, the regulatory environment and investment in skills. As discussed in Yakut et al. (2025), successful actions in these areas can help to diversify the economy and build resilience in the context of international shocks. The current strong economic performance provides a window of opportunity to make progress on enhancing Ireland's competitiveness and productivity.

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ESRI SPECIAL ARTICLE

A review of residential heat decarbonisation in Ireland

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ABSTRACT

Ireland's Climate Action Plan targets rapid decarbonisation of residential heat, facilitated by targets for deep retrofits (500,000 homes to BER \geq B2), large-scale heat pump deployment (400,000 in existing dwellings), and district heating (up to 2.7 TWh/yr). This article reviews progress to date and the empirical evidence on whether the current policy mix is likely to deliver the required emissions reductions. Using the latest administrative statistics, we show that delivery is materially off-track: by end-2024, deep retrofits reached 57,932 (11.5% of target) and heat pump installations 14,194 (3.5% of target). Linear projections based on post-pandemic trends imply that even continued acceleration leaves substantial shortfalls by 2030, with district heating similarly unlikely to meet targets. We synthesise evidence on the barriers driving under-delivery — high household capital costs, disruption, administrative complexity, information constraints, and landlord-tenant split incentives — and highlight capacity trade-offs with housing supply via constrained construction labour and complementary electricity-network investment needs. We review the recent literature on retrofits to date, which shows that measured decarbonisation may be overstated because BER/EPC metrics can diverge substantially from actual energy use. Finally, we discuss supplementary policy pathways aimed at hard-to-reach households and system-wide efficiency: targeted fuel switching (including regulated renewable heat blends and sustainable liquid biofuels with robust traceability), more progressive targeting of supports toward low-income/high-impact homes, and enabling flexibility through smart controls and thermal energy storage. We conclude that meeting climate objectives will likely require both faster delivery of existing measures and additional, better-targeted interventions grounded in representative, data-driven evaluation.

1. Introduction

Ireland has set ambitious climate change targets, aiming to reduce emissions by 51% by 2030 relative to 2018 (Government of Ireland, 2021). The latest projections from the Environmental Protection Agency (EPA) indicate that Ireland will fall short of this target, with an expected reduction of 23% by 2030, assuming full implementation of all policies and plans to date (Environmental Protection Agency, 2025).

The primary mechanism in place to limit emissions is carbon budgets, with the carbon budget from 2021–2025 set at 295Mt of CO₂ equivalent and the 2026–2030 carbon budget set at 200Mt of CO₂ equivalent. By the end of 2023, 63% of the 2021–2025 carbon budget had been exhausted. A budget of 29Mt CO₂ equivalent has been set for the residential sector for 2021–2025, with 62% of it exhausted by the end of 2023. Emissions in the residential sector were 5.35Mt CO₂ equivalent, or 9.7% of total emissions, in 2023. This represented a decline of 7.1% on the previous year, with fossil fuel usage declining by 22%, 13%, 0.3% and 14% for coal, peat, kerosene and natural gas, respectively.

Specific decarbonisation measures for each sector have been set as part of the Climate Action Plan (Government of Ireland, 2025). The measures for decarbonisation of residential heat rely on significant investment from households and Government, as well as behavioural change by households. This is in contrast to the electricity and transport sectors, which have a greater reliance on investments by the State as well private companies such as power generation companies and public transport providers. Furthermore, some *ex post* analyses of residential decarbonisation measures taken to date has been conducted, the findings of which can inform policy additions and adjustments going forward. A review of progress in the residential heating sector to date, and the research done on this specific sector, is therefore presented.

This special article reviews the data and evidence relating to the progress in achieving residential heat decarbonisation targets and the effectiveness of measures employed to achieve decarbonisation objectives. For the purposes of this paper, we consider all emissions associated with the residential sector, including ETS and non-ETS emissions. In practice, emissions

associated with the ETS sector are typically not included in the residential sector, and so fully electric dwellings count as “zero emissions” in the residential sector for the purposes of carbon accounting. We find that progress is lagging considerably behind that required to achieve the stated targets. Should these targets nonetheless be achieved, there is emerging evidence suggesting that the decarbonisation realised as a result will not be sufficient to achieve our climate objectives. Potential supplementary measures to aid Ireland in achieving our climate targets are discussed.

2. Outline of residential heating policies and progress

Ireland’s decarbonisation policies are outlined in the Government’s Climate Action Plan (Government of Ireland, 2025). The targets for sectoral carbon budgets have remained unchanged, and the Climate Action Plan includes outlines different measures and policies to support and enable the realisation of those carbon budgets. While the Plan undergoes regular updates and revisions, the targets for residential heat decarbonisation have remained relatively stable since the 2019 Climate Action Plan (Government of Ireland, 2019). The 2030 measures to achieve decarbonisation targets include:

- upgrading 500,000 homes to a Building Energy Rating (BER) of B2 or greater, or cost-optimal equivalent⁶
- installing 400,000 heat pumps in existing dwellings and 200,000 heat pumps in new dwellings
- serving up to 2.7TWh/year, or 10% of heating demand, from district heating.

Progress on the above has been slow to date, however: while there have been over 186,000 home energy retrofits from 2019 to 2024, only 57,932 have been to a BER of B2 or higher (referred to as ‘deep retrofits’) (SEAI, 2025). This amounts to 11.5% of the 2030 target for deep retrofits. Progress on heat pumps has been even slower, with just 3.5% of the targeted number

⁶ Shallower retrofits, including incremental measures, have a carbon saving associated with them, which can be translated to an equivalent number of deeper retrofits to B2 or above.

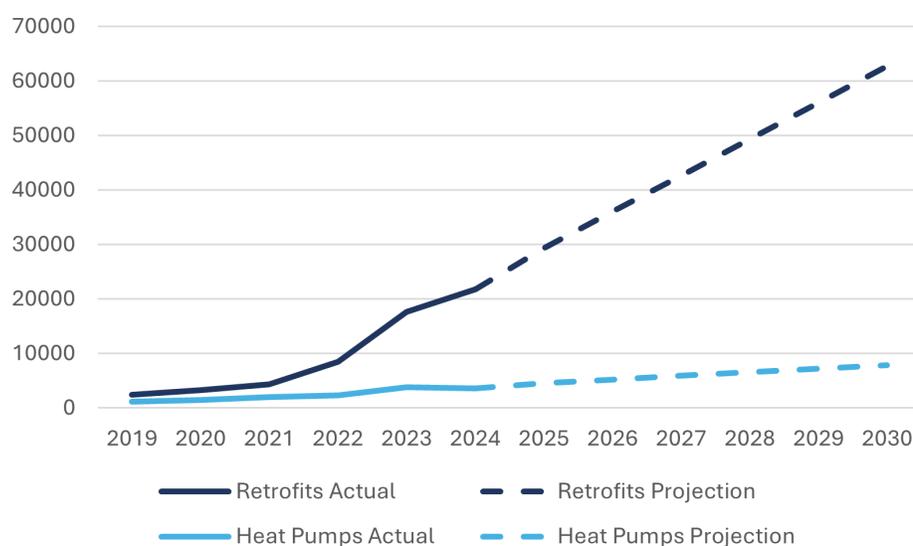
installed by year end 2024. Table 1 shows the most recent figures for annual deep retrofits and heat pump installations.

Table 2: Deep retrofits and heat pump installations to date

Year	Retrofits	Heat pumps
2019	2,423	1,130
2020	3,275	1,454
2021	4,340	1,972
2022	8,476	2,271
2023	17,601	3,769
2024	21,817	3,600
Total	57,932	14,194

Source: SEAI (2025)

While there has been a significant acceleration in retrofits and heat pump installations alike, the current rate of progress suggests we will fall far short of the 2030 targets. Figure 1 fits a linear trendline to the data from 2022–2024 (previous years are excluded as COVID-19 restrictions meant construction activity in general was significantly curtailed) and projects annual progress towards both targets. Assuming this same acceleration is maintained every year until 2030, total deep retrofits by 2030 are projected to reach nearly 334,000, or 66.7% of the target, while total heat pump installations are projected to reach nearly 51,400, or 12.9% of the target. Deep retrofit and heat pump installations must therefore accelerate even faster than the rate seen to date to reach the 2030 targets. Indeed, the Sustainable Energy Authority of Ireland (SEAI, 2025) state that we need to deliver, on average, 75,000 retrofits per year to meet the 2030 target. This is over three times the 2024 rate of retrofit installation, and a linear continuation of the current rate of acceleration does not see annual retrofits passing 75,000 even by 2030.

Figure 23: Actual and projected deep retrofits and heatpump installations per year

Progress on district heating is similarly delayed. Meeting the target of 2.7TWh of heat demand requires serving 187,000–314,000 homes with district heating by 2030. Current estimates suggest that 60,000 homes, at most, will be connected (Mac Uidhir and Rogan 2025), achieving between 20% and 32% of the target.

