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Notes

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2. Unless otherwise stated, statistics refer to the State, i.e., Ireland exclusive of Northern Ireland.

3. In some cases, owing to the rounding of figures, components do not add to the totals shown.

4. The method of seasonal adjustment used in the Bank is that of the US Bureau of the Census X-11 variant.

5. Annual rates of change are annual extrapolations of specific period-to-period percentage changes.

6. The following symbols are used:

e	**estimated**
n.a.	**not available**
p	**provisional**
. .	**no figure to be expected**
r	**revised**
–	**nil or negligible**
q	**quarter**
f	**forecast**

7. Data on euro exchange rates are available on our website at www.centralbank.ie and by telephone at 353 1 2246380.

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Comment

The recovery in demand since the pandemic abated has been tempered by the effects of the Russian invasion of Ukraine and more persistent supply-side challenges. While the economy is still forecast to grow in 2022, higher and mostly externally-driven inflation will weigh on households and businesses in the short term. Uncertainty around the medium-term outlook remains high. However, the central expectation is that inflation will start to decline during the second half of this year, falling to just above 2 per cent in 2024.

The main economic consequence of the Russian war in Ukraine has been to exacerbate global inflationary pressures and supply-side constraints. These were already arising as a result of the pandemic recovery. High energy prices are the most obvious example of the challenges that have come to the fore in 2022. However, broader commodity-based inflation is now also having an effect on both consumer prices (Box E) and business input costs, as the mismatch between demand and supply conditions plays out. The immediate cost of this supply-side shock leads to a forecast fall in overall household real disposable income in 2022, before recovering over the following years. Relatedly, domestic consumption and investment are expected to grow at a somewhat slower pace this year and next than previously expected.

How the economy adjusts to this supply-side shock in the coming years will be influenced by policy choices as well as by the capacity of businesses and households to absorb higher costs. That capacity differs across the economy. Households in the lower part of the income distribution face higher effective inflation and are less likely to have sufficient savings to enable them to smooth their consumption when shocks like the current one arise (Box D). Most uncertainty around the outlook relates to the possibility of further increases in, and/or persistently higher commodity prices, as well as the possibility of restricted energy supply. A downside scenario reflecting one potential outcome in this regard shows the risk of an extended and more severe period of above trend inflation and below trend growth out to 2024 (Box A).

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Increased employment and labour force participation, particularly for females and younger people, has been a striking feature of the labour market since the pandemic. While the unemployment rate is expected to tick up slightly in the second half of the year compared with its current level, the removal of pandemic supports has not coincided with a significant pick-up in unemployment so far. By contrast, measures of labour market tightness continue to be high, with staff shortages evident in many sectors. Such conditions by themselves would support broader-based wage growth and may incentivise further growth in labour supply. However, as outlined in a *Signed Article* accompanying this *Bulletin*, much of the participation gains at this stage of the economic cycle are likely already realised.[1] More flexible ways of working may have the potential to enable higher labour force participation, but they have not been a key driver of the strong growth in employment and participation witnessed in recent quarters. With both the tight labour market and an expectation that wage developments will also in part respond to the reduction in real incomes this year, average wage growth is anticipated to pick-up through our forecast horizon.

From a business perspective, labour costs are adding to the challenges of supply chain disruptions and higher energy and other input costs.[2] Firms across different sectors, most likely influenced by their experience through the pandemic, may adjust by a combination of cutting back on production and investment, reducing profit margins, and/or increasing prices to their customers. The most sustainable approach, however, is for a continued focus on productivity growth across the economy. This would be particularly beneficial in areas like construction, where supply constraints are driving up input costs and raising challenges to the necessary delivery of housing and other key infrastructure. The forecast in this *Bulletin* envisages housing output reaching 31,000 in 2024, with total units delivered over 2022 to 2024 being about 5,000 units lower than previously expected. Increases in productivity and labour force participation alongside reductions in skills gaps and mis-match, could maintain progress in the delivery of key infrastructure needs in housing and transitioning to net zero, especially in a period of higher than anticipated inflation.

The costs of this negative external shock to the economy are ultimately ones that have to be met out of collective resources domestically. A number of priority issues arise at the current juncture. First, to ensure those most

[1] Boyd, Byrne, Keenan and McIndoe-Calder (2022).
[2] Byrne, McLaughlin and O'Brien (2022).

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vulnerable to the inflationary shock are supported. Second, to avoid the potential for more persistent damage to households, businesses and the wider economy over the near-to-medium term by not adding to excess demand and inflationary pressures or threats to the sustainability of the public finances. Third, to build resilience in the economy, reducing the impact of future adverse shocks by sustainably addressing the structural challenges around infrastructure, climate change and population ageing.

Monetary policy will contribute mainly to dampening inflationary pressures over the medium term. The ECB Governing Council has continued the process of normalising monetary policy, anticipating that a sustained and gradual rise in interest rates over the coming period will achieve the target of 2 per cent HICP inflation in the euro area over the medium term (Box B). This course of action is informed by the challenges faced by households, businesses and the wider economy when inflation is allowed to persist at excessively high rates, and in order to ensure that the benefits of price stability are realised.

In terms of fiscal policy, the benefits of a prudent approach to the public finances was evident in the extent of support that could be provided through the pandemic. More recently supports have been introduced over the course of 2022 for households and businesses in order to assist with the higher cost of living. While scope may exist for further targeted measures, ensuring that measures are sustainably funded can contribute to achieving an effective balance across various priorities. Many measures that have been introduced already are temporary in nature. If, for any reason, these measures became quasi-permanent, appropriate funding through current resources would have to be considered in order to avoid introducing a structural vulnerability to the public finances and exacerbating inflationary pressures. Also, and as outlined in a second *Signed Article* published with this *Bulletin*, the risks related to the overall reliance on corporation tax receipts from a small number of multi-national corporations continue to increase.[3] The analysis in Conefrey *et al* (2022) points to the benefit of broadening the tax base and the need for careful management of government expenditure in the years ahead. It is important that choices on the overall tax and expenditure stance supports necessary investment and supply-side conditions, avoids adding to medium-term inflationary pressures and vulnerability in the public finances, and maintains sufficient progress in addressing the green and demographic transitions over the coming period.

[3] Conefrey, Hickey, Staunton and Walsh (2022).

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An Timpeallacht Gheilleagrach

Ó chuaigh an phaindéim i léig, tá an téarnamh ar éileamh maolaithe ag iarmhairtí ionradh na Rúise ar an Úcráin, mar aon le dúshláin leanúnacha ó thaobh an tsoláthair de. Cé go bhfuiltear fós ag tuar go dtiocfaidh fás ar an ngeilleagar in 2022, beidh boilsciú níos airde, á spreagadh ón taobh seachtrach den chuid is mó, ag cur isteach ar theaghlaigh agus ar ghnóthaí sa ghearrthéarma. Tá éiginnteacht mhór ann i gcónaí maidir leis an ionchas sa mheántéarma. Mar sin féin, is é an príomhionchas go dtosóidh boilsciú ag laghdú le linn an dara leath den bhliain seo, ag titim go dtí díreach os cionn 2 faoin gcéad faoi 2024.

Príomhiarmhairt eacnamaíoch chogadh na Rúise san Úcráin is ea géarú ar bhrúnna boilscitheacha domhanda agus ar shrianta soláthair. Bhíodar sin ag ardú cheana féin de thoradh an téarnaimh ón bpaindéim. Is iad praghsanna arda fuinnimh an sampla is soiléire de na dúshláin atá tagtha chun cinn in 2022. Tá éifeacht anois ag boilsciú níos leithne bunaithe ar thráchtearraí, áfach, ar phraghsanna do thomhaltóirí (Bosca E) agus ar chostais ionchuir do ghnóthaí araon, de réir mar a fhorbraíonn an neamhréir idir dálaí éilimh agus soláthair. Iarmhairt láithreach na turrainge seo ó thaobh an tsoláthair de is ea go n-íslítear an réamhaisnéis maidir le fíorioncam indiúscartha teaghlach don bhliain 2022, sula dtiocfaidh sé chuige féin arís sna blianta ina dhiaidh sin. Ar chaoi ghaolmhar, meastar go mbeidh luas an fháis ar thomhaltas agus infheistíocht intíre níos moille i mbliana agus an bhliain seo chugainn ná mar a bhíothas ag súil leis roimhe seo.

Beidh an chaoi ina rachaidh an geilleagar in oiriúint don turraing seo ó thaobh an tsoláthair de sna blianta atá romhainn ag brath ar roghanna beartais agus ar chumas gnóthaí agus teaghlach costais níos airde a iompar. Ní hionann an cumas sin ar fud an gheilleagair. Beidh boilsciú iarbhír níos airde ag bagairt ar na teaghlaigh sin atá sa chuid is ísle den dáileadh ioncaim agus is lú an seans go mbeidh coigilteas leordhóthanach acu a chumasóidh dóibh a dtomhaltas a mhaolú nuair a thiocfaidh turraingí cosúil leis an gceann reatha chun cinn (Bosca D). Baineann an chuid is mó den éiginnteacht faoin ionchas leis an dóchúlacht go dtiocfaidh méaduithe breise ar phraghsanna tráchtearraí nó go

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mbeidh praghsanna arda tráchtearraí ann ar bhonn seasmhach, mar aon leis an dóchúlacht go mbeidh srian ar sholáthar fuinnimh. I gceann de na cásanna ar an taobh thíos ina dtaispeántar toradh féideartha amháin ina leith seo, léirítear an riosca go mbeidh tréimhse fhada, ghéar ann de bhoilsciú os cionn na treochta agus d'fhás bhun na treochta le feiceáil go dtí 2024 (Bosca A).

Ba ghnéithe suntasacha den mhargadh saothair iad an fhostaíocht mhéadaithe agus an rannpháirtíocht mhéadaithe sa lucht saothair, go háirithe i gcás baineannach agus daoine óga, ó thráth na paindéime i leith. Cé go meastar go n-ardóidh an ráta dífhostaíochta beagáinín sa dara leath den bhliain i gcomparáid leis an leibhéal reatha, níl méadú suntasach ar dhífhostaíocht le feiceáil go fóill tar éis na tacaíochtaí paindéime a asbhaint. I gcodarsnacht leis sin, tá na tomhais ar fháscadh sa mhargadh saothair ard i gcónaí, agus tá ganntanas foirne le feiceáil in go leor earnálacha. Iontu féin, thacódh dálaí den sórt sin le fás pá níos leithne agus b'fhéidir go spreagfaidh siad fás breise ar sholáthar lucht saothair. Ar a shon sin, agus mar a chuirtear in iúl in *Alt Sínithe* a ghabhann leis an bh*Faisnéis Ráithiúil* seo, tá formhór an dul chun cinn ó thaobh rannpháirtíochta de ag an tráth seo den timthriall eacnamaíoch réadaithe cheana féin.[4] Cé go bhféadfaidh go spreagfaidh modhanna níos solúbtha oibre rannpháirtíocht níos airde sa lucht saothair, ní rabhadar sin ar cheann de phríomhspreagthaí an fháis atá feicthe le ráithí beaga anuas ar fhostaíocht agus ar rannpháirtíocht. I bhfianaise margadh saothair atá teann agus an ionchais go bhfreagróidh forbairtí pá go páirteach don laghdú ar fhíorioncam i mbliana, meastar go dtiocfaidh méadú ar fhás pá thar thréimhse na réamhaisnéise seo.

Ó thaobh gnóthaí de, tá costais saothair ag cur leis na dúshláin a eascraíonn as an suaitheadh ar shlabhraí soláthair agus le costais níos airde fuinnimh agus ionchuir eile.[5] Féadfaidh gnólachtaí ó earnálacha éagsúla, ar dócha go mbeidh tionchar orthu ag an taithí a bhí acu le linn na paindéime, iad féin a oiriúnú trí ghearradh siar ar tháirgeacht agus infheistíocht, trí chorrlaigh bhrabúis a laghdú, agus/nó trí phraghsanna dá dtomhaltóirí a ardú. An cur chuige is inbhuanaithe, áfach, is ea béim leanúnach a leagan ar fhás táirgiúlachta ar fud an gheilleagair. Bheadh sé seo tairbheach go háirithe i réimsí amhail foirgníocht, áit a bhfuil srianta soláthair ag cur le costais ionchuir agus ag cruthú dúshlán do sheachadadh riachtanach tithíochta agus bonneagair thábhachtaigh eile. Sa réamhaisnéis atá san Fhaisnéis Ráithiúil seo, meastar go sroichfidh aschur tithíochta 31,000 in 2024, is é sin go gcuirfear ar fáil

[4] Boyd, Byrne, Keenan and McIndoe-Calder (2022).
[5] Byrne, McLaughlin and O'Brien (2022).

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tuairim is 5,000 aonad níos ísle ná mar a measadh roimhe seo don tréimhse 2022 go dtí 2024. D'fhéadfaí leanúint leis an dul chun cinn maidir le seachadadh riachtanais bonneagair thábhachtaigh ó thaobh tithíochta de agus maidir le haistriú chuig glan-nialasach trí bhíthin méaduithe ar tháirgiúlacht agus rannpháirtíocht sa lucht saothair i dteannta laghduithe ar bhearnaí scileanna agus neamhréir scileanna, go háirithe i dtréimhse de bhoilsciú atá níos airde ná mar a bhíothas ag súil leis.

Ar deireadh thiar, is gá freastal ar chostais na turrainge diúltaí seachtraí seo le comhacmhainní intíre. Tá saincheisteanna tosaíochta éagsúla ag teacht chun cinn faoi láthair. Ar an gcéad dul síos, ní mór a chinntiú go dtacófar leo siúd is soghonta i leith na turrainge ó bhoilsciú. Ar an dara dul síos, ní mór an dóchúlacht maidir le damáiste níos dianseasmhaí do theaghlaigh, do ghnóthaí agus don gheilleagar níos leithne sa ghearrthéarma agus sa mheántéarma a sheachaint trí gan a bheith ag cur le ró-éileamh nó le brúnna boilscitheacha nó le bagairtí d'inbhuanaitheacht an airgeadais phoiblí. Ar an tríú dul síos, ní mór cur le hathléimneacht an gheilleagair, agus iarmhairt turraingí dochracha amach anseo a laghdú trí dhul i ngleic ar bhonn inmharthana leis na dúshláin struchtúracha a bhaineann le bonneagar, leis an athrú aeráide agus le daonra atá ag dul in aois.

Don chuid is mó, beidh beartas airgeadaíochta ag rannchuidiú le brúnna boilscitheacha a mhaolú sa mheántéarma. Tá Comhairle Rialaithe BCE ag leanúint de phróiseas normalú beartais airgeadaíochta, agus í ag súil go mbainfear amach sprioc 2% de bhoilsciú ICPT sa limistéar euro sa mheántéarma le hardú leanúnach de réir a chéile ar rátaí úis sa tréimhse atá romhainn (Bosca B). Leis an mbealach gníomhaithe seo, cuirtear san áireamh na dúshláin a chruthaítear do theaghlaigh, do ghnóthaí agus don gheilleagar níos leithne nuair a bhíonn rátaí boilsithe ró-ard ar bhonn seasmhach, agus cinntítear go réadaítear na buntáistí a bhaineann le cobhsaíocht praghsanna.

I dtéarmaí beartas fioscach, bhí buntáistí cur chuige stuama maidir leis an airgeadas poiblí soiléir sa mhéid go rabhthas ábalta tacaíocht a chur ar fáil le linn na paindéime. Tugadh tacaíochtaí isteach le linn 2022 do theaghlaigh agus do ghnóthaí chun cuidiú leo le costas maireachtála níos airde. Cé go bhféadfaidh go mbeidh deis ann bearta spriocdhírithe breise a dhéanamh, féadfar rannchuidiú le cothromaíocht éifeachtach a bhaint amach ar fud tosaíochtaí éagsúla má chinntítear go bhfuil maoiniú inbhuanaithe ann do na bearta. Is bearta sealadacha iad formhór na bearta atá tugtha isteach go dtí seo. Más rud é, ar chúis ar bith, go dtiocfaidh na bearta seo chun bheith nach mór buan, beidh gá le breithniú a dhéanamh ar mhaoiniú cuí ó acmhainní

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reatha chun go seachnófaí leochaileacht struchtúrach don airgeadas poiblí agus géarú ar bhrúnna boilscitheacha. Ina theannta sin, agus mar a leagtar amach sa dara *Alt Sínithe* san *Fhaisnéis Ráithiúil* seo, tá méadú ag teacht i gcónaí ar na rioscaí a bhaineann le spleáchas foriomlán ar fháltais ó cháin chorparáide ó líon beag corparáidí ilnáisiúnta.[6] San anailís in Conefrey *et al* (2022), breathnaítear ar an mbuntáiste a bhaineann leis an mbonn cánach agus leis an ngá atá le caiteachas rialtais a bhainistiú go cúramach sna blianta amach anseo. Trí roghanna maidir le seasamh foriomlán cánach agus caiteachais, tá sé tábhachtach go dtacófar le hinfheistíocht riachtanach agus le dálaí soláthair, go seachnófar géarú ar bhrúnna boilscitheachta sa mheántéarma agus leochaileacht san airgeadas poiblí, agus go gcoimeádfar ar bun dul chun cinn leordhóthanach maidir leis an aistriú glas agus leis an aistriú déimeagrafach sa tréimhse atá le teacht.

[6] Conefrey, Hickey, Staunton and Walsh (2022).

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The Irish Economy

Overview

High-frequency data suggest a weakening in activity in some parts of the economy as the year has progressed, tempering the strong post-pandemic recovery that had been underway. The ongoing effects of the war in Ukraine, high inflation and heightened uncertainty are reducing consumer and business confidence with signs that this is having a negative effect on the pace of increase in spending by households and firms. Reflecting this, projections for growth in modified domestic demand (MDD) remain firmly positive, but have been revised down to 4.3 per cent in 2022, 4.2 per cent in 2023 and 3.8 per cent in 2024.

Despite clear headwinds, the economy is still expected to grow over the forecast horizon but downside risks have increased. Employment and labour market data have been strong and tax revenue continues to grow at a fast pace. The key export sectors of the Irish economy have performed strongly in the first half of the year. These indicators are consistent with continued overall growth in the economy but the outlook is uncertain. The international economy has deteriorated and more adverse conditions could impinge on export growth. The effects of high inflation and uncertainty may not have fully passed through to domestic activity and could further dampen growth for the remainder of the year.

Consumer price inflation has been revised up to 7.8 per cent in 2022 due to further increases in energy prices along with evidence of more generalised upward price pressures for other goods and services. Energy price assumptions used for this *Bulletin* are higher over the forecast horizon compared with the April 2022 projections. Measures of underlying inflation (excluding energy and other volatile components) have also trended upwards based on the latest monthly data. Current financial market expectations are for energy prices to decline in the second half of the year but to remain above pre-pandemic levels over the course of the forecast horizon. Conditional on these assumptions, inflation is forecast to moderate to 4.2 per cent in 2023 and 2.1 per cent in 2024.

With high inflation reducing the real disposable incomes of households, consumer spending is projected to grow at a slower pace than previously expected over the forecast horizon. The Central Bank's Business Cycle Indicator signalled a slowdown in consumer spending in recent months,

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after a weak first quarter. Having declined during 2021, the household savings rate increased again in Q1 2022. Forecast growth in consumer spending has been revised to 5.9 per cent in 2022 and 4.4 per cent in 2023, downward revisions of 1.5 per cent and 0.3 per cent compared to April.

Recent data provide clear evidence that supply chain disruption, high input prices and uncertainty are having a dampening effect on investment. Survey evidence from firms indicates that high input costs of key materials as well as tight labour supply is expected to constrain the growth in investment out to 2024. In the construction sector, this is likely to manifest itself in a lower number of housing units completed even though planning permissions have been strong. Modified investment is forecast to grow by 2.5 per cent this year, 5.8 per cent and 5.6 per cent in 2023 and 2024.

Exports produced in Ireland from MNE-dominated sectors have increased sharply in 2022. The value of exports of pharmaceutical products and medical devices increased by 44.1 per cent in the first 4 months of 2022 compared with the same period in 2021, while ICT services exports have also been buoyant. As in previous periods, trade in these fast-growing sectors is expected to provide a continued boost to economic activity in Ireland over the forecast period, even in the presence of a more subdued international growth outlook.

Tax revenue has grown strongly in 2022 and is likely to lead to a lower government deficit this year than envisaged in the October 2022 Budget. A General Government surplus is expected to emerge next year, rising to 2.0 per cent of GNI* in 2024. Meanwhile General Government Debt is forecast to be 79.8 per cent of GNI* in 2024. Among other factors, projections for the public finances will be influenced by the extent to which temporary expenditure measures in 2022 are unwound over the forecast horizon and continued growth in government revenue.

The balance of risks to the central growth outlook is weighed to the downside. The baseline forecast is conditional on market expectations of the future price and supply of energy and other commodities. A more intense and protracted Russia-Ukraine war leading to higher energy prices and reduced supply would result in lower growth and higher inflation than outlined in the baseline forecast (See Box A).

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Table 1: Macroeconomic Projections for the Irish Economy

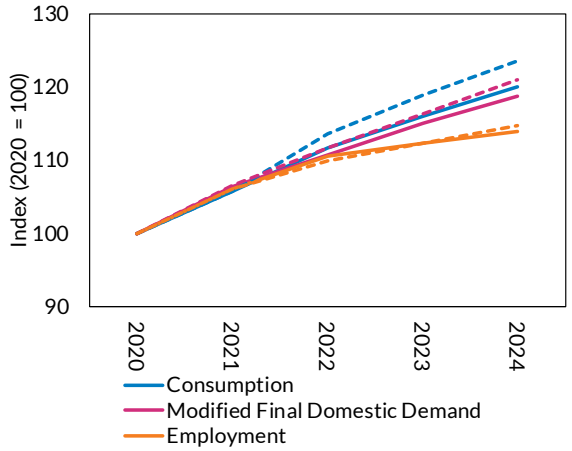
(annual percentage changes unless stated)

		2021	2022f	2023f	2024f
Constant prices	**Modified Domestic Demand**	6.5	4.3	4.2	3.8
	Gross Domestic Product	13.5	9.1	4.8	4.4
	Personal Consumer Expenditure	5.7	5.9	4.4	3.9
	Public Consumption	5.3	1.8	2.2	1.4
	Gross Fixed Capital Formation	-37.6	2.8	5.1	5.1
	Modified Gross Fixed Capital Formation	9.7	2.5	5.8	5.6
	Exports of Goods and Services	16.6	10.6	5.0	4.5
	Imports of Goods and Services	-3.7	9.2	4.8	4.3
Total Employment (% change)		6.1	4.5	1.8	1.7
Unemployment Rate		6.2	5.2	4.8	4.5
Harmonised Index of Consumer Prices (HICP)		2.4	7.8	4.2	2.1
HICP Excluding Energy		1.5	4.7	3.8	2.7
Compensation per Employee		1.2	3.3	6.6	5.5
General Government Balance (% GNI* - level)		-3.6	-0.5	0.8	2.0
General Government Gross Debt (%GNI* - level)		103.4	92.5	84.4	79.8

1 . GDP is reported here, as it is the standard measure used in international comparison and forms Ireland's contribution to the Eurosystem staff projections. Caution should be used in interpreting GDP developments for Ireland, as it is heavily influenced by globalisation and the activities of multinational enterprises.
2. A more detailed set of forecasts are available on our website.

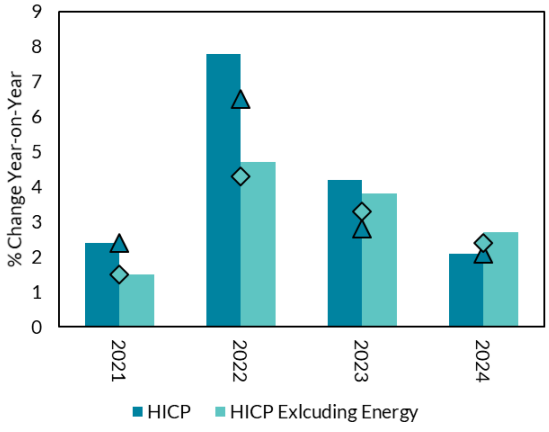
Growth rate in the domestic economy to moderate as inflation increases

Figure 1: Consumption, MDD and Employment



Source: CSO and Central Bank of Ireland
Note: Dashed lines indicate forecast from QB2 (April 2022)

Figure 2: HICP Inflation



Source: CSO and Central Bank of Ireland
Note: Markers indicate forecast from QB2 (April 2022)

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Box A: Short-Run Outlook for the Irish economy in a Downside Scenario

By Thomas Conefrey, Michael O'Grady, Gerard O'Reilly and Graeme Walsh

Introduction

The unusual configuration of risks currently facing the Irish economy and the wider international environment means that the central forecast presented in this *Bulletin* is subject to a high degree of uncertainty. In the event that some of the key risks in the current environment were to materialise, more negative outcomes than that presented in the central forecast are possible. One such downside scenario is set out in this *Box*. Compared to the central forecast, the analysis outlines the implications for the economy over our forecast horizon in a scenario where a more prolonged Russia-Ukraine war leads to higher energy prices and tighter energy supply in Europe, heightened uncertainty and more stressed conditions in financial markets. It is important to note that this scenario represents just one potential alternative outcome for the economy relative to the central forecast and a range of other outcomes – more positive or more negative – are also possible.

Background: Energy Supply in EU and Ireland

One of the main economic effects of the war in Ukraine has been its impact on international energy markets, spillover effects to other non-energy commodities and the transmission of these major price shocks to the EU and Irish economies. Figure 1 shows trends in international gas and oil prices since before the start of the war in March. As shown in the chart, energy prices had been increasing in 2021 in advance of the Russian invasion, reflecting a post-pandemic increase in demand as well as rising geopolitical tensions in the second half of 2021. With the outbreak of war, energy prices increased further and have remained elevated and volatile. Comparing May 2022 prices to May 2019, gas and oil prices were 313 and 77 per cent higher. As outlined elsewhere in this *Bulletin*, other commodity prices – especially certain food products – have also increased reflecting spillovers from higher energy prices and reduced supply of these products from Russia and Ukraine due to war. Combined, these developments represent a large negative terms of trade shock for the Irish economy – the country's import bill has risen reducing the purchasing power of domestic residents.