There are multiple policies in place to enable retrofitting and electrification, as shown in Table 2. For the most part, the policies take the form of financial incentives to invest in retrofitting and/or low carbon energy technologies. The incentive takes the form of a direct grant or a VAT cut, with the decision to undertake the investment, and thus to avail of the financial incentive, generally made by the homeowner. The exception is the Warmer Homes Scheme, applicable to low-income households, and the Renewable Heat Obligation (Department of the Environment, Climate and Communications, 2024). Under the Warmer Homes Scheme, low-income homeowners apply for retrofitting, the cost of which is entirely publicly funded, but the retrofit measures themselves are chosen by SEAI, while decisions to invest in local authority housing is undertaken by the local authority itself. While SEAI chooses the measures to be installed in the case of the Warmer Homes

Scheme, the homeowner still must apply for the scheme on their own initiative.

The Renewable Heat Obligation Scheme, due to become operational in 2026, will require fossil fuel suppliers of fossil fuel for heat to demonstrate that a proportion of the energy they supply is from a renewable source. This proportion will initially be 1.5%, rising to 3%. This is the only policy that relates to the decarbonisation of residential heat where the full implementation is not dependant on decisions made by the homeowner. Thus, residential heat decarbonisation to date has primarily been in modular form, with homeowners deciding on an individual basis whether, and to what extent, to decarbonise their heating.

Table 3: Outline of policies and supports for residential heat decarbonisation

Policy	Description	Decision maker
Better Energy Homes Scheme	Grants for individual retrofit measures	Homeowner
One Stop Shop Scheme	Grants for deep retrofits	Homeowner
Warmer Home Scheme	Grants for retrofit measures for low-income households	Homeowner (actual measures chosen by SEAI)
Home Energy Upgrade Loan	Low-cost loans for financing retrofit measures	Homeowner
Retrofit tax relief	Tax relief on expenditure on retrofit measures in the rental sector	Homeowner
Energy Efficiency Retrofit Programme	Deep retrofitting of local authority housing	Local authorities
VAT rate cut on solar panels	Removal of VAT on solar panels for residences and schools	Homeowner
VAT rate cut on heat pumps	Removal of VAT on heat pumps and associated heating systems	Homeowner
Renewable Heat Obligation	Requires 1.5% of fossil fuel to be met by renewable fuels (not yet operational)	Supplier

Investment in the networks for district heating can be undertaken by public or private entities. For example, the Tallaght District Heating Scheme operates under HeatWorks, a not-for-profit utility that is fully owned by South Dublin County Council. However, there are no direct grants or financial incentives to support district heating to date. Policy support is therefore concentrated on efficiency and electrification, while policies regarding switching from fossil fuels to alternative/biofuels is via regulation rather than subsidisation.

The literature identifies several challenges to accelerating progress towards decarbonising the residential sector. This paper summarises these findings and discusses some potential paths forward.

3. Challenges to decarbonisation via retrofitting

A number of challenges to decarbonisation via retrofitting have been identified in the literature, encompassing financial, informational and behavioural barriers. In the case of heat pumps, (Zhu et al. 2023) demonstrate that failing to include these barriers in energy systems modelling will lead to a misidentification of the optimal policy. This section reviews the barriers as they apply to Ireland.

A. Financial barriers

Capital costs form a significant barrier to retrofitting in particular, as well as to heat pump installation. Data from the One Stop Shop scheme administered by the SEAI finds that the median cost of a deep energy retrofit ranges from €22,914 for an apartment to €66,503 for a detached house, with the portion of the cost covered by the homeowner ranging from €16,378 to €42,900 (SEAI, 2025c). If the full cost to the householder is borrowed over five years at a rate of 3%, terms that are available under the government-backed Home Energy Upgrade Loan Scheme, this equates to a monthly loan repayment of €294.05 for apartment dwellers and €770.06 for detached house dwellers. These repayments are equivalent to 19.6% and 70.0% of median rental payments, respectively, or 35.1% and 97.6% of average mortgage repayments, respectively (calculated from (CSO, 2023)). The retrofit costs are offset by an energy expenditure saving of just under €700 per annum for an apartment and just under €900 per annum for a detached house, assuming a pre-retrofit BER of D. The financial burden of

the retrofit costs that accrue to households therefore represents a significant increase in expenditure on accommodation, even when the entirety of these costs is financed at a low rate.

In the rental market, Kren et al. (2025) find that the costs of deep retrofitting a rental property from a C rating costs €30,000, while a deep retrofit from a G rating is €43,000. The rental market also suffers from the 'split incentives' problem: a resident homeowner benefits from reduced bills and an increase in property value from an energy retrofit. A tenant benefits only from the former. In most circumstances, the landlord benefits only from the latter, but may benefit from the former if markets are sufficiently competitive that energy costs are capitalised into rents. This is unlikely to be the case in a market characterised by excess demand, like the Irish rental market (Gillingham et al., 2012; International Energy Agency, 2007; Petrov and Ryan, 2021). This further reduces the incentive to retrofit rental properties relative to owner-occupied dwellings. Other factors also place barriers to landlord investment in retrofitting, including the pause in tenancy and rental income foregone, although the possibility of increasing rent by more than the rent pressure zone cap can ameliorate these disincentives somewhat. Nevertheless, the total expenditure required to update the private rental stock is estimated by Kren et al. (2025) at between €7 and €8 billion, with the majority of landlords unable to afford a retrofit of €25,000 or more.

B. Behavioural and informational barriers

In addition to financial barriers, behavioural and informational barriers to retrofitting and electrification have been identified in the literature. Recent research has found that there is a considerable cohort of the population who may not wish to install a retrofit. Curtis et al. (2024) found that 21% of homeowners consider themselves to have completed any renovations they would undertake, including energy saving measures, but these measures may encompass small or negligible energy efficiency measures – the total proportion of the building stock to have undergone a deep energy retrofit to date is less than 5%, while the proportion of households to have undertaken any retrofitting measures at all is less than 10%. A further 23% of homeowners agreed with the statement, 'We're content with our home as it is. We wouldn't dream of making any major changes to its layout or physical

properties'. This suggests that over 40% of homeowners are highly unlikely to undertake a deep retrofit or to switch to a heat pump heating system. Any attempt to reduce emissions from this cohort of homeowners must utilise alternative pathways.

For those homeowners that may consider renovations or upgrades to their home, one non-monetary barrier to doing so is the disruption that building improvement works can cause for households. This potentially includes the vacation of part or all of the premises for the duration of the work. Curtis et al. (2024) estimates the median monetary value of this disruption to range from €9,000 for minor disruption to €24,000 for major disruption. In other words, this is the sum of money a household would need to be paid to compensate them for the inconvenience of the disruption. This is a monetary estimate of the cost of disruption and cannot be amortised like capital costs; for this reason, it represents an upfront barrier.

The literature also shows that low-income households may abandon applications even when retrofit measures are offered for free, indicating that significant barriers persist for these households, despite the absence of financial constraints (Pillai et al., 2021). This study draws on administrative records detailing application and processing data from the Better Energy Warmer Homes Scheme. The authors report that 9% of eligible households abandon their retrofit application, attributing this to communication issues. A smaller number of planned retrofit measures was linked to a higher likelihood of abandonment—suggesting that households perceive fewer measures as offering limited benefits. The authors argue that families can struggle to assess the long-term financial and environmental benefits of retrofits accurately. They recommend strengthening advisory and consultation services — particularly at the initial stages — to better communicate these benefits and reduce abandonment rates.

However, abandonment may represent only one side of the challenge. Some households never apply for government assistance because they view the process as overly complex. Tovar Reaños et al. (2024) conducted a telephone survey of Irish homeowners to investigate which household types opt not to take advantage of retrofit support. They found that older

households are more likely to cite administrative complexity as a barrier, while high-income households are less likely to avoid assistance⁷.

A lack of practical information also emerges as a significant barrier to retrofitting. Tovar et al. (2023) found that, after high costs, insufficient information was among the most common obstacles preventing households from engaging in retrofits. Their study shows that households that have previously undertaken unrelated energy efficiency improvements are more likely to retrofit. Similarly, knowing someone who has completed a retrofit increases the likelihood of exploring it – indicating that familiarity and access to information play a critical role in decision making.

C. Technical and performance barriers

In Ireland, the BER system is the common benchmark for measuring household energy consumption and therefore progress towards achieving residential decarbonisation. Research suggests however that BER-predicted energy consumption deviates from actual consumption; therefore the energy saving benefits of retrofit installations, particularly when they are measured or determined by a dwelling meeting a given BER (specifically, B2 or higher), may be overestimated. This has important policy implications: even if we reach our retrofit target, we may not achieve sufficient decarbonisation to meet our climate target.

This section reviews Ireland's BER and the literature relating to the ability of this metric to accurately measure energy performance. It gives insight into the magnitude of any potential deviation between predicted and actual energy consumption and discusses the implications for reaching our climate targets.