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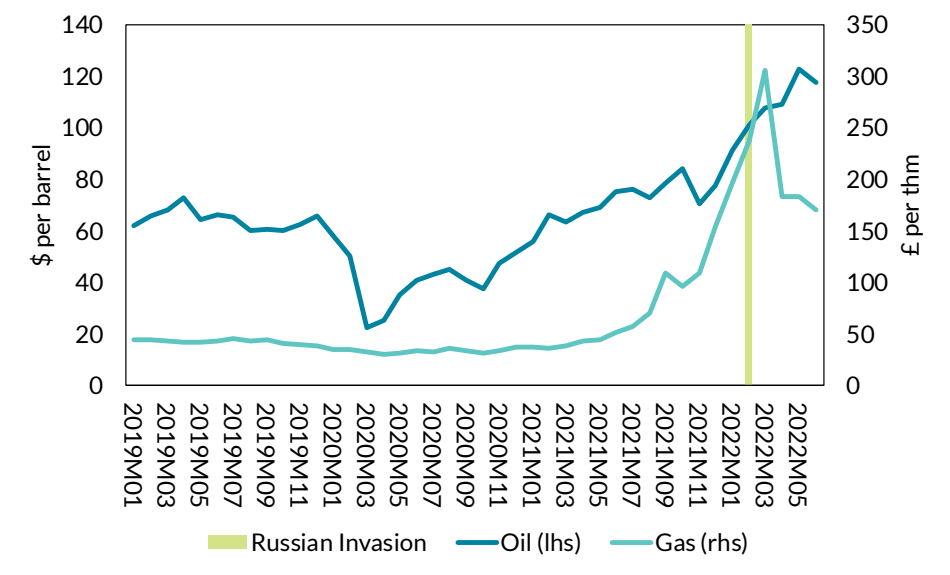
Figure 1: Gas and Oil Prices, January 2019 to June 2022



Source: Refinitiv

The largest primary sources for Ireland's energy supply in 2020 were oil (45 per cent), gas (34 per cent) and renewables (13 per cent).[7] Ireland relies on imports for the majority of its energy supply with around three quarters of gas and 100 per cent of oil currently imported. Most of Ireland's oil is imported from Norway, US and UK. Indigenous gas supply from Corrib has already peaked and is projected to decline throughout the 2020s. The remainder of Ireland's gas is imported via an interconnector system with the UK, which itself imports almost half of its gas, via pipeline from European neighbours and as liquefied natural gas (LNG) from further afield. While Ireland's direct reliance on imported energy from Russia is low – around 6 per cent of imported energy came from Russia in 2021 – since oil, gas and other commodities are traded globally, the Irish economy is exposed to adverse price and supply changes in the broader EU and international environment. Russia is the main supplier of crude oil, natural gas and solid fossil fuels (mostly coal) to the EU accounting for 29 per cent, 43 per cent and 53 per cent of the imports of these energy products respectively.[8] The ongoing war is leading to disruption to this supply and high energy prices in the EU which has increased the cost of imported energy in Ireland.

[7] See SEAI "Energy in Ireland 2021."
[8] See https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html

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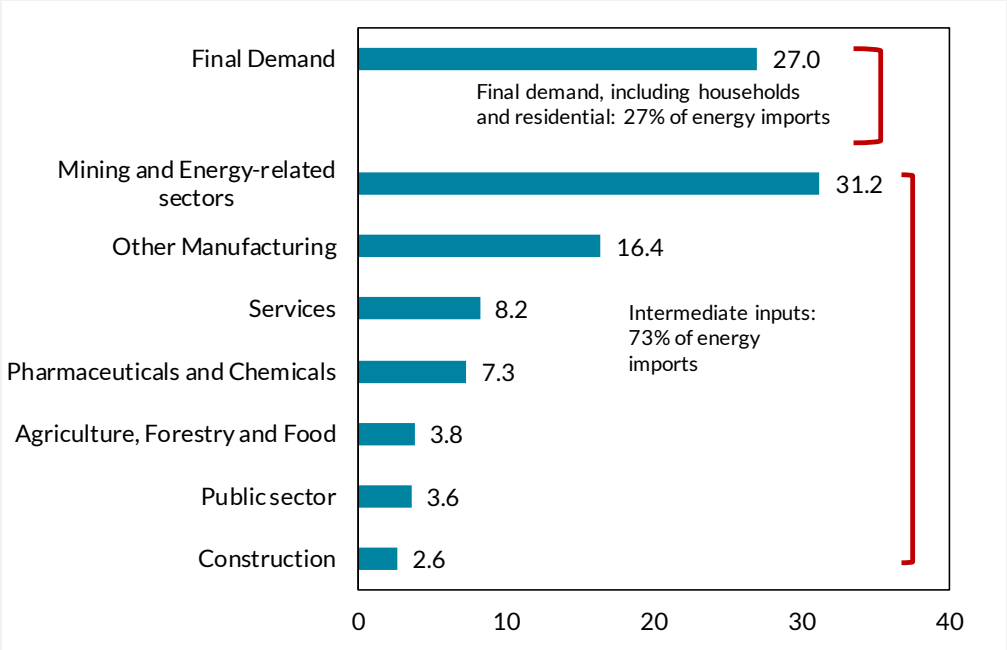
Energy Use in Ireland

Using the Input-Output tables, it is possible to identify how energy imports are used at a detailed sectoral level in the Irish economy.[9] Overall, total energy imports account for around 2 per cent of economy-wide Gross Value Added (GVA) in Ireland. Of these imports, around 73 per cent are used as intermediate inputs, i.e. in the production of other goods and services with the remaining 27 per cent accounted for by final demand (all other goods). The importance of imported energy varies significantly by sector. Figure 2 shows the proportion of overall energy imports by each sector of the economy as well the share of energy imports in final demand. Mining and energy-related sectors such as coke and refined petroleum and electricity account for just under one-third of energy imports. The pharmaceuticals and chemicals sector (7 per cent) and the rest of the manufacturing sector (16 per cent) combined use just under one quarter of energy imports and this sector as a whole accounts for over one-third of overall economy-wide GVA. Final demand, which includes households and residential use, consumes about 27 per cent of overall energy imports.

Figure 2: Energy imports used by economic sector and in final demand, %



Source: OECD Input-Output Tables

Fossil fuels are the predominant energy source used in electricity generation in Ireland. In particular, 57 per cent of Ireland's electricity was generated from gas in 2020. With the majority of this imported, the electricity generation sector –

[9] These data are available from OECD (2021), OECD Inter-Country Input-Output Database.

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and therefore the households and businesses that use electricity – are particularly exposed to price and supply conditions in the international gas market.

Assumptions in the downside scenario

In the downside scenario, the Russia-Ukraine war is assumed to be much more protracted and intense, continuing deep into 2023. The key assumptions in the downside scenario are in line with those in ECB (2022) and envisage:[10]

1. **International trade** is assumed to be disrupted due to sanctions and to voluntary avoidance of trade with Russia along with intensified global value chain problems. The disruption reduces external demand of Irish exports.

2. For **commodities** significant disruptions in supplies of energy and foods from Russia and Ukraine are assumed. In particular, the scenario assumes full loss of Russian energy supply for one year from the third quarter of 2022 with limited immediate substitution into alternative sources. The solidarity principle is assumed to apply within Europe to reduce the magnitude of supply reductions in the countries most dependent on Russian gas imports. Regarding food commodities, the adverse scenario assumes a cut of about 30 per cent of Russian and Ukrainian exports of grain and maize. Rising energy costs and fertilizer prices are assumed to add further disruptions to the global food supply. The shock lasts through 2023 after which shortfalls are compensated by other supplies.

3. For **commodity prices**, prolonged geopolitical tensions, disruptions to supplies to Europe from Russia, competition from other regions for LNG and other gas and energy supplies are assumed to lead to increases in energy prices beyond those included in the baseline, as shown below (Figure 3). Compared to the path in the baseline forecast, oil prices are assumed to be 57 per cent higher in 2024. Gas prices are assumed to peak at 139 per cent higher than the baseline in Q4 2022 and to remain 93 per cent above the baseline in 2024.

4. The downside scenario features a rise in **uncertainty** and assumes more stressed conditions in **financial markets**. Heightened uncertainty is

[10] ECB (2022) A downside scenario related to the economic impact of Russia's military aggression in Ukraine.

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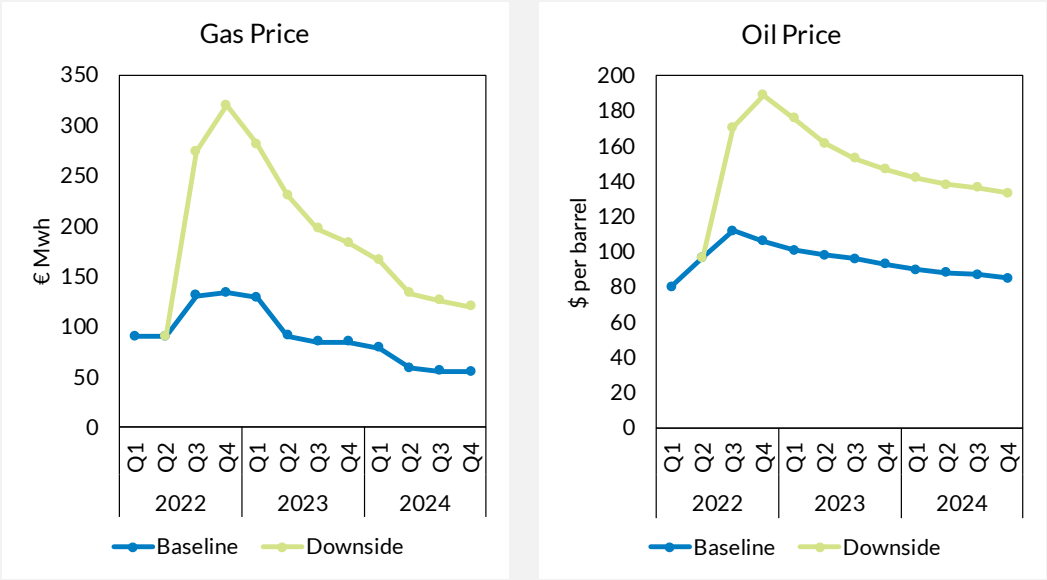
assumed to reduce consumption and investment while the more adverse financial market conditions are reflected in falls in equity prices.

Figure 3: Gas and Oil Price Assumptions in the Baseline and Downside Scenario



Source: Refinitiv

To implement the downside scenario, given its complexity and the unusual nature of some of the elements it includes, a range of models and analytical techniques are used. The shocks to international trade (1), commodity prices (3) and uncertainty and financial markets (4) are estimated using the NiGEM global model with the results fed through the Bank's COSMO model to simulate the implications for the Irish economy.

Estimating the impact of a loss of Russian gas for the EU and Irish economies is a complex exercise and necessitates making a number of assumptions over which there is considerable uncertainty. A key assumption required in implementing the scenario is the reduction in overall imported energy as a result of a full loss of Russian gas supply to Europe. Estimating this effect is subject to uncertainty across a number of key dimensions:

- In the event of a complete ban on Russian energy imports, some reallocation of energy supply across the globe is likely to occur. The extent and pace at which this reallocation would occur is uncertain due to considerations such as infrastructure constraints and contractual obligations. Some degree of risk sharing would likely take place at EU

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level but the practical operation of this and what it would mean for each member state's energy imports is not clear.[11]

- As well as importing energy from other countries to compensate for the loss of Russian supply, some degree of substitution of imported energy with other factors of production is likely to occur. Estimated short-run (within one year) elasticities vary from 0.02 to 0.29 (see Labandeira et al., 2017). This analysis assumes a conservative estimate of 0.035 as a reference value but this may not accurately reflect true substitution probabilities in the current context.
- The impact of a loss of Russian energy supply on overall energy availability at country level would be influenced by other considerations such as individual countries' storage arrangements and bilateral agreements between certain countries. Ireland currently does not have any gas storage facilities. The UK – from where Ireland imports all its gas – has storage capacity and along with the replenishment of gas storage elsewhere in Europe, this could potentially mitigate some of the impact of a loss of Russian supply at least in the short run. The practical implementation of any necessary allocation of limited energy supply to different parts of the economy would also influence its ultimate impact on activity.

Given the uncertainties around these key elements at the current juncture, estimating the effect of a curtailment in energy supply on the Irish economy with precision is difficult. Using technical assumptions on the reduction in energy imports and the elasticity of substitution in line with the analysis in ECB (2022), we apply the framework in Bachmann et al. (2022) to estimate the impact on the economy in this scenario. We complement this by estimating the effect of a reduction in energy inputs in the COSMO model in order to provide a range of potential estimates. The effect on output through this channel is combined with the impact of the other shocks to energy prices, uncertainty and financial markets to derive the final estimates.

[11] The 2007 Lisbon Treaty refers to solidarity in relation to matters of energy supply and energy policy in the EU. In May 2022, the EC published REPowerEU. This plan aims to reduce the EU's dependence on fossil fuel imports from Russia through a number of actions including promoting energy efficiency and enhancing preparedness and diversifying energy supplies.

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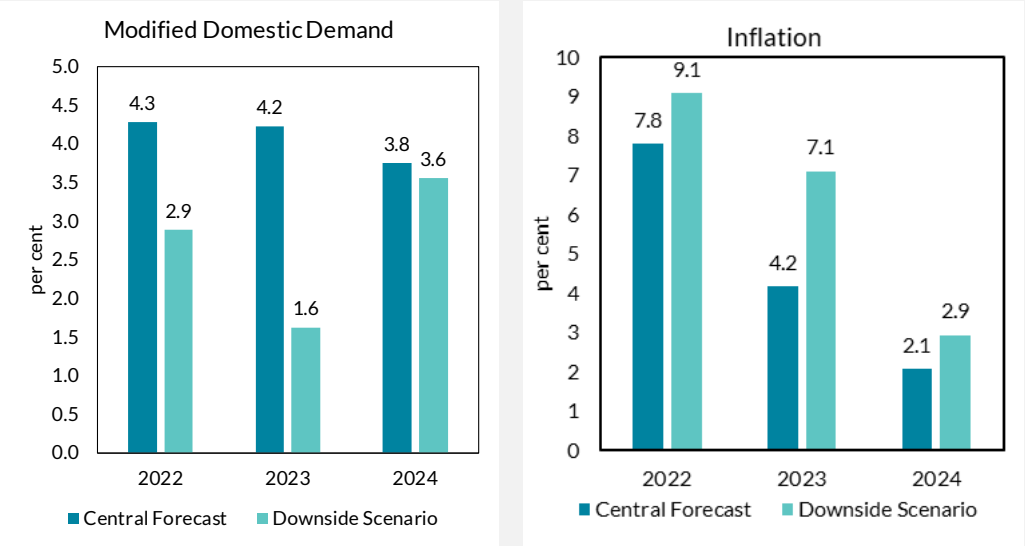
Results

Figure 4 shows the projected path for HICP inflation and modified domestic demand (MDD) in the downside scenario compared to the central forecast. In terms of economic activity, the growth rate of MDD would be around 1.4 percentage points lower in 2022 and 2.5 percentage points lower in 2023. Weaker domestic consumption and investment as a result of higher inflation and elevated uncertainty, lower output due to reduced energy supply as well as slower international growth all give rise to more subdued economic activity in Ireland. Given the forecasts for MDD in the baseline, these reductions would still imply positive growth in MDD in the downside scenario but the pace of growth would be significantly weaker. In 2023, MDD growth is estimated at 1.6 per cent in the downside scenario, less than half the 4.2 per cent growth in the central forecast.

Figure 4: Growth and Inflation Projections in the Central Forecast and Downside Scenario



Source: Own calculations

In terms of inflation, the large increases in commodity prices as well as the constrained supply conditions would result in significantly higher inflation over the forecast horizon. The peak effect would occur in 2023 when inflation would be almost 3 percentage points higher than in the central forecast. Weaker demand and higher unemployment would put downward pressure on inflation but prices would still remain above the central forecast by about one percentage point in 2024.

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Conclusion

The downside scenario in this *Box* outlines one potential path for the economy linked to a more protracted and intense Russia-Ukraine conflict. As noted, there is considerable uncertainty around elements of the scenario, in particular the size of the reductions in overall energy supply as a result of a loss of Russian exports and how curtailed energy supply would affect the economy. The response of energy prices in the downside scenario is also uncertain. The results shown in Figure 4 are sensitive to these assumptions and the impact on the Irish economy could be more severe if the effect of reduced energy supply is larger than assumed in this exercise or if energy prices increase beyond the assumptions used in this analysis.

Furthermore, the current central forecasts for the economy point to a reasonable pace of growth in the economy over the forecast horizon. If the outlook for the economy in the central forecast was to weaken over the coming months then, in an adverse scenario, additional negative shocks similar to those in the downside scenario could push the economy onto an even weaker growth path than envisaged in this analysis.

Lastly, the downside scenario assumes the same fiscal and monetary policy stance as in the baseline. If the downside scenario was to materialise, governments could respond with measures to offset the effect of higher inflation and central banks could also react. Such policy responses would affect the magnitude and persistence of the effects of the downside scenario compared to the results discussed here.

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Box B: Developments in Monetary Policy and the International Economic Outlook

By the Monetary Policy Division

The longer than expected nature of the global inflationary shock, exacerbated by the war, pre-existing supply chain issues and further lockdowns in some countries, are generating an erosion of disposable incomes and increases in production costs. This is starting to hit consumer and business confidence, while supply chain constraints and war-related disruptions continue to affect international trade. As a result, global growth is expected to slow down compared to pre-war forecasts, but the strong growth momentum coming out of the Covid-19 pandemic means that most economies are expected to be able to avoid a recession. [12]

In the first quarter of 2022, euro area seasonally adjusted GDP had increased by 0.6 per cent compared with the previous quarter (up from a 0.3 per cent increase in the fourth quarter of 2021), and by 5.4 per cent compared to the first quarter of 2021. Trade disruption, shortages of materials, and high energy and commodity prices that are stemming from the war are expected to continue to weigh on confidence and dampen growth, especially in the near term. This is reflected in the Eurosystem staff projections, which have revised down significantly the growth outlook for 2022 and 2023 and now foresee annual real GDP growth at 2.8 per cent in 2022, 2.1 per cent in 2023 and 2.1 per cent in 2024. In the US, GDP declined by 0.4 per cent quarter-on-quarter (a yearly increase of 3.5 per cent, down from +5.5 in the previous quarter); this slowdown can be partly attributed to the effects of inflation (+8.3 per cent in April). UK GDP grew by 0.8 per cent in the first quarter.

In April 2022, the euro area seasonally adjusted unemployment rate was 6.8 per cent, stable compared to March and down from 8.2 in April 2021. US unemployment was at 3.6 per cent in April, while it stood at 3.7 per cent between January and March in the UK.

Euro area annual HICP inflation (according to a flash estimate) was 8.1 per cent in May 2022, significantly up from 7.4 in April, a new record high. Monthly inflation stood at 0.8 per cent. Although energy remains by far the most

[12] Compare, for instance, the IMF's World Economic Outlook released in April. Global GDP growth projections for 2022 and 2023 were revised down by 0.8 and 0.2 percentage points, respectively, to 3.6 per cent both years, compared to the January 2022 edition; this was mainly due to the effects of the war in Ukraine.

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significant contributor to euro area inflation (standing at 39.2 per cent annually in May 2022), other components of inflation have seen significant increases and are all well above the ECB's 2 per cent medium-term inflation target, with strong and persistent month-on-month price increases for the last several months. HICP excluding energy rose by 4.6 per cent annually, up from 4.1 in April, while prices of food, alcohol and tobacco rose by 7.5 per cent in the year. Inflation in the US was 8.3 per cent in April (8.5 in March), while in the UK it rose to 9.0 per cent in April, up from 7.0 in March.

This widespread surge in inflation is leading all major central banks to normalise their monetary policy stance, which had reached unprecedented degrees of accommodation in response to the large negative shock of the Covid-19 pandemic.

In the US and the UK, monetary policy normalisation is well underway. At its June meeting, the Federal Open Market Committee (FOMC) of the US Federal Reserve decided to increase the target range for the Federal Funds Rate by 75 basis points to a range of 1.50 to 1.75 per cent, and signalled that ongoing increases in the range will be appropriate. This follows a 50 basis point rise at the previous meeting and is the largest increase in the policy rate in almost 30 years. The FOMC had also previously decided to start a process of reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, beginning from June 2022. This will be done by adjusting reinvestments of maturing securities. For three months, the Federal Reserve will reinvest principal payments from Treasury securities exceeding a cap of $30bn and from agency debt and mortgage-backed securities exceeding $17.5bn (i.e., up to $30bn and $17.5bn respectively will not be reinvested); after the three months, these caps will be doubled.

In June, the Bank of England's Monetary Policy Committee (MPC) voted by a majority of 6-3 to increase the Bank Rate by a further 25 basis points to 1.25 per cent, after similar 25 basis points increases in the previous four meetings. Based on its assessment of the economic situation, the MPC judged that some further increases in the policy rate may be appropriate in the coming months. In light of its February 2022 decision to reduce the stock of UK government bond purchases, securities under the Asset Purchase Facility maturing in July will not be reinvested.

The current context of high inflationary pressures and a strong labour market underpin the normalisation of the ECB monetary policy, which was already highly accommodative pre-pandemic and was eased further in response to the

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pandemic. However, the ECB Governing Council (GC) reiterated that the high uncertainty characterising the current macroeconomic and geopolitical environment warrants a data-dependent, flexible and gradual approach to monetary policy normalisation. In particular, the Russian invasion of Ukraine has prolonged the energy-price shocks responsible for the largest component of euro area inflation, while post-pandemic supply-chain bottlenecks persist. These factors negatively affect consumer confidence, and are leading to a large deterioration in the euro area terms of trade.

At its June 2022 meeting, the GC concluded that the conditions which, according to its forward guidance, should be satisfied before it starts raising the key ECB interest rates, have been met. As a result, the GC decided to end net purchases under its asset purchase programme (APP) as of 1st July 2022 and announced that, in line with its policy sequencing, it intends to raise the key ECB interest rates by 25 basis points at its July monetary policy meeting.

The GC also communicated its expectation to raise rates again in September, possibly by a larger increment if the medium-term inflation outlook persists or deteriorates. Beyond September, the GC anticipated that a gradual but sustained path of further increases in interest rates will be appropriate.

After an ad-hoc meeting that took place on 15th June, the GC stated that the ECB would act against resurgent risks of fragmentation of its monetary policy as a result of market developments following the announcement of the end of net asset purchases. To ensure monetary policy transmits evenly across all euro area jurisdictions, the GC decided that it will apply flexibility in PEPP reinvestments, while also tasking Eurosystem committees to accelerate the completion of a new anti-fragmentation instrument.

The difference in approach and timing of policy actions between the ECB on one side, and some other central banks like the Federal Reserve and the Bank of England on the other, lies in the different nature of the inflationary shocks, as well as labour market dynamics and other macroeconomic developments across these different jurisdictions. Unlike in the US, the increase in euro area inflation in the past year was not mainly a result of a strong increase in demand internally, but rather a consequence of global factors. Partly as a consequence of unprecedented fiscal stimulus, consumer demand in the US is now well above pre-pandemic levels, creating demand-driven, domestic inflationary pressures. That is still not the case in the euro area, where apart from government expenditure, consumption and investment in the first quarter of 2022 remained below levels seen in the last quarter of 2019. Similarly, while the labour market

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has rebounded strongly, hours worked outside of the public sector remain below pre-pandemic levels in the euro area. In addition, the negative effects of the war in Ukraine on both inflation and growth are felt more strongly in euro area economies, due to the high dependence of Member States on Russian energy imports and the larger economic links with Russia and Ukraine as a result of their proximity.

Figure 1: Components of inflation

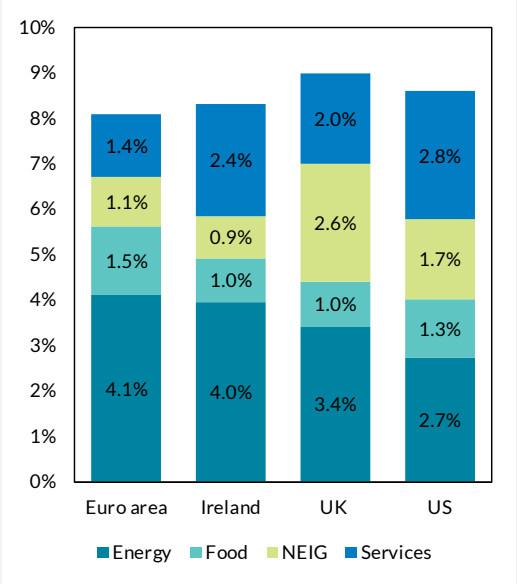
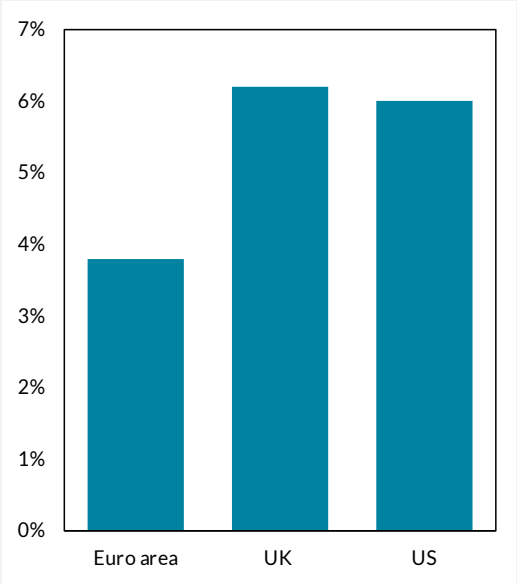


Figure 2: Core inflation



Source: Eurostat, CSO, ONS, BLS, and Central Bank calculations

Note: Inflation numbers refer to the flash estimate for May for euro area inflation, and April elsewhere. Core inflation excludes energy, food, alcohol and tobacco. NEIG stands for non-energy industrial goods.

The largest part of the rise in inflation in the euro area is due to imported energy, as well as food (where inflation is also in large part linked to the effects of the war), as shown in Figure 1. On the other hand, the US and UK have significantly less exposure to Russian energy, and their inflation was more demand-led, as can be seen from the larger components of inflation arising from services and non-energy industrial goods, particularly in the US. Nevertheless, core inflation in the euro area has risen to well above the ECB target of 2 per cent (See Figure 2), as firms hit by rising costs have been passing these costs through to consumers.