Background on Ireland's BER system

Energy Performance Certificate (EPC) systems are used throughout Europe to provide a benchmark calculation of building energy consumption. These are governed by the EU Energy Performance of Buildings Directive (EPBD) (EU, 2010). Ireland's Energy Performance Certificate (EPC) is known as the Building Energy Rating (BER).

⁷ The Warmer Home Scheme Application process has been simplified in an attempt to address these barriers. The general findings from this line of research indicate that non-financial barriers can inhibit retrofitting as well as financial barriers.

EPCs, including Ireland's BER, predict what a building's energy consumption is likely to be. This is calculated conditional on the observed dwelling characteristics and assumed behaviour, as opposed to a calculation based on observed patterns of actual energy consumption. In Ireland, a BER is calculated by an SEAI-registered assessor using standardised software known as DEAP (Dwelling Energy Assessment Procedure). To predict a benchmark usage profile, DEAP models the building fabric, heating systems, ventilation, lighting, renewables and standardised assumptions relating to factors such as occupancy and weather.

As a BER predicts rather than observes energy consumption, there is the possibility that the prediction will be different to actual consumption. This hypothesis has been extensively tested in the literature; with the findings showing that BER-predicted consumption has potential to deviate considerably from actual consumption.

Irish and international research has found that EPC/BER-predicted energy consumption can deviate considerably from actual observed energy consumption. In an Irish context, Coyne and Denny (2021) find that theoretical energy use is, on average, 17% below actual energy use, and this difference varies by the BER rating of the dwelling. These findings correspond to those of (Meles et al. 2023; 2024), where BER is shown to have a lesser than expected predictive power on energy consumption and heat loss.

According to Coyne and Denny (2021), the energy consumed by more efficient homes is closer to that predicted by their BER, whereas those less efficient have a greater discrepancy. For the most efficient homes, Coyne and Denny (2021) find that actual energy use exceeds the BER prediction by 39.6% on average for A- or B-rated homes. For the least efficient homes, actual energy use is below the BER prediction. This difference is 24% for D-rated homes, 39% for E-rated homes and 56% for F- or G-rated homes. This finding is consistent with the international literature. Similar patterns have been observed in other studies, such as that of (Few et al., 2023; Cozza, Chambers, and Patel, 2020; Cozza, Chambers, Deb, et al., 2020) and the meta analysis of (Zheng et al., 2024).

A striking observation from the Irish studies of Coyne and Denny (2021) and Meles et al. (2025) is the lack of variation in average actual energy use between dwellings in different BER categories: average energy consumption is similar for an A-rated house and a G-rated house. Dwellings in the Coyne and Denny (2021) sample show that households consume around 10,869kWh/year, and this does not vary considerably by BER rating. A-rated dwellings consume an average of 10,569kWh/yr, whilst F- and G-rated households consume an average of 10,964kWh/yr. Indeed, this may not be an Ireland-specific observation, with a UK study of office buildings by the Better Buildings Partnership (2019) finding a similar pattern of consumption⁸.

The mechanism driving this observation in the data is not clear, but there are many plausible hypotheses put forward in the literature. First, there may be what is known as the 'rebound effect': householders in poorly-insulated dwellings may underheat to save money. When the insulative performance is improved, a reduction in heat consumption is not observed, as householders choose to avoid underheating rather than continue to underheat at a lower cost. Irish research backs this up: (Coyne et al., 2018) find that socially vulnerable occupants often underheat their homes and use more energy and alternative heating fuels following a retrofit. Similar findings are observed in other contexts. In Germany, Sunnika-Blank and Galvin (2012) find that occupants consume roughly 30% less heating energy than indicated by their EPC. They also find evidence that low-energy dwellings tend to engage in this 'rebound' after retrofit installation by consuming more energy than predicted by their Energy Performance Certificate.

Secondly, the DEAP approach involves the use of standardised values for many parameters, including household behaviour, ventilation, etc. Differences between assumed and actual values can lead to some of the deviations observed in the data, an issue raised by studies such as (Majcen et al., 2013) and (Cozza, Chambers, Deb, et al., 2020; Cozza, Chambers, and

⁸ Potential sources of bias should be considered when interpreting these findings. Ex-ante, one may expect that determinants of BER that are unrelated to insulation (e.g., solar PV) may affect some studies. This does not affect Coyne and Denny (2021), who analyse electricity consumption and thus internalise PV use. Their findings align with studies that omit electricity consumption, implying negligible bias.

Patel, 2020). Finally, Collins et al. (2018) find evidence of systematic bunching in ratings around certain cut offs: evidence is found of bunching in the post-works distribution but not the pre-works distribution of BER categorisations. The authors find no evidence of perverse actions by BER assessors, suggesting it is likely that homeowners plan their renovations to just surpass a grade threshold.

The observation by Coyne and Denny (2021) that average energy consumption is consistent across BER values suggests that household energy demand may not be as responsive to dwelling energy efficiency as expected *ex ante*. No conclusive evidence exists to enable understanding of the mechanism driving this observation. There are many plausible explanations: for instance, it may be the case that comfort is more flexible than energy expenditure. A certain amount of energy consumption may be affordable or deemed acceptable by householders, beyond which underheating becomes more common. This is consistent with the 'rebound effect' and the observation that low efficiency dwellings tend to consistently consume much less energy than predicted by BER/EPC systems. Further research may be required to investigate this hypothesis fully.

It is clear from the literature that the standardised approach associated with BER and EPC systems is likely responsible for much of the deviations between predicted and actual energy consumption, with deviations between assumed and actual consumption patterns also contributing. This brings the obvious consideration: should energy performance calculations incorporate observed data? Much research is emerging to develop data-driven methods to both validate and calculate BERs/EPCs to overcome many of these deficiencies (for examples in an Irish context, please see (Ahern et al., 2026; Eslamirad et al., 2025; Raushan et al., 2024).

4. Trade-offs with housing policy

As shown in the previous section, there is a well-developed literature on the barriers and challenges to decarbonisation via retrofitting and electrification. Less well developed is the literature on the spillover effects of residential heat decarbonisation on other sectors. In particular, deep retrofitting requires labour and materials from the construction sector, which is

currently at full capacity. While the supply of labour and materials for a given economic sector is flexible in the long run – new employees and additional materials can be sourced, given sufficient time – this supply is fixed in the short run. Some of the labour and capital required for new builds versus retrofits is not substitutable between the two construction activities, but to the extent that at least some substitution is possible there is a trade-off between new builds versus retrofits.

This means that, all else equal, a policy that increases construction sector activity in one area will reduce construction sector activity in other areas, in the short run. In the context of an acute housing shortage, and with delivery of new housing units falling short of recent targets, there is an immediate trade-off between upgrading existing homes to meet retrofit goals and building new homes to meet housing demand (National Competitiveness and Productivity Council 2025).

The exact trade-off between the policies has not been quantified, but (Barrett and Curtis 2023) provide some estimation of the construction sector labour required for retrofitting. An assumption of 50,000 retrofits per year translates to a requirement of 15,000 workers per annum to carry out the required works. This number is similar to the requirement identified by Government of Ireland (2022a, 2022b) of a construction sector expansion of 18,180, and recruitment of 22,779, to meet this challenge. A total of 15,000 workers per annum equates to 8.5% of the construction sector employment in Quarter 4 of 2024, or 20.8% of those employed who ‘Mainly do not work on new housing developments/renovations’ (Central Statistics Office 2025). As noted above, one cannot assume perfect substitution between labour for new builds versus retrofits, and so the labour supply numbers here should be interpreted as an upper bound on the potential labour diverted from new builds to retrofitting.

In addition, there will be a labour supply requirement for electricity system investment. This includes distribution grid upgrades and the construction of power system generation and transmission required to meet the increased power demand from heat pumps. These extra requirements would increase the construction sector requirement beyond that required for retrofitting alone, which may further crowd out housing investment.

5. Alternative policy pathways

Given the challenges in meeting existing retrofit and heat pump installation targets, as well as the deficiencies in using BERs as a proxy for emissions reductions, it is likely that emissions from residential heating will not meet anticipated levels of decarbonisation under the current policy mix. Additional measures are therefore likely to be required to achieve levels of decarbonisation consistent with our climate objectives. This section explores and discusses potential additional (as opposed to alternative) policies.

A. Fuel switching

As the preceding sections have highlighted, there is much evidence to suggest that considerable logistical, behavioural and financial barriers exist to impede the retrofitting of many homes. If Ireland is to meet the current decarbonisation targets, additional measures to decarbonise heat may be required.

The first potential additional policy measure is to switch fossil fuels, particularly oil and solid fuel boilers, to a lower carbon fuel. This policy need not replace electrification but rather provides a pathway for households that will not undertake a retrofit and/or a switch to a heat pump to reduce their emissions from heating. Lower emissions alternatives include gas, via the gas network or liquid petroleum gas (LPG), while zero emissions fuels include hydrogenated vegetable oil (HVO) or biodiesel. A number of options exist and each measure has both positive and negative aspects.