While euro area inflation is still mainly due to surging energy and food prices, inflation pressures have recently broadened and intensified, with prices for many goods and services increasing strongly. This is reflected by inflation projections being revised up again and significantly, with inflation now

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expected to remain undesirably elevated for some time.[13] At the same time, the higher price of energy (which in the euro area is mostly imported) effectively reduces households' disposable incomes and leads to a deterioration in the trade balance. As a result, consumption may weaken, and there is a risk of this leading to a slowdown in economic growth, calling for a careful approach to policy, in order to avoid the risk of amplifying these shocks and to assess the response of the economy to any policy change. Therefore, the GC has judged it to be appropriate to continue to normalise its policy and end its current expansionary stimulus, while maintaining a careful approach with flexibility and optionality to strike a balance with the headwinds facing the economy.

Recent Developments

While the domestic economy rebounded strongly from the low-point of the pandemic, the pace of growth was negatively affected in Q1 2022 as effects from recent inflation developments began to be reflected in the data. Modified Domestic Demand decreased by 1 per cent on quarterly basis in Q1 2022 owing to a slowdown in consumption, government spending and modified investment. The decrease in government spending is due to the phasing out of income support schemes with all remaining pandemic restrictions lifted in March 2022. The quarterly decline in consumption coincided with higher inflation and the uncertainty arising from the Russian war in Ukraine. On an annual basis, Modified Domestic Demand rose by 11.1 per cent in Q1 2022 (Figure 3), although annual comparisons should be caveated as Q1 2021 was a time of heightened pandemic-related restrictions in which consumer spending was considerably limited.

[13] The Eurosystem staff projections released in June foresee annual inflation at 6.8 per cent in 2022, before it is projected to decline to 3.5 per cent in 2023 and 2.1 per cent in 2024 – significantly higher than in the March projections.

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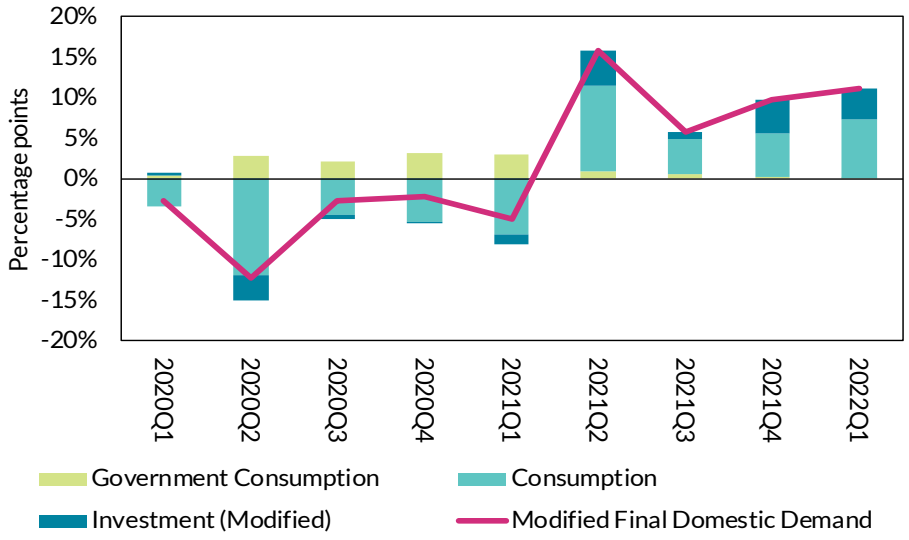
Consumption drives annual increase in domestic demand in Q1 relative to period of elevated pandemic health restrictions

Figure 3: Contributions to Growth in Modified Final Domestic Demand



Source: CSO and Central Bank of Ireland
Note: Percentage change compared to same period of the previous year.

Total economic activity as measured by GDP increased by 11 per cent annually in Q1 2022. Exports, driven by ICT services and pharmaceutical sectors, continued to grow strongly despite slower global growth, increased delivery times and fears of declining trade integration. Levels of contract manufacturing experienced their largest decline in the series, with heightened Covid restrictions in key manufacturing locations in China potentially impacting activity levels. Quarter-on-quarter, GDP increased by 8.8 per cent on seasonally-adjusted terms primarily due to an increase in the balance of trade following a decline in services imports in Q1 2022.

Growth in Q1 2022 was driven by the multinational-dominated sectors, while domestically-orientated sectors recover from relatively lower base levels and aided by the lesser impact of the Omicron variant relative to previous Covid strains. Gross Value Added increased by 10.8 per cent annually with export-oriented sectors continuing to drive growth (Figure 4) Industry excluding construction grew by 12.2 per cent in the quarter to Q1 2022 with 19.8 per cent growth in the ICT sector. Foreign-owned MNE-dominated sectors continued to exhibit the higher growth rates (Figure 5) and accounted for 56 per cent of total GVA in the economy in Q1 2022. There were notable rises in the construction (33.7 per

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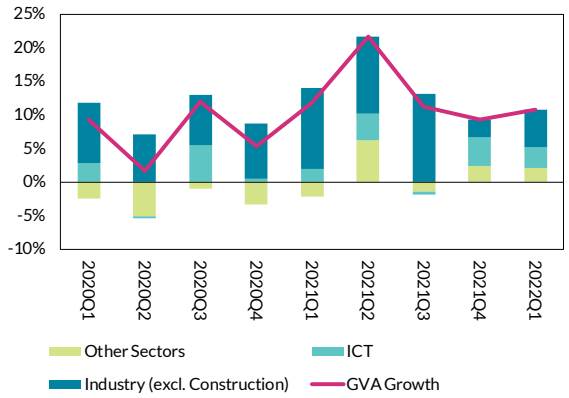
cent) and hospitality sectors (24.5 per cent) as the level of pandemic restrictions in place in Q1 2022 did not impede economic activity to the same extent as the first quarter of 2021.

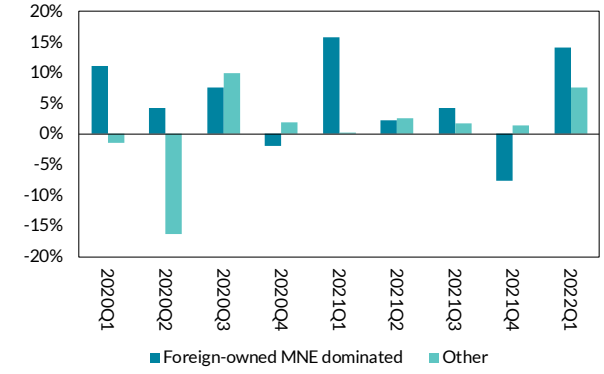
As domestically-focused sectors continue to recover, MNE-dominated sectors continue to exhibit strong growth rates buoyed by export demand

Figure 4: Contributions to GVA Growth



Source: CSO

Figure 5: GVA Growth in MNEs and Domestic Sectors



Source: CSO

The KBC consumer sentiment index declined for four consecutive months from January bringing the index from 81.9 to 55.2 in May, with a slight uptick to 57.7 observed in June. This was only the fourth time such a decline has materialised in the three decades of the series (Figure 6), with it previously happening against the backdrop of Brexit, the global financial crisis and the dotcom bubble. The latest figures are the lowest since October 2020 (52.6) when the strictest level of Covid restrictions were re-introduced. The volume of total retail sales increased by 0.3 per cent on an annual basis in May 2022 while a 3.8 per cent increase was recorded in value terms. Retail sales volumes (excluding motor trades) remains 3.6 per cent below the previous peak in June 2021.

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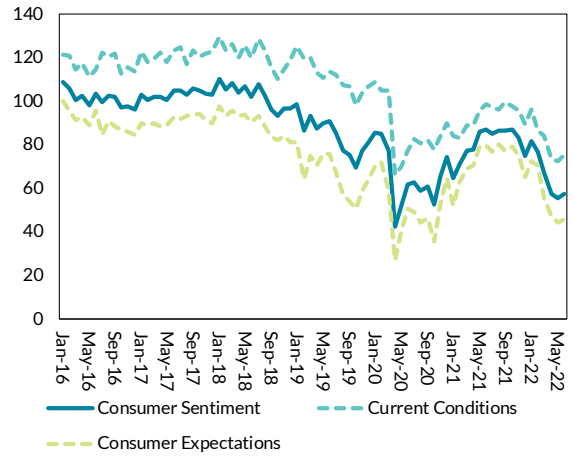
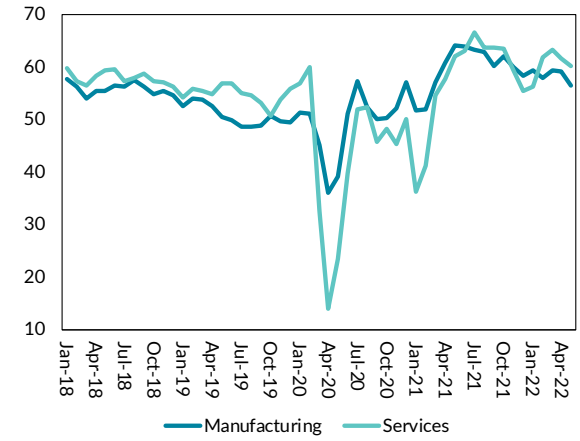
Consumer and business sentiment has continued to decline in 2022 amid ongoing uncertainty, inflation concerns and an enduring war in Ukraine

Figure 6: Consumer Sentiment Index



Source: KBC Bank Ireland

Figure 7: Purchasing Managers Indices



Source: Allied Irish Bank

Despite moderating in recent months, PMI indices exhibit signs of expansion in the face of higher prices weighing on demand levels. The manufacturing PMI declined from 59.1 in April to 56.4 in May, but remains above the pre-pandemic average (Figure 7). Services activity continued to grow at a strong pace with the PMI measuring 60.2, down slightly from 61.7 in the previous month. Slower growth in manufacturing output and new orders were the primary drivers of the easing in expansion levels alongside a weaker lengthening of supplier delivery times. Firms have raised output prices for a third consecutive month in light of elevated input costs (Figure 8). Services activity is benefitting from a level of pent-up demand following the removal of pandemic restrictions and strong employment growth, although increased energy and wage cost pressures are likely to mean continued pass-through of input costs to consumer prices.

Inflation has continued to rise in recent months led by higher energy and fuel costs as a result of the Russian war in Ukraine, with prices up by 9.6 per cent (HICP) in the year to June[14]. Consumer energy prices increased by 41.9 per cent year-on-year in June.

[14] Eurostat flash HICP estimate for June.

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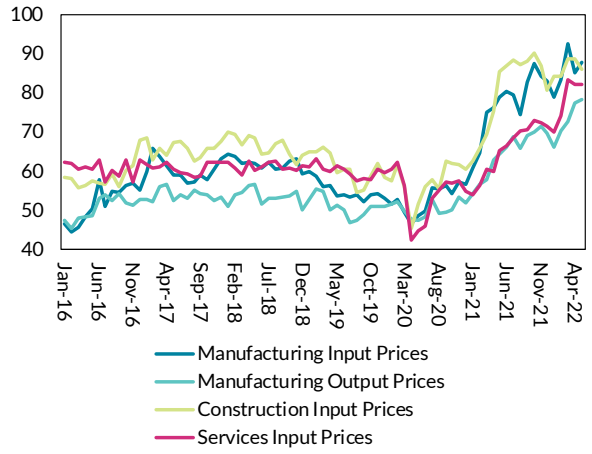
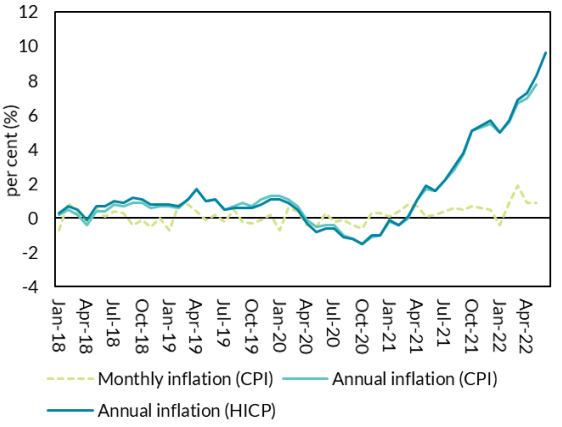
Consumer price inflation has accelerated in 2022

Figure 8: PMI Input and Output Prices



Source: Allied Irish Banks

Figure 9: Consumer Price Inflation



Source: CSO
Note Last observation June 2022 (HICP), May 2022(CPI)

The Employment Wage Subsidy Scheme (EWSS) ended for the majority of firms at end-April and was completely phased out for the remaining firms in the contact-intensive sectors at end-May. Initial estimates from Revenue suggest 97,700 people were in receipt of the €100 flat-rate subsidy during the final month of the scheme, 89 per cent of which were working in the Accommodation and Food Services sector. As firms severely-affected by the pandemic may have less relative capacity to address rising input costs, it is unclear how firms may react in the face of increasing wage costs. Following the closure of the Pandemic Unemployment Payment (PUP) in March with 45,000 recipients, there does not yet appear to be a corresponding increase in unemployment, with the latest seasonally-adjusted monthly rate declining further to 4.7 per cent in May. The Live Register increased in the week following the PUP closure, but levels are currently 16,000 below equivalent 2019 figures for June.