The first fuel switching option is to switch oil or solid fuel heating for natural gas or methane. The emissions from natural gas, or methane, are roughly one quarter lower per unit energy than kerosene, at 203gCO₂/kWh vs 264g CO₂/kWh (SEAI, 2025a). Curtis and Grilli (2021) find that there are 110,000 homes located within 30km of a gas pipeline that are not connected to the gas network, of which roughly 75% currently use oil fired central heating, 10% use electricity and 8% use coal. (Curtis et al. 2020) find that up to 13% of such households are likely to connect to the gas grid if there were no connection charge, yielding a 3.9% reduction in emissions and a 1.5% reduction in fuel expenditure, weighted towards the least affluent households. The value of the savings in emissions offsets the connection

cost of this policy. If the emissions intensity of natural gas decreases, due to policies such as the Renewable Heat Obligation (Department of the Environment, Climate and Communications 2024), the net saving from switching from kerosene to gas would likely increase over time.

Many homes are not sufficiently close to the gas network to render connection feasible. A lower emissions replacement for kerosene that does not require connection to the gas grid is LPG, which has an associated emissions factor of 229.3gCO₂/kWh. LPG can be used in a dwelling that currently burns kerosene, requiring a new boiler and tank but without requiring any changes to the building fabric or heating infrastructure (i.e. radiators, etc). The cost per unit energy is significantly more expensive, however, at 11.11c/kWh vs 16.29c/kWh (SEAI, 2025b); this does not include a standing charge. Most LPG suppliers will install a new tank with no upfront cost to the householder, but will recoup the cost of the tank through the customer's bills.

Other options for fuel switching include renewable liquid fuels, such as hydrotreated vegetable oil (HVO) or biofuels. These alternatives potentially have far greater emissions savings than switching to gas or LPG, but are less readily available. Biofuels in particular, such as renewable dimethyl ether (rDME) or biopropane (bioLPG) are available in nascent form at present. BioLPG can be produced as a byproduct of the refining process for HVO and sustainable aviation fuel (SAF), while rDME can be produced directly from various household and agricultural waste products (Gray et al. 2021). HVO is known as a 'second generation' biofuel, in that it is manufactured from waste oil that would otherwise go to landfill, such as cooking oil. These fuels can be blended with kerosene with no modifications required, or can be fully substituted for kerosene in domestic oil tanks and boilers with some replacement seals and valves required.

While renewable liquid fuels may represent a theoretical zero carbon heat source, the emission reduction potential assumes that the feedstocks are from genuine waste products, and are sustainably sourced. The evidence suggests that this may not always hold in reality. Over 70 countries supplied feedstocks for Ireland's biofuels in 2024 (NORA 2025), with China the largest source of used cooking oil, all certified under voluntary schemes such as the

International Sustainability and Carbon Certification (ISCC). However, the Irish BioEnergy Association (IrBEA) contends that around one-third of these fuels derive from high-fraud-risk supply chains, particularly non-EU imports of used cooking oil (UCO) and HVO from Asia (Cogan, 2025). In an attempt to address these concerns, the European Commission has established the Expert Group on Renewable and Low Carbon Fuels, which is tasked, amongst other things, with creating a database to monitor and trace the feedstocks for biofuel and low carbon fuel production (European Commission, 2025).

A number of factors must be considered when evaluating whether switching of carbon intensive fossil fuels for less carbon intensive fossil fuels is worthwhile. A major advantage of switching fuels rather than electrifying is the greatly reduced financial and behavioural barriers, with little to no capital cost involved, depending on whether the switch is to a form of biodiesel such as HVO or to a fuel such as LPG. In this context, fossil fuel switching may have a positive effect if adopted by householders who would otherwise not decarbonise through electrification because of financial and/or behavioural barriers. However, this may have a negative effect if it replaces heat pump installation. If fossil fuel switching were to be considered alongside the current set of policies, much care is required to target those who are least likely to install a heat pump.

There are additional hurdles that must be overcome for successful implementation. For certain fossil fuel switching options, a capital cost may be incurred that could lead households towards utilising a fossil fuel for longer than they otherwise would, by postponing or discouraging electrification. The extent to which this is likely must be understood. For such dwellings, the immediate carbon saving associated with a lower intensity fossil fuel must be weighed against any zero carbon years foregone. In addition, while financial barriers to heat pump installation can be quantified, the behavioural barrier is still understudied. Further potential behavioural downsides to fuel switching, such as additional aspects of fossil fuel lock-in, are also understudied. Future research should address these concerns.

B. Targeting low-income and high-impact homes

The analysis of the data from the application of the Better Energy Warmer Homes Scheme, which offers free retrofits for eligible households, reveals that grant-funded retrofits lead to improvements in energy efficiency. However, the extent of these gains depends on the initial energy efficiency of the dwelling and the types of measures implemented. The highest return on investment occurs in homes with the poorest pre-retrofit energy performance. Furthermore, upgrades such as heating system improvements deliver some of the most significant efficiency gains (Pillai et al., 2021).

Estévez and Tovar Reaños (2024) show that potential gains regarding improvements in households' ability to maintain adequate warmth from energy efficiency are more likely to be realised among homes at the lower end of both the energy efficiency and income distributions.

Low-income families who do not qualify for the free retrofit scheme often face prohibitive upfront costs. While general grants are available to the broader population, they require households to make the full investment before being reimbursed. For tenants, the decision to retrofit lies with landlords, creating another barrier. To address these challenges, the Energy Poverty Action Plan introduces low-cost loans and a mechanism that allows homeowners to pay only the portion of retrofit costs remaining after the grant has been applied. Tax incentives are also available for small-scale landlords to encourage participation.

Despite these efforts, the rise in energy arrears (CRU, 2025) indicates that there is still significant scope to enhance the design of energy efficiency policies through a more inclusive approach. The literature advocates for a coordinated strategy that integrates energy efficiency measures with employment policies and social support programmes (Karpinska and Smiech 2021).

C. Demand flexibility and smart controls

The Irish electricity sector has ambitious targets for decarbonisation, primarily via variable renewable generation sources such as wind and solar power. One feature of these generation sources is that they can be curtailed when there is excess supply of generation. EirGrid and SONI estimate that excess supply from renewable generation could exceed 20% by 2030 in the

absence of measures to combat this (EirGrid and SONI 2023). One such measure is increasing the flexibility of demand, by shifting electricity demand to hours when renewable generation would otherwise be curtailed. To support this, the Climate Action Plan includes a target of 20–30% of demand flexibility by 2030, with the Commission for the Regulation of Utilities (CRU) publishing a National Energy Demand Strategy to achieve this target (Commission for the Regulation of Utilities 2024).

Electrified heating can potentially contribute to flexible demand via two channels. The first is that heat pumps can be operated with some degree of flexibility without compromising on thermal comfort levels, especially by smart controls that operate the heat pump according to signals from the power grid. The second is by the installation and utilisation of heat storage, or thermal energy storage (TES). A TES system can allow a heat pump to run when electricity supply is greater than demand, and store the heat for later use. Heat storage is an emerging technology but has been shown to reduce total electricity and heating costs when the electricity and heat systems are considered in aggregate (Gaur et al., 2022).

In practice, however, accessing these sources of flexibility from electrified heating is not straightforward. At present in Ireland, flexible demand requires the user to actively manage their demand, as no supplier is currently offering a tariff that controls heating demand remotely. Smart meters have been made available for all electricity users as part of a nationwide rollout, but uptake of smart tariffs is currently less than 20%. This, however, is in line with the international literature, which finds that opt-in to smart tariffs is as low as 1%, and goes no higher than 43% even with intentional policies to encourage uptake (Nicolson et al. 2018). Only when smart tariffs are on an opt-out basis does the figure increase. This limitation can be bypassed by allowing demand response to be automated, if heat pumps are 'smart enabled' – in other words, if the heat pump has smart controls and connectivity, and can be operated by signals from the grid rather than by the consumer themselves. The additional cost to smart controls is relatively low and so there may be a net benefit from smart-enabled heat pumps (with or without TES). In this case, subsidising and/or mandating smart-enabled heat may prove socially optimal as an additional decarbonisation policy.

As regards TES, many of the cost reductions from TES accrue as saving in electricity grid investment. This means that a homeowner may not capture the full monetary savings available from TES, as grid investment costs are socialised across all electricity users. Any potential reduction in grid investment enabled as a result of TES investment can be considered a positive externality, and all else equal justifies a subsidy in order to raise TES investment to the socially optimal level. However, any potential subsidy should be well designed to ensure that it is set at the right level and accrues to the right agent. Further research is required to determine these parameters and ensure that the optimal level of TES investment at least cost takes place.

6. Discussion

The evidence reviewed in this article, sourced from the literature and the rate of retrofit and heat pump installation observed to date, suggests that Ireland will not meet residential heat decarbonisation targets. Failure is likely on two counts. First, the rate of retrofit, heat pump and district heating rollout is likely to fall short of the proposed levels. The rate of installation of retrofits, for instance, has been c. 21,000 in 2024, much lower than the 75,000 retrofits required per annum (SEAI, 2025).