Tax receipts continued to grow strongly in the second quarter of the year. Tax revenue in the first five months of the year was 26.9 per cent higher than in the same period in 2021. This increase was relatively broadly based with the three largest tax head – income tax, VAT and corporation tax – all performing very strongly. With gross voted expenditure coming in on target, the Exchequer ran a surplus

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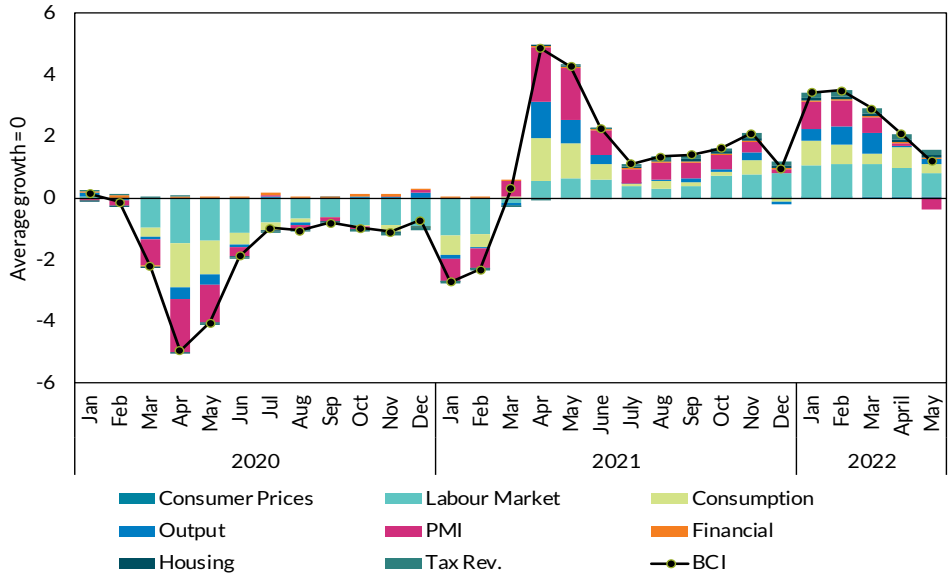
of €1.3bn in the first five months of the year.[15] This compares to a deficit of €6bn in the same period of 2021.

The Central Bank's Business Cycle Indicator (BCI) remained positive in May and continues to show year-on-year growth in economic activity, supported by a tight labour market. The BCI showed particularly strong growth in the first three months of the year, although signs of a loss of momentum are beginning to emerge (Figure 10). In May, the BCI remained positive indicating above average annual growth in economic activity. However, compared to the previous month, the BCI fell from 2.1 to 1.2. On the one hand, hard data representing labour market conditions, personal consumption, indigenous sector output, and the public finances, continue to make positive contributions to the BCI. On the other hand, soft data such as consumer sentiment and PMIs weighed down the May BCI reading.

BCI remains positive, but slowing down in Q2

Figure 10: Central Bank of Ireland Business Cycle Indicator



Source: Author's calculations
Note: Updated 28th June 2022. Industrial production (output) data missing for May 2022.

[15] When transactions that have no impact on the general government balance are excluded, the Exchequer ran a marginal surplus of €0.1bn in the first five months of the year.

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Box C: Spending, Credit, and Deposits: An Update on Irish Household and Business Activity

By Statistics Division

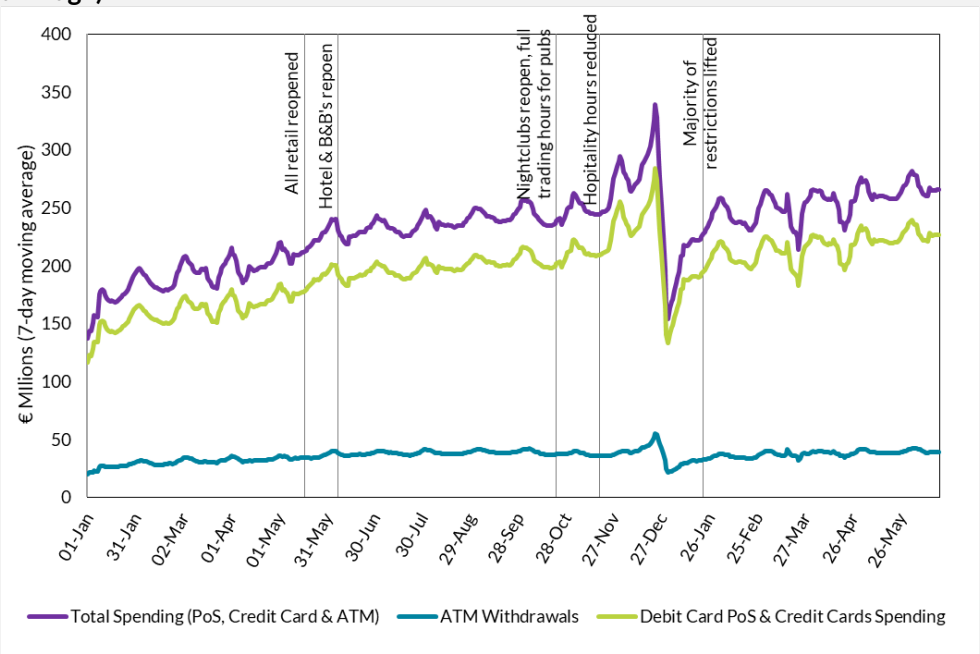
The value of household spending and deposit saving has remained relatively steady in recent months, as the economic and geopolitical uncertainty resulting from the Russian invasion of Ukraine and the heightened inflationary environment unfolds. Household spending by value has recovered substantially from 2021 as public health restriction were removed, but also as a result of higher prices.

Household spending

Total card spending (including ATM withdrawals) gradually rose through the first half of 2022. The economic uncertainty resulting from the Russian invasion of Ukraine and the higher inflation environment is not reflected in a lower aggregate value of card spending by households or any material rebalancing of card spending by value. Higher price levels may mask some changes in spending behaviours however, especially in areas with particularly high inflation such as energy and fuels (Figure 1).

Changes in daily card spending and cash withdrawals

Figure 1: Change in daily card spending and cash withdrawals (7-day moving average)



Source: Central Bank of Ireland
Note: 1 January 2021 – 19 June 2022.

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The more granular monthly card data for May shows that spending increased by 26 per cent in the first 5 months of the year relative to the same period 2021, and by 25 per cent relative to the pre-pandemic 2019. The strong growth in the value of spending over the year to end-May, is due to a loosening of public health restrictions, but also reflects higher prices with prices on average, as measured by the HICP, 8.3 per cent higher than May 2021. Growth was broad-based across sectors, but was particularly strong in the services and social sectors, which saw the value of card spending rise by 63 per cent and 83 per cent since May 2021, respectively. Interpreting short-term trends on a monthly basis can be challenging. Total card spending declined by 3 per cent in April 2022 in comparison to March, but then rose by 11 per cent during May. The increase in May was broadly-based across retail, services and social spending categories.

The less detailed high frequency data indicate that the momentum in card spending is continuing into early-June. Spending patterns have shifted slightly as the year has progressed in line with seasonal patterns. There has been reduced spending in the groceries and other retail sectors, however, these were offset by strong growth in the accommodation and restaurants sectors. Spending was considerably higher in year-on-year terms, and in comparison with similar pre-pandemic periods (Figure 2). There are a number of underlying factors potentially increasing card spending in the data over time and will warrant careful interpretation in the coming months. Firstly, a higher use of card payments rather than cash since the onset of the pandemic. The average number of point-of-sale debit card transactions each month increasing from 18 in January 2019 to 27 in April 2022. While ATM withdrawals are also captured in the data, the sectoral spend of cash is not observed in card data. Secondly, the higher price levels, in particularly in 2022, may present as higher spending but do not necessarily reflect higher number of transactions.

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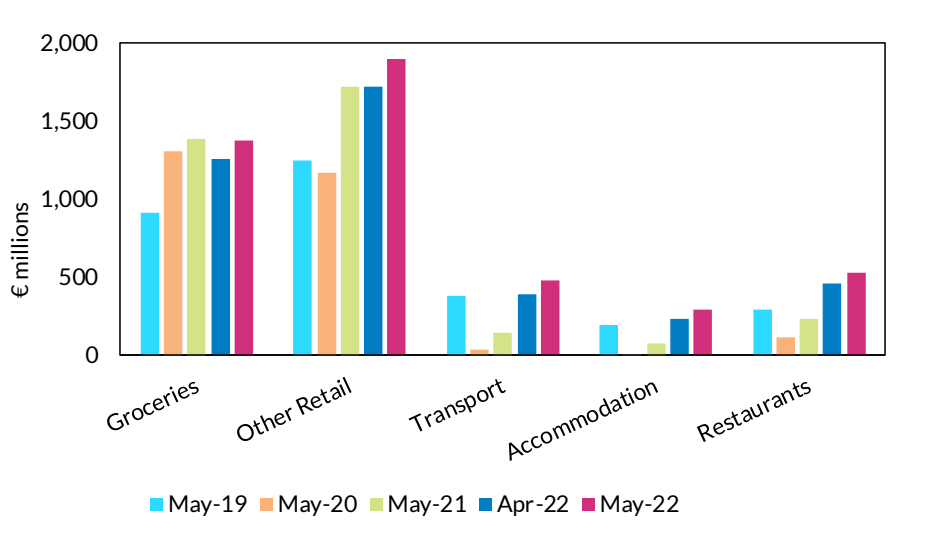
Spending in hospitality sectors continues to grow in recent months

Figure 2: Monthly sectoral totals (monthly and daily data)



Source: Central Bank of Ireland

Household deposits and lending

Aggregate household deposits have risen sharply since the beginning of the pandemic as the introduction of public health measures limited the opportunity for consumption in general, while increased precautionary savings may also have contributed to the headline rise, especially in the early months of the pandemic. The latest Credit and Banking Statistics show a continued accumulation of household deposits in the year-to-date albeit at levels more in line with pre-pandemic period. The total household deposit inflow in the first 5 months of 2022 was €3 billion, similar to the €2.9 billion inflow in the same period 2019. In contrast to 2019, there is a higher level of volatility in the monthly flows during 2022, in particular in April and May which saw a large inflow followed by a slight decline in deposits in May 2022 (Figure 3). This volatility likely reflects the many different factors impacting consumer confidence such as inflationary and geopolitical environments and the continued normalisation of household activity following the public health measures. Such strong aggregate numbers are likely to see differing experiences in saving and spending patterns across the distribution of households.

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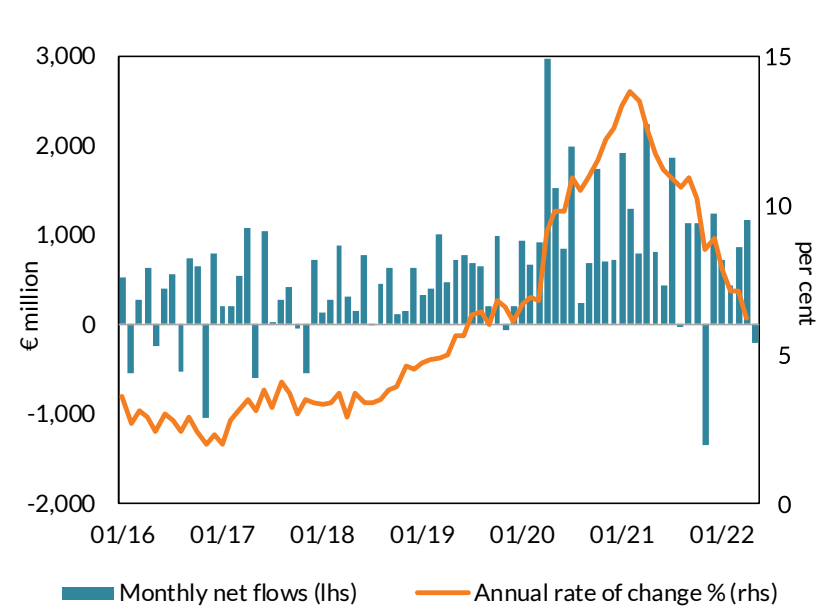
Annual rate of deposit growth has moderated

Figure 3: Deposits from Households; net flows, and annual rate of change



Source: Central Bank of Ireland

The latest Quarterly Financial Accounts data for end-2021 shows household net worth at a new series high of €995 billion (Figure 4), an increase of €139 billion, or 16 per cent over the year. The marked rise in household deposits and savings has translated into higher household financial assets, which along with rising housing assets, increasing 17 per cent in 2021, were the primary drivers of higher household net worth. Household debt remained relatively stable throughout 2021 ending the trend of continued debt reduction over the past decade.