Second, target-consistent retrofit installation is likely to under-deliver the required rate of decarbonisation. Evidence suggests that there is a considerable gap between predicted and actual energy usage across the building stock, leading to an under-estimation of the potential energy savings associated with energy efficiency upgrades (Coyne and Denny, 2021). Finally, even in the event of current targets being met, a large proportion of the housing stock will remain without retrofitting or electrification post-2030. Thus, any additional policies that target households that would otherwise continue on a business as usual trajectory will improve the total decarbonisation rate, regardless of whether existing policy targets are met. Policymakers must decide whether the benefits of additional policies for residential heat decarbonisation and/or policies to decrease emissions beyond current targets in other sectors outweigh the costs of failing to meet decarbonisation targets in this sector. The implications of policy targets that are likely to be missed by a substantial margin may prompt reevaluation of

the carbon reduction targets for the residential sector as well as other sectors, and should also be considered in the context of carbon budgets and cross-sectoral spillovers. The current and potential additional policies considered in this paper are summarised in Table 3.

Table 4: Summary of existing and potential additional policies

Policy	CapEx to household	Decision maker	Behavioural barriers	Lock-in potential?
Retrofit existing stock	> €25,000	Homeowner	Significant	No
Heat pumps	€10,000 – €25,000	Homeowner	Significant if tied to retrofit	No
Thermal energy storage	< €10,000	Homeowner, local authority or developer	Significant if tied to retrofit	No
Increase gas grid connections	< €10,000	Homeowner	Moderate	Yes
Renewable Heat Obligation	n/a	Suppliers / Government	None	Unlikely
Switch to LPG	Low	Homeowner	None	Yes
Switch to Biofuels	Low or negligible	Homeowner	None	Unlikely
Mandate smart controls	Negligible	Government	Low	No
Smart contract opt-out	None	Government / CRU / Suppliers	Moderate	No

While the literature shows that BERs in general are not a good indicator of total energy use, there is still a case for prioritising retrofitting and electrifying towards the least efficient dwellings. The fact that gas usage in the residential heating sector has declined by 13% since 2019 compared to a 0.3% decline in oil usage is noteworthy in this regard (Environmental Protection Agency, 2025). Policies that attempt to target dwellings that are less efficient, or use higher carbon fuels at present, may therefore prove preferable to the current approach, under which grants and incentives apply homogeneously across the

population. Any attempt to better target dwellings that are likely to see a greater reduction in emissions should be informed by research to ensure that the policies are effective.

As well as improved targeting of retrofitting and electrification, potential additional policies include switching fuels for households that are least likely to undertake retrofit or energy efficiency investment. This allows additional decarbonisation while avoiding much of the behavioural barriers and the large upfront cost associated with energy efficiency investment, but at a higher marginal cost. There may therefore be an optimal level of fuel switching: while retrofits and electrification rates are low, it may be optimal for a large proportion of households to use alternative, lower carbon fuels. Again, targeting is key: any additional policy to shift from high carbon to low carbon fuels should be well designed to ensure that dwellings that undergo fuel switching are drawn from the stock that is least likely to retrofit or electrify. Such a policy design should aim to ensure that retrofitting remains at the maximum feasible rate given constraints in the construction sector, while reducing carbon emissions from other dwellings in the meantime. Targeting households that are least likely to retrofit or electrify their heating minimises the likelihood of delayed electrification among a subset of households. However, it should be noted that this risk is not removed completely, and policy must consider if and to what extent this is likely, and weigh the expected value of any potential delayed electrification behaviour against the value of lower carbon emissions through fuel switching.

Any inclusion of additional, more targeted policies should be informed by research which (a) identifies the incentive required and (b) differentiates between households that are more or less likely to electrify. This will minimise any potential for 'fossil fuel lock-in'. Recall that many lower carbon liquid fuels often require relatively small system adjustments. In this context, if substitution for lower carbon liquid fuel is associated with a low level of fixed investment, as opposed to full system installation, the potential for fossil fuel lock-in is minimised; any barrier to electrifying or retrofitting that holds in a household burning a low carbon fuel most likely also holds when a household is burning a higher carbon fuel. However, policy must ensure that alternative fuels are genuinely low carbon and sustainable, with robust tracing and anti-fraud mechanisms in place. The European Union Database

under the Renewable Energy Directive (RED III) is a timely development in this regard.

Finally, there may be a role for increased demand flexibility in reducing emissions from the electrified portion of residential heating. However, the literature suggests that there is a limit to the degree of engagement that can be expected from consumers via smart tariffs and meters, as long as consumers must opt in to these tariffs. Furthermore, network tariffs levied on supply companies can incentivise these companies to encourage demand flexibility amongst their customers, but it is important that tariffs remain cost-reflective.

Given the potential for TES and flexible heat pump operation to reduce total system costs, further research should be undertaken to determine the extent of these cost savings and to whom those saving accrue. This research can then inform whether there is a case for mandating and/or subsidising investment in TES and smart heating controls. This is a complex area with potential for cost and emissions increases as well as decreases, and so any policy intervention in this area should be well designed *ex ante* and should be evaluated and adjusted *ex post* if necessary.

In general, residential heating decarbonisation has suffered from a lack of evidence and data from real households in advance of any investments or technology adaptations, and has instead relied to a large degree on investment costs and emissions savings predicted by mathematical and engineering modelling conducted *ex ante*. Furthermore, *ex post* analysis has largely been conducted using administrative data, which is drawn from the proportion of homeowners and landlords that have already completed or engaged with the retrofit systems, and so suffers from selection bias. There is little *ex post* analysis conducted on the basis of quasi-experimental or randomised controlled trials. This has led to large sums of public money being invested in the residential sector to date for potentially very little gain in terms of emission reduction, while potentially diverting labour and capital away from new building. Policy can be better informed, leading to faster and more cost- and carbon-effective policy decisions, by basing policies on data collected from nationally representative households chosen by robust statistical methodologies.

Using smart/connected devices to track energy usage, by different appliances, along with detail on the characteristics of the dwellings and occupants, would provide an invaluable dataset that can improve policy design, and would also allow for trialling and testing policy interventions for effectiveness and unintended consequences before national rollout. The development of such a trial and database should be strongly considered by policymakers.

7. Conclusion and recommendations

This paper analyses progress to date towards policy goals in the residential heating sector. We find that policy targets for increased energy efficiency and electrification in this sector are unlikely to be achieved. Furthermore, the literature suggests that energy efficiency measures do not deliver the carbon savings predicted by *ex ante* modelling. Finally, a large proportion of Irish households have no intention of undertaking retrofitting or renovations; for these dwellings, efficiency and electrification do not represent a feasible route to decarbonisation in the short to medium term.

Upgrading insulative capacity can aid the energy performance of a building. Both domestic and international research has shown that the benefits to the climate are consistently mis-specified by BER metrics. Should we quantify performance with error, progress will be measured with error. This leads to two calls for action. First, if we wish to meet our climate targets, more climate action is required. Second, good policy requires good measurement. If we wish to make good policy decisions, such as identifying a cost-effective suite of decarbonisation policies, we must measure impacts correctly. Data-driven metrics, which account for many of the outlined deficiencies, exist and are being developed by Irish and international researchers (see for instance, Ahern et al., 2026; Eslamirad et al., 2025; Raushan et al., 2025). Policy should incorporate such methods in decision making with priority given to ex post analysis of the outcomes of policy and investment to date. Otherwise, underperformance is embedded by design.

Policymakers may choose to underperform in residential heating decarbonisation relative to Climate Action Plan targets, or may wish to adopt additional policies and targets in addition to the electrification and

retrofitting policies to date. Options for additional policies include switching from fossil fuel heating to lower carbon fossil fuel options, such as natural gas or LPG, or to newer alternative fuels such as HVO, BioLPG or rDME. Policies should be well designed to ensure that the households that are least likely to undertake retrofitting or electrification are targeted for any such additional policies, and supply chains and sources of alternative fuels should be regulated to ensure that these fuels come from genuinely sustainable sources.

There is also potential to incentivise or regulate thermal energy storage and smart devices and controls for home heating to boost flexible demand and decarbonisation. Research should be undertaken to quantify the net costs and benefits of such policy decisions, and policy instruments should be appropriately designed. Further research is also recommended to ensure any additional policy recommendations are designed and tested *ex ante*, based on data gathered from a representative sample of real households. Behavioural interventions should also be tested and piloted for efficiency and cost-effectiveness before being implemented at national scale.

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1. Introduction

Since 2019 the growth in national income in Ireland has been impressive, averaging almost 5 per cent a year. We investigate the drivers of this growth and the extent to which growth is translating into higher standards of living for those living in Ireland.

Net national income (NNI) is preferred as an estimate of the income available to those living in Ireland. Unlike modified gross national income (GNI*), it excludes the capital used up in producing Ireland's national income – depreciation.⁹ In addition, our approach allows for national income to be split out, both by sector and into the contributions from the domestic and foreign sectors of the economy.

We also isolate the impact of windfall corporation taxes on growth in national income over the past decade. Average annual growth in national income would have been one percentage point lower in the period since 2019 without windfall corporation taxes. Much of the apparent shift in the structure of the economy towards the foreign sector is also explained by windfall corporation tax receipts. The domestic productive sector shows up as playing a larger role in recent growth when windfall corporation tax receipts are removed.

This contribution extends the focus on windfall corporation tax receipts beyond their impact on the public finances. In particular, they are shown to materially affect both the share of national income coming from foreign sectors and the overall growth rate of the economy in the 2020s.

2. Methodology

The role played by foreign-owned firms is central to understanding recent developments in the Irish economy and the standard of living of its

⁹ GNI* excludes the profits of redomiciled public limited companies (PLCs), as does our preferred measure in this paper. These are large multinational corporations whose headquarters are located in Ireland but whose management and operations are largely carried out abroad. As such, the profits they accumulate have little to do with the Irish economy.

residents. Well-documented distortions to national accounts statistics caused by the activities of multinational firms must be accounted for. This note applies the method developed in a contribution to the Commentary by Fitzgerald (2020) and applied in Fitzgerald (2023) and Fitzgerald (2024). In this note we show net national product (NNP) by industrial sector and by institutional sector for two additional years.¹⁰ In doing so, we combine data from the CSO's institutional sector accounts and national accounts, and the Revenue Commissioners' accounts.

The tables below show the composition of NNP at factor cost. After adjusting for taxes and subsidies it becomes NNI at market prices. The profits earned by multinational enterprises (MNEs) are excluded from NNP, but the corporation tax paid on these profits is included because this income is available to those living in Ireland.

In the case of NNP, the factor income of redomiciled public limited companies (PLCs) is also excluded here as, unlike profits earned by MNEs, there is no corresponding outflow of income because these funds take much of their income as capital gains.

Table 5 shows how gross domestic product (GDP) at market prices relates to our preferred measure of output, NNP, highlighted in blue, through a series of transformations.

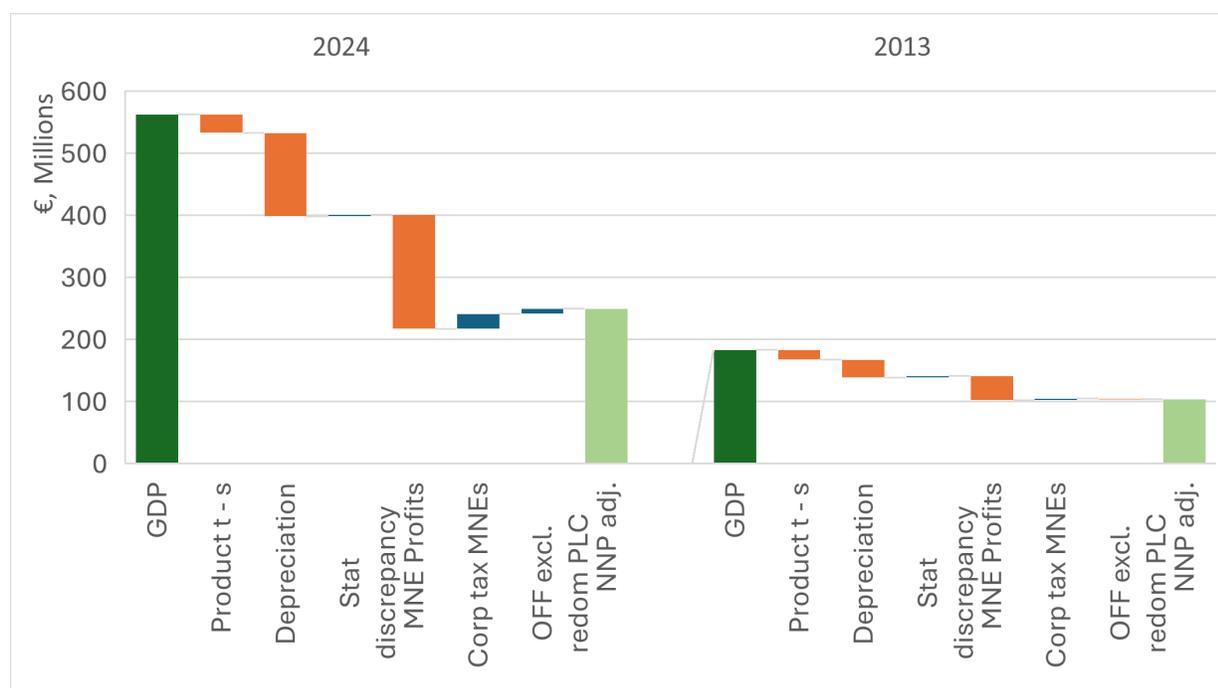
¹⁰Throughout this note, 'sector' refers to the NACE Rev.2 classifications of sectors, e.g. Manufacturing, Construction etc.; while 'institutional sector' refers to the classifications used in the Central Statistics Office's (CSO) institutional sector accounts, e.g. Households, Foreign-owned non-financial corporations etc.

Table 5: Calculating preferred measure of adjusted NNP

GDP at market prices	Add product subsidies		
	Less product taxes	=	GDP at basic prices
GDP at basic prices	Less depreciation		
	Less MNE profits		
	Add back MNE CT	=	NNP excluding all other factor flows
NNP excluding all other factor flows	Add other factor flows excluding redomiciled PLCs	=	NNP excluding redomiciled PLCs
NNP excluding redomiciled PLCs	Add income of redomiciled PLCs	=	NNP
NNP	Add certain indirect taxes and deduct subsidies	=	NNI

Figure 24 shows the monetary values of some of the variables in Table 1. It presents the walk between GDP and the preferred adjusted NNP measure in 2013 and in 2024. Adjusted NNP is 2.4 times larger in 2024 than it was in 2013 at current prices. However, increases over this period in depreciation (4.8x), the profits of multinational firms (4.7x), and the corporation tax paid by MNEs (8.4x) have been much larger.

The continued growth in the size of the multinational-related elements of the economy underlines the need for a reliable adjusted measure of national income. Other measures like modified gross national income (GNI*) can provide such a reliable adjusted measure but the key advantage of using NNP is that it can be decomposed by industrial sector and by institutional sector, helping us understand what is happening in the economy.

Figure 24: GDP to NNP walk, 2013 and 2024, current prices

Note: T - S refers to taxes less subsidies, OFF refers to other factor flows.

Some imputation is necessary to split adjusted NNP into the contribution from the foreign and domestic sectors. Specifically, depreciation and corporation tax must be allocated by NACE sector across the foreign and domestic sectors. In Appendix A, we outline our approach to the allocation of corporation tax across sectors. The windfall component of corporation tax is assumed to come from the foreign sector entirely. The figures for windfall corporation tax are taken from the Irish Fiscal Advisory Council estimates for the period 2015–2020 and from Department of Finance estimates for the period 2021–2024.

3. Share of activity from foreign sector

The publication of the institutional sector accounts on an annual basis allows for a more long-term perspective on the changing structure of the Irish economy. Table 6 shows the average share of adjusted NNP by industrial sector in two periods, 2013–2018 and 2019–2024. These figures include the windfall corporation tax receipts. The foreign sector accounted for 29 per

cent of output on average in the later period, a notable increase from the corresponding figure of 19.7 per cent for the earlier period.

This breakdown is useful in capturing changes in the relative shares of each industrial sector and the relative size of the domestic and foreign components of each sector. For example, the construction sector has increased its share of output from 4.4 per cent to 5.4 per cent across the two periods. This increase has been concentrated in the domestic component of the construction sector.