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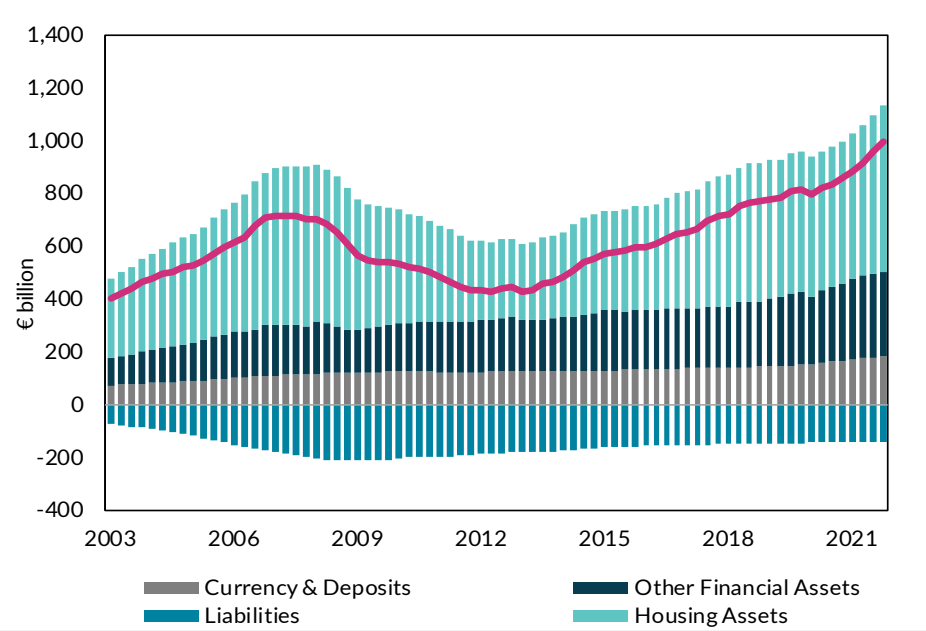
Household net worth has risen to a new high

Figure 4: Household Net Worth



Source: Central Bank of Ireland

The value of new mortgage agreements (excluding renegotiations) in recent months is in-line with seasonal pre-pandemic levels (Figure 5). The value of new mortgage agreements was up 3.5 per cent in the first 4-months of 2021 compared to the same period 2020. The weighted average interest rates on new agreements was 2.77 per cent in April, broadly unchanged on the same period in 2021. Consumer lending had been slow to recover from pandemic lows, but this has now gained momentum with new agreements 15 per cent higher in the year to end-April. The pipeline for consumer credit also remains strong based on the evidence from new enquiries to the Central Credit Register. Nonetheless, while this activity is higher than 2021, it remained somewhat lower than the corresponding periods prior to the pandemic, potentially impacted by greater availability of household savings and supply constraints that continues to limit new car sales.

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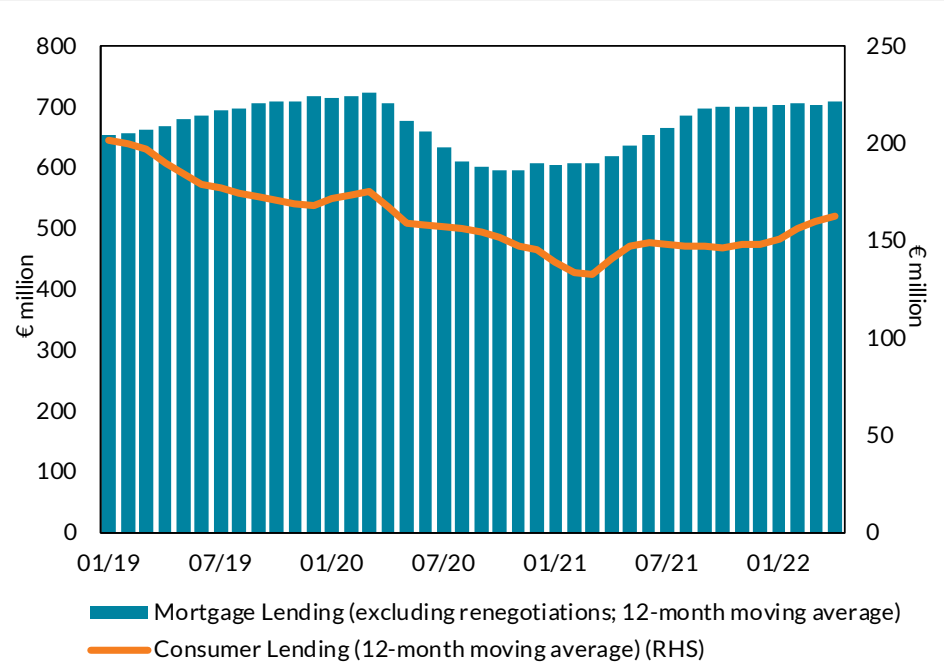
Mortgage lending is recovering to pre-pandemic norms but consumer lending lags

Figure 5: New Lending to Households by Purpose (12-month moving average)



Source: Central Bank of Ireland

According to the latest data from the BPFI, new mortgage approvals for home buyers remains strong and have continued to track 2021 levels which were already above the pre-pandemic levels (Figure 6). The strongest growth in mortgage approvals is coming in the first time buyer segment. Investment mortgages continue to play a small role in the mortgage market. Mortgage top-ups, often used to fund consumption or home improvements, remains weak.

The latest Bank Lending Survey published in April, noted that credit standards on loans to households were unchanged in the first quarter of 2022. In the case of consumer credit and other lending, it noted that increased consumer confidence had a positive impact on loan demand while this demand was somewhat offset by the availability of savings to reduce demand for consumer credit.

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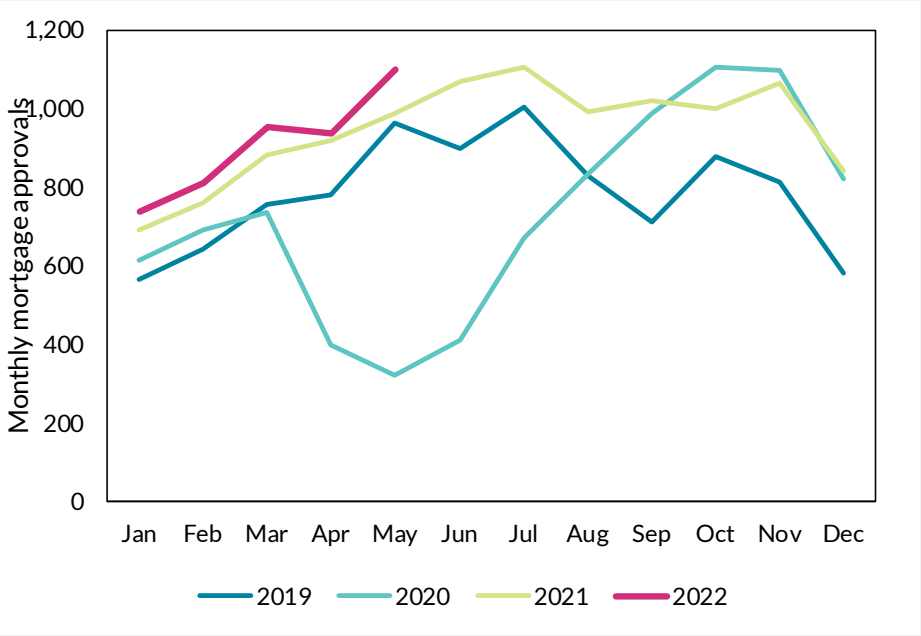
Mortgage approvals very strong relative to pre-pandemic period

Figure 6: Mortgage approvals change on same period immediately prior to the pandemic



Source: BPFI

Business credit and deposits

The growth rate in outstanding loans to businesses has increased sharply in recent months to stand at an annual rate of 5 per cent in May 2022. This recovery comes after a sharp contraction during the earlier periods of the pandemic as businesses reduced investment activity and strengthened balance sheets. In the 12-months after April 2019, Irish non-financial firms loans from credit institutions contracted by over 7 per cent with repayments exceeding new drawdowns by €2.8 billion. By comparison, in year to end-May 2022 Irish firms, have borrowed €1.5 billion more than repayments potentially reflecting higher confidence in the sector (Figure 7).

The most recent growth in headline NFC lending masks different trends across types of business. The growth in new loan agreements is entirely driven by larger loans sizes of over €1 million. In contrast, the value of new loan agreements under €250,000 (most likely to smaller firms) declined in the first 4-months of 2022 by almost a quarter.

The relatively muted credit picture for some smaller firms and certain sectors is also visible in the quarterly lending to small and medium sized enterprises (SMEs) statistics. The latest data for the first quarter of 2022 show new loans to SMEs were down 6 per cent compared to the same period in 2021. New lending

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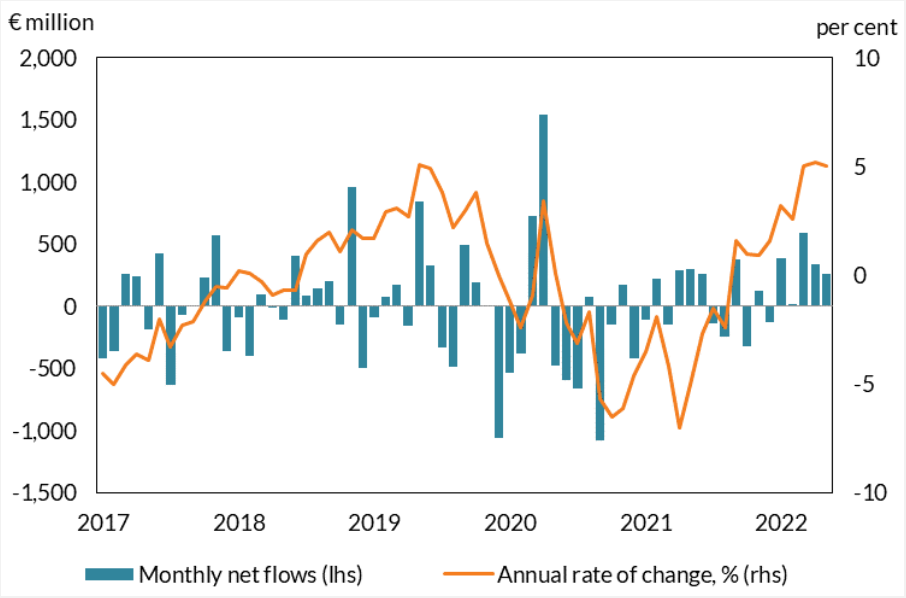
trends differ substantially across SME economic sectors. Lending to hotels was particularly strong in Q1 with the highest new lending volumes since the onset of the COVID-19 pandemic. In contrast lending to SMEs in the agriculture and manufacturing sectors was 47 per cent and 27 per cent lower in Q1 2022 relative to the previous year. Looking over a longer horizon, lending to SMEs over the 12-months to end-March is still below the same period 2019. The decline is particularly acute in contact-intensive services sectors such as retail.

Annual rate of change for NFC loan drawdowns exceed repayments in January

Figure 7: Net flows of loans to Non-Financial Corporations



Source: Central Bank of Ireland

Similar to households, the accumulation of deposits from businesses had slowed through most of 2021 and is now growing at similar rates to 2019. This growth in business deposits remain strong at over 9.8 per cent per year reflecting the financial position of Irish businesses at an aggregate level. Cumulative net inflows of NFC deposits since the start of the pandemic is €21 billion, an increase of 40 per cent.

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Domestic Demand

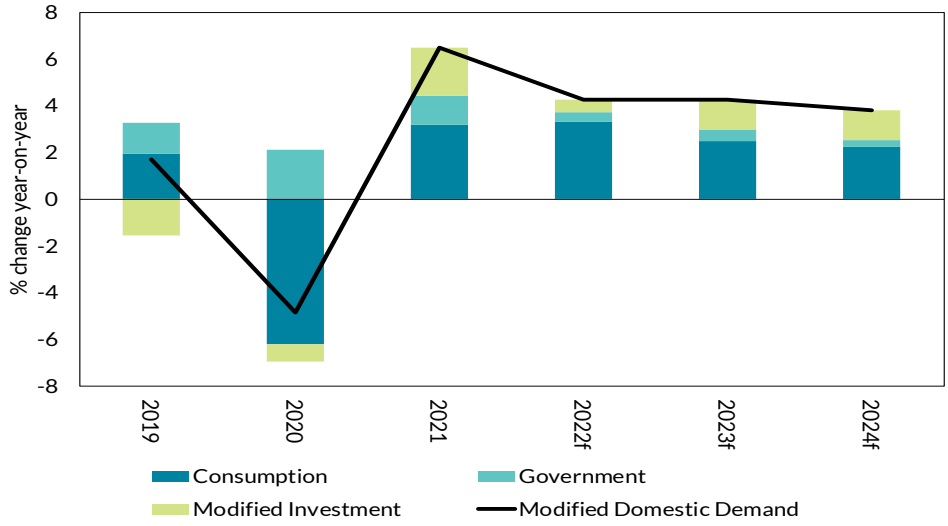
Overview

Higher inflation is expected to lead to a more moderate pace of growth in domestic demand out to 2024 than forecast in the previous *Bulletin*. While the outlook remains considerably uncertain with the possibility of slower growth in consumption and domestic investment, the labour market has performed strongly with measures of tightness pointing to further wage growth. At the same time, consumer sentiment has declined for most months since January 2022. Supply chain issues, input costs and higher uncertainty are also likely to affect the path for domestic investment in particular. An easing in the pace of expenditure growth during the rebound from the pandemic was always likely through 2022. However the uncertainty and higher inflationary pressures emerging as implications of the Russian invasion of Ukraine have further dampened the expected pace of growth to a significant degree.

Modified domestic demand is forecast to grow by 4.3 per cent in 2022, 4.2 per cent in 2023 and 3.8 per cent in 2024, a slightly slower pace of growth than anticipated in the previous *Bulletin* (Figure 11).

Despite a slowdown in the growth profile, consumption is expected to remain the main driver of domestic demand growth

Figure 11: Contributions to MDD Growth



Source: CSO and Central Bank of Ireland calculations
Note: Modified Domestic Demand (MDD) excludes investment in intellectual property and aircraft related to tl leasing industry.