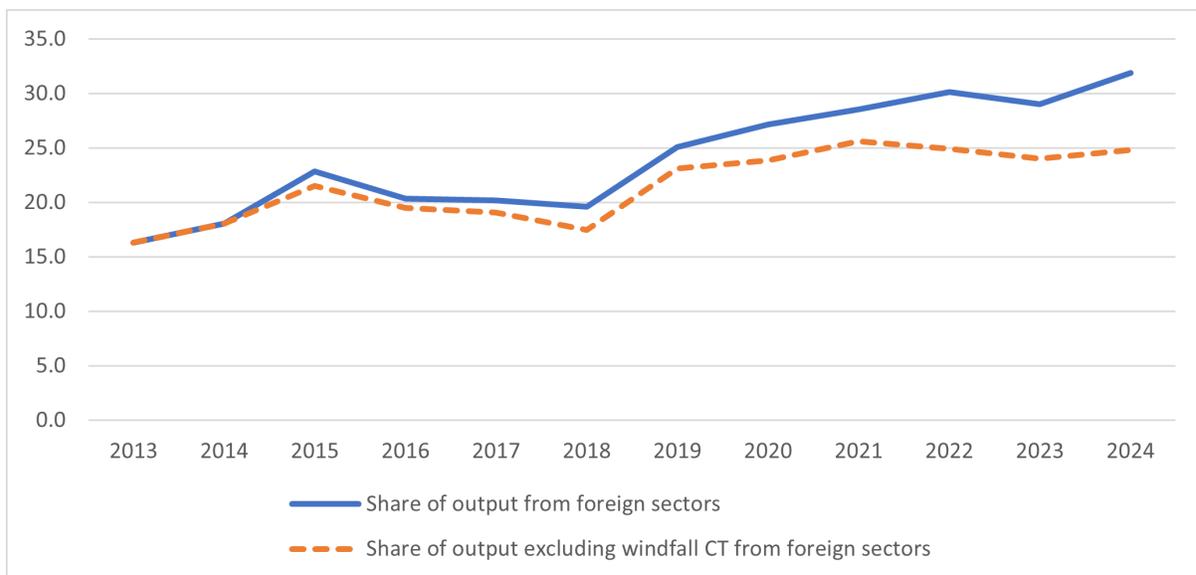
Table 6: Average share of NNP by industrial sector, current prices, 2013–2024, %

	2013–18			2019–24		
	Total	Foreign	Domestic	Total	Foreign	Domestic
Agriculture, forestry and fishing	1.4	0.0	1.4	1.8	0.0	1.8
Manufacturing	12.0	7.0	5.0	14.4	10.5	4.0
Electricity, gas and water	1.9	0.1	1.8	1.7	0.1	1.6
Construction	4.4	0.3	4.1	5.4	0.5	4.9
Distribution, transport, hotels	20.2	4.3	15.9	16.8	4.2	12.7
Information and communication	6.5	3.9	2.6	8.7	6.4	2.2
Financial and insurance activities	8.4	3.8	4.6	6.8	3.6	3.3
Real estate activities	7.9	0.2	7.7	8.4	0.2	8.2
Professional, admin etc.	11.8	2.8	9.0	13.3	3.9	9.4
Public admin, education and health	21.4	0.4	21.0	19.5	0.5	19.1
Arts, entertainment and other etc.	2.7	0.2	2.5	2.2	0.1	2.1
Factor income – Profit repatriations	49.0	49.0	n.a.	71.1	71.1	n.a.
NNP after profit repatriations	98.6	23.0	75.6	99.1	30.0	69.2
Factor income – other, excluding redomiciled PLCs	-1.4	3.3	-4.7	-0.9	1.0	-1.8
NNP adjusted for redom. PLCs	100.0	19.7	80.3	100.0	29.0	71.0

The key sectors where foreign firms play a major role are manufacturing, ICT, distribution, and financial and professional services. A major part of the output of manufacturing and ICT is exported, as well as a significant share of professional services output. Manufacturing has increased its share of national output, primarily because of an increase in the output of the foreign-owned pharmaceutical firms.

Foreign firms are also important in the distribution sector, supplying goods and services for the domestic sector, though the sector's overall share of activity is declining. The professional services sector has increased its share of national output over the two time periods, and much of that output comes from domestic firms.

Although useful, the breakdown provided above is influenced by recent windfall corporation tax receipts, which are concentrated in the manufacturing and ICT sectors. Although windfall receipts began during the period 2013–2018, they averaged €1.2 billion in that period. Since 2019, windfall receipts have averaged €8.7 billion. In the context of adjusted NNP averaging €191 billion, this is a significant addition to national income that is unrelated to domestic economic activity. Figure 25 shows that increases in the foreign share of adjusted NNP are much more modest when windfall corporation is excluded.

Figure 25: Foreign share of NNP, including and excluding windfall corporation tax

The relative stability since 2019 in the foreign share of NNP, after windfall corporation tax has been excluded, is mirrored by the foreign share of wages. Table 7 shows that this share is higher in the later period but the increase is more modest than the headline increase in the foreign share of NNP outlined in Table 25. Within the manufacturing sector, the share of total wages is the same but there is evidence of a clear shift towards the foreign component.

Table 7: Share of total wages by industrial sector, 2013–2024, %

	2013–18			2019–24		
	Total	Foreign	Domestic	Total	Foreign	Domestic
Agriculture, forestry and fishing	0.8	0.1	0.8	0.9	0.1	0.8
Manufacturing	12.2	6.9	5.3	12.2	7.8	4.4
Electricity, gas and water	1.3	0.1	1.1	1.2	0.2	1.0
Construction	3.9	0.5	3.4	4.7	0.7	4.0
Distribution, transport, hotels	21.0	6.0	15.0	18.4	5.7	12.6
Information and communication	7.4	4.4	3.0	9.6	7.0	2.6
Financial and insurance	8.8	5.2	3.6	7.7	5.0	2.8
Real estate activities	0.9	0.2	0.6	0.9	0.3	0.6
Professional, admin, support	11.9	3.9	8.0	14.5	5.2	9.3
Public admin, education, health	29.4	0.5	28.9	27.8	0.7	27.1
Arts, entertainment etc.	2.4	0.3	2.1	2.1	0.2	1.9
Total	100.0	28.2	71.8	100.0	32.9	67.1

4. Impact of corporation tax on recent growth in national income

The continued receipt of large amounts of windfall corporation tax impacts our understanding of recent growth in national income. Before taking account of the windfall nature of these receipts, headline growth in national income has been underpinned by growth in the foreign-owned sector of the economy producing tradable goods and services, largely for export. However, when the windfall corporation taxes are excluded, the contribution to growth of foreign MNEs, while still very important, is reduced.

Table 4 shows the growth rate of NNP for the periods 2013–2019 and 2019–2024, including and excluding the windfall corporation tax. As expected, the impact of excluding windfall taxes is more pronounced in the later period. Excluding the windfall corporation taxes reduces the growth in NNP in the

period 2019–2024 – from 4.8 per cent a year to 3.6 per cent a year. However, this still represents a robust growth rate, especially when compared to other EU economies. Annual rates are presented in Appendix C.

Table 8: Average annual growth rates: NNP and other indicators constant prices, %

	2013 – 2019	2019 – 2024
NNP	3.5	4.8
NNP excluding windfall CT	3.2	3.6
GNI* from NIE	4.0	4.9
GDP from NIE	10.3	6.0
Modified total domestic demand	4.9	4.0
Employment	3.2	3.4

The impact of windfall corporation taxes also affects our understanding of the sources of growth.

This is illustrated in Table 5, which shows the rapid growth in the volume of output in the foreign-owned manufacturing and ICT sectors with and without the windfall taxes.¹¹ It also shows how the growth in NNP is affected by the windfall revenues.

Three export-oriented sectors¹² contribute over half of national income growth; ‘Manufacturing’, ‘Information and communication’, and ‘Professional, admin etc.’¹³ Among these, the ‘Professional, admin etc.’ sector is the only one where domestic firms made a substantial contribution to growth.

¹¹ We assume that one-half of windfall receipts come from manufacturing and one-half from ICT.

¹² Input–output tables from 2022 identify manufacturing, ICT and professional services as the three sectors where over half of output is exported. Our analysis shows that these three sectors account for over 60 per cent of headline national income growth since 2013.

¹³ The ‘Professional, admin etc.’ sector is a combination of NACE sectors M and N, namely ‘professional, scientific and technical activities’ and ‘administrative and support services activities’.

Table 9: Average annual growth rate by sector, 2013–2024, %

	2013–19			2019–24		
	Total	Foreign	Domestic	Total	Foreign	Domestic
Agriculture, forestry and fishing	14.1	7.3	14.4	6.6	1.7	6.7
Manufacturing	4.9	9.0	-0.6	9.4	13.0	1.0
Manufacturing excl. windfall CT	3.6	6.9	-0.6	4.7	6.6	1.0
Electricity, gas, and water	-3.5	7.8	-4.1	16.3	26.6	15.3
Construction	6.5	2.7	6.9	0.2	2.8	0.0
Distribution, transport, hotels	4.7	7.4	4.0	1.7	2.1	1.6
Information and communication	8.2	13.5	0.6	13.2	15.8	6.7
Information and communication excl. windfall CT	5.5	9.3	0.6	5.9	5.4	6.7
Financial and insurance activities	-3.7	-1.2	-5.8	6.7	4.8	8.5
Real estate activities	2.3	6.7	2.2	3.9	2.1	4.0
Professional, admin etc.	7.9	9.7	7.3	6.4	7.0	6.1
Public admin, education and health	2.6	7.2	2.6	3.0	10.4	2.8
Arts, entertainment and other etc.	6.6	3.2	6.9	-0.1	-4.0	0.1
NNP	3.5	4.9	3.0	4.8	7.1	3.9
NNP excluding windfall CT	3.2	3.8	3.0	3.6	2.6	3.9

Overall, while the foreign sector accounted for 33.5 and 44.9 per cent of headline growth in the two periods; this falls to 28.9 and 17.8 per cent when windfall taxes are excluded.

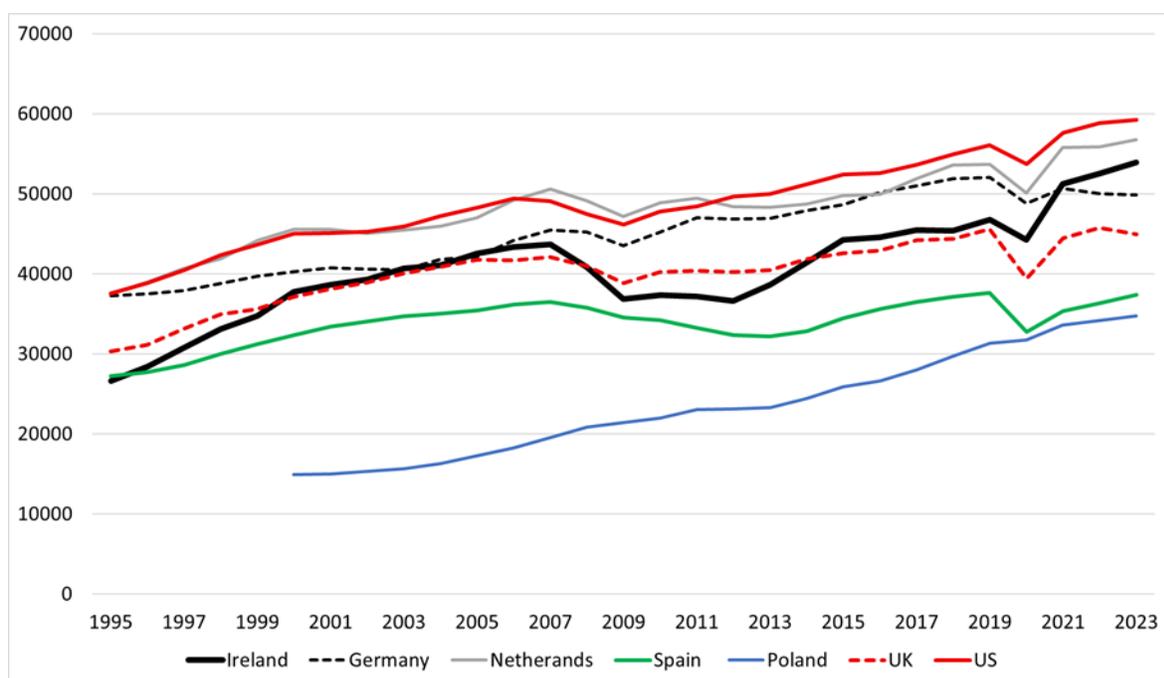
5. Cross-country trends in national income per capita

In the previous section we considered the contribution to growth in Ireland by different industrial sectors, cross-classified by domestic and foreign firms. It helps us understand the robust performance of the Irish economy since the financial crisis. This outcome contrasts with the performance of many of our neighbours over the same period. In this section, we consider how Irish growth in living standards has compared with that in other Organisation for Economic Co-operation and Development (OECD) countries.

Statistical offices are moving to recommend that when comparing growth rates across countries, NNI should be used rather than GNI. This is because the difference between the two reflects depreciation on capital, which should properly be treated as a cost of production. That is why we concentrated on the growth in Irish NNI/NNP in the previous section.

Unlike GDP, data on NNI are broadly comparable across countries, including Ireland. (The difference between the Irish data presented here and the adjusted NNP measure used in Sections 2 and 3 is that the OECD data do not adjust for incomes of redomiciled PLCs.)

Figure 26 shows OECD data on NNI per head for a range of countries, adjusted for purchasing power parity (PPP). This allow a comparison of living standards across countries. While national income per worker has not increased much in Ireland, national income per capita is growing strongly by European standards. The figure shows the gradual convergence of national income in Ireland to the US level in recent years. Within the EU, the Netherlands has followed a rather similar path, while countries such as Germany and the UK have not kept up.

Figure 26: Annual net national income per capita, US \$, volume, constant PPPs

As discussed above, the rapid growth in key sectors of the Irish economy has underpinned the overall success of the Irish economy when compared to its neighbours. However some, but not all, of this outperformance has relied on the windfall corporation tax receipts.

6. Conclusion

The analysis in this paper shows that the very real progress made by the Irish economy in recent years has, indeed, been supported by the rapid growth in the foreign-owned firms operating in the manufacturing and IT sectors here. However, the paper also shows that the domestic sector has played a more important role than previously thought, in particular with the growth in the export-oriented professional services sector. The rapid progress of these export sectors has, in turn, underpinned an expansion of the rest of the economy, including the public sector, providing goods and services for Irish households.

Some of this economic success is attributable to so-called windfall corporation tax receipts. As shown in Table 4, while the average growth in NNP over the period 2019–2024 was 4.8 per cent a year, this falls to around 3.6 per cent a year when windfall taxes are excluded. However, even this lower growth rate contrasts very favourably with the recent experience of other OECD economies, and has supported a significant rise in the standard of living in Ireland.

When windfall taxes are excluded, average annual growth in NNP is only slightly higher than the average growth in employment (see Table 4). This raises questions about the need to increase productivity in domestic sectors of the economy, such as construction.

As has been highlighted in the past by the ESRI, the Irish Fiscal Advisory Council and the Central Bank of Ireland, the windfall nature of some of the corporation tax revenue means that it can't be relied upon to support our standard of living. Instead, a significant share of the exceptional revenue should be saved. Even if such savings were implemented in future Budgets, the underlying rapid growth would still allow a steady improvement in living standards.

Finally, the analysis in this paper has been based on combining the information in the CSO's national accounts with its institutional sector accounts data. In the future, the CSO might consider undertaking some of this analysis themselves, as they would have access to additional data that cannot be published, which would provide a fuller understanding of what is happening in the Irish economy.

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Appendix A – Allocation of corporation tax across sectors

The corporation tax receipts in 2024 resulting from the Court of Justice of the European Union (CJEU) ruling are excluded. While a sum of €14.1 billion was accrued in 2024 for the purposes of calculating the General Government Balance, just €10.95 billion was received in the year 2024. This income is a transfer of income generated during the years 2003–2014. Therefore, it should not be included as income in 2024. It appears to have been recorded in the 'Wholesale and retail trade; repair of motor vehicles and motorcycles' sector in the Revenue Commissioner data.

In addition, this exercise applies a similar methodology to previous work in allocating corporation tax across sectors. In a group of companies, it is the sector of the subsidiary that pays the tax rather than the sector of parent company that is recorded. Cronin (2023) outlines how treasury firms within company groups in the ICT and pharmaceuticals sectors make large

corporation tax payments in Ireland. We calculate an implied tax rate by sector based on the Revenue data.

For the more domestically oriented sectors,¹⁴ the implied tax rates are reasonable and we allocate the corporation tax to the foreign and domestic institutional sectors based on their share of net operating surplus for the sector. For sectors with stronger multinational focus, the implied tax rates are implausibly high. We therefore take the average rates for the domestic and foreign sectors. In practice, this results in a significant reallocation of corporation tax away from the financial and insurance sector and into manufacturing.

Appendix B – Choice of deflator

Fitzgerald (2024) outlines that different results are observed depending on whether the deflator chosen is derived from the net value added series, or the gross value added series. We apply the gross value added deflator in this analysis.

Appendix C – Annual growth rates for variables presented in Table 4

The table below shows the estimated annual growth rates for NNI estimated in this paper. The figures do not exclude windfall corporation tax receipts. While they are correlated with the estimates in the national accounts, they do differ each year, in some cases by a significant amount. (Some of the difference is because the constant price figures in our measure are added up to give the total for NNI while the CSO uses chain-linking.) However, the average growth rates over the 11 years are identical to those in the national accounts. Interestingly the average growth rate in GNI* and in modified domestic demand over the same period are also identical to that for NNI.

¹⁴ Agriculture, forestry and fishing; Mining and utilities; Construction; Real Estate; Public admin; Arts and other

Table 10: Annual growth rates: NNP and other indicators constant prices, %

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Average Annual 2013-2024
NNP, basic prices	3.4	-3.4	9.4	1.1	9.1	2.0	0.7	9.6	1.9	9.9	2.0	4.1
NNI from NIE	9.4	-0.5	2.7	3.5	2.4	1.8	-3.3	19.2	0.2	8.7	4.5	4.2
GNI * from NIE	8.8	1.8	2.5	4.4	2.4	2.2	-2.5	13.8	3.3	5.7	4.8	4.2
GDP from NIE	9.4	24.6	1.2	10.1	7.7	5.0	7.2	16.3	7.5	-2.5	2.6	7.9
MDD	6.6	5.9	4.3	4.6	3.4	2.6	-3.8	7.8	10.2	6.1	0.3	4.3
Employment	2.6	3.4	3.7	3.1	3.0	3.1	-2.5	6.6	6.9	3.4	2.7	3.3

Note: Modified total domestic demand is used in this table. MDD=Modified domestic demand.



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