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Consumption

The outlook for private consumption is influenced by the impact of rising energy costs and other inflationary pressures that are likely to see some spending plans curtailed by households while the persistence of supply bottlenecks also constrains growth. Wage growth is forecast to increase in nominal terms, and broader tax and expenditure changes announced since Budget 2022 have been supportive. However, total household disposable income growth is unlikely to match the rising cost of energy and associated higher HICP inflation. This would represent a decline in real incomes, thereby dampening consumption growth in 2022 relative to previous forecasts. As inflation moderates over the forecast horizon, real incomes are projected to increase and support further consumption growth. The increased level of household savings may act as a buffer to inflation for some (Box D), although CSO analysis has estimated that inflation developments in the year to March 2022 are likely to have affected households at the lower end of the income distribution and rural-based households by a greater extent. These households display a relatively higher share of expenditure on energy and food costs.[16]

The household savings rate increased to 19 per cent in Q1 2022, which may suggest an element of precautionary behaviour (Figure 12). As consumer expenditure moderates the savings rate may remain above pre-pandemic levels over the medium-term horizon. Survey indicators point to a deterioration in consumers' expectations of their financial situation over the year ahead, and a hesitancy to commit to major purchases although this may vary across the income distribution (Figure 13). A re-orientation of overall consumption patterns towards less discretionary spending at higher prices may result in the trajectory of the savings rate returning to that seen through most of 2021. The supply-side challenges being faced in terms of labour and some goods across various sectors also constrain the extent to which consumption can grow.

[16] CSO (2022) Estimated Inflation by Household Characteristics, March 2022.

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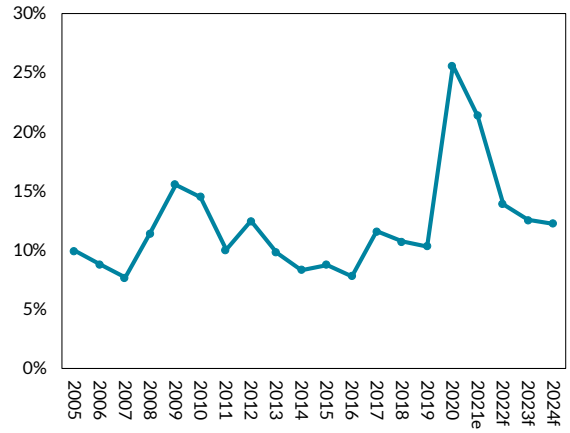
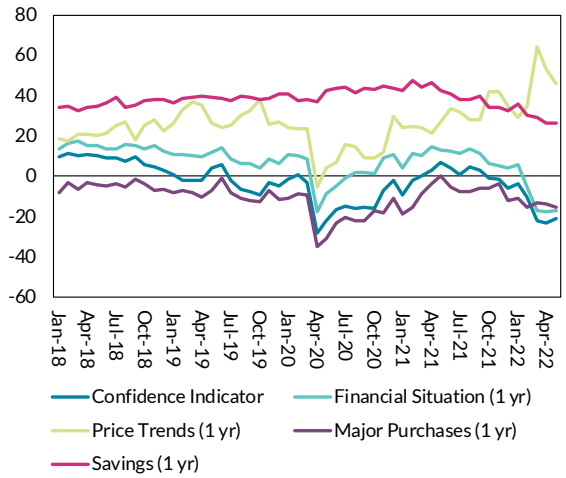
Households are continuing to save more than they did pre-pandemic as forward looking indicators point to higher prices and less optimism regarding consumers' financial situations

Figure 12: Household Savings Rate



Source: CSO

Figure 13: Consumer confidence and forward looking confidence indicators (Ireland)



Source: European Commission Survey

Card spending levels suggest consumption growth into the second quarter, however price inflation limits the extent of real growth in goods and services being consumed (Box C). Overall, daily card spending data show increased expenditure in the services and social sectors in which activity was previously restricted. The increase in card spending may be distorted by the greater level of card transactions relative to the pre-pandemic period as well as greater increases in prices relative to volumes. In the retail sales index, the value of sales in the fuel sector rose by 30.4 per cent in the year to April 2022 while the volume rose by just 2.9 per cent, reflecting higher prices compared to the previous year (Figure 14).

Positive tailwinds for consumption from the easing of pandemic restrictions and a strengthening labour market are being tempered by the higher inflation outlook in the short-term. Real consumption growth of 5.9 per cent is now expected in 2022, although this figure is reflective of low base levels in 2021 when restrictions were in place. While the annual average projection displays a moderation to 4.4 per cent in 2023 (Figure 15), this may represent an increase in the underlying quarterly trend should higher inflation dampen consumption activity in the coming months of 2022. Reflecting the higher inflation outlook, nominal consumption growth will be somewhat stronger than real growth.

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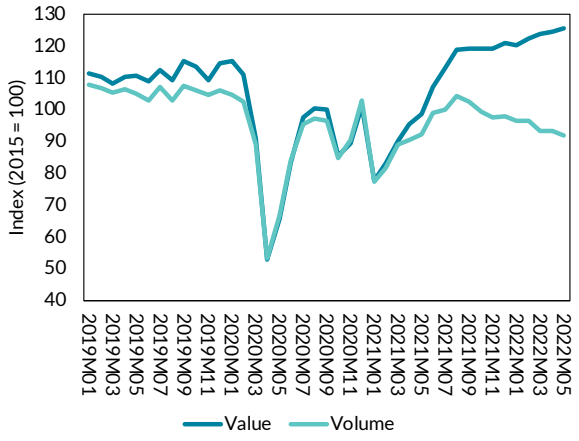
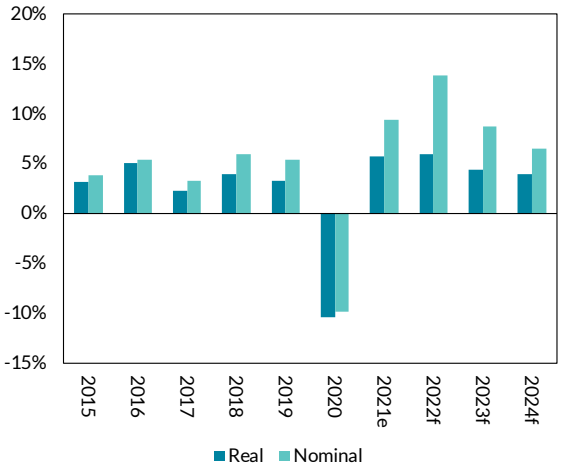
Fuel prices rise at greater pace than volumes reflecting inflationary increases

Figure 14: Retail Sales Index of Automotive Fuel



Source: CSO

Figure 15: Real and Nominal Consumption Growth and Forecasts



Source: CSO and Central Bank of Ireland

Box D: Savings Across the Income Distribution

By Simone Arrigoni, Laura Boyd, and Tara McIndoe-Calder[17]

Households have experienced significant cost of living increases over the past year. Real incomes are forecast to fall this year and certain households, such as lower income ones, are disproportionately impacted by the current high inflation rate (Lydon, 2022). Applying a distributional lens to incomes and savings can provide insight into the resilience of households to current inflationary pressures. This *Box* extends the analysis on the impact of inflation on households' economic well-being by examining the path of spending, real incomes and savings, across the distribution.

Gross saving by households in Ireland increased significantly during 2020, remaining elevated in 2021 and into 2022 compared to pre-pandemic trends. Previous work by Lydon and McIndoe-Calder (2021) using aggregate data showed that households had built up significant "excess savings" during the pandemic, which, if spent, could boost consumption. By also aggregating spending data from the 2015/16 Household Budget Survey (HBS), this analysis concluded that higher income households likely saved more. In this *Box*, we revisit this finding but draw on granular microdata from the Household Finance and Consumption Survey (HFCS). Specifically, we use the recently released data

[17] Irish Economic Analysis Division.

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for 2020 from the third wave of the survey for Ireland to explore savings accumulation since the last HFCS wave in 2018 and consider the resilience of Irish households in view of the current cost of living increase.[18] In 2020, and in 2022 at the aggregate level, many households were able to save more than they used to, but financial buffers remain limited for households at the lower end of the income distribution. Consequentially, the level of resilience to ongoing inflationary pressures is heterogeneous.

At a national level, savings flows are moderating but remain high

Institutional Sector Accounts (ISA) show that, in aggregate terms, Irish households saved 23.4 per cent of gross income in 2020 H2, up from 11.5 per cent in 2018 (Figure 1).[19] This remains elevated in 2022 Q1 at 19.1 per cent, almost twice as high as the pre-pandemic average (9.6 per cent). The latest ISA data reflects aggregate household real gross incomes moderating after a long period of sustained growth. Aggregate household real spending has de-coupled from its pre-pandemic trend and remains subdued (Figure 2). The difference between these two series represents gross real savings flows and indicates that households continue to build financial buffers. Deposit flows (close in definition to HFCS savings, which we use in our analysis) mimic these trends, having moderated since the pandemic but remaining high compared to pre-pandemic trends.

To meet cost of living increases in the absence of real income growth, households can adjust their spending, spend more of their income (save less) or draw down on available buffers (dis-save). The set of strategies households use is a function of their income and available buffers, that is, household financial resilience.

[18] The sample covers 6,020 households in 2020 and 4,793 households in 2018. When computing summary statistics, household are aggregated using cross-sectional weights to represent the Irish population structure. Note that CSO is working on a re-imputation of 2018 data using the new data available from the CCR and a re-weighting reflecting updated calibration of farming households. This would impact some of the figures we present for 2018

[19] Source: CSO ISA (ISQ04). Average of 2020 Q3-Q4 for 2020 and 2018 Q2-Q4 for 2018, in line with time of collection of HFCS data. Seasonally adjusted.

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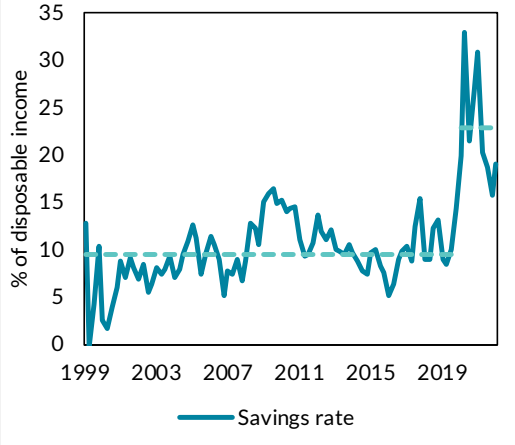
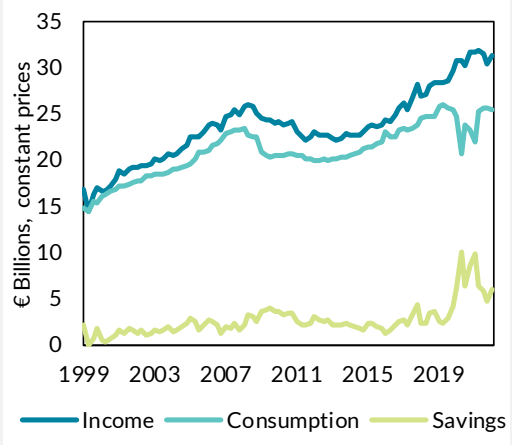
Savings rates are still higher than the pre-pandemic average

Figure 1: Aggregate household savings rate



Source: CSO Institutional Sector Accounts

Figure 2: Aggregate household real disposable income, consumption, and savings



Source: CSO Institutional Sector Accounts

Note: Dashed lines in the RHS chart are pre-pandemic (1999 Q1-2019 Q4) and post-pandemic (2020 Q1-2022Q1) averages. Disposable income includes all income minus payments for interest, social and pension contributions, taxes, and transfers. Consumption includes all spending on goods or services that satisfy the household's needs and wants. Nominal values are deflated using the HICP index (2015=100, source: CSO, CPM15).

Savings rate across the income distribution is highly skewed

Aggregate statistics obscure the large heterogeneity that exists across the income distribution. Granular HFCS data can contextualise national trends. While the HFCS does not provide identical measures of the savings rate from ISA, a close definition can be generated as 1 minus the ratio of total spending over total gross income.[20] Total spending in HFCS includes expenditures on food (at home and outside home), trips and holidays, utilities and consumer goods and services, in addition to alimony, rent and interest payments.[21] However, it excludes expenditure on items such as transport, tobacco, large durable items and education that are not available in the HFCS. According to this measure, the median gross savings rate among all households in 2020 was 36.1 per cent, up from 28.9 per cent in 2018. This result, while not directly comparable to ISA figures, corroborates the increased saving trend observed at the aggregate and is more current than other granular saving data.[22]

[20] HFCS does not provide a measure of (net) disposable income.
[21] Interest payment on mortgages outstanding on households' main residence, other property and other loans. We consider interest instead of total debt payments (including capital) to exclude the accrual of assets (or savings).
[22] Note the HFCS aggregate savings rate in 2020 (54.5 per cent) was 19.4 per cent higher than in 2018 (45.6 per cent). This follows a similar trend as for the median households (+24.9 per cent).

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To explore heterogeneity among households, we look at the 2020 HFCS savings rate by equivalised gross income deciles. [23] This adjustment is necessary as income sources and consumption needs are a function of household size.[24] Figure 3 shows a clear positive relationship between income and savings; the higher the household income, the larger the share of gross income saved. The disaggregation also reveals that the representative (or middle) household in the first two deciles do not save any amount of their total income.[25] Expenditure exceeds gross income for the middle households in the bottom two deciles, generating saving rates of approximately -33 per cent and -3 per cent respectively. This is in line with Horan, Lydon and McIndoe-Calder (2020), who find similar dissaving patterns in HFCS 2018 and with findings from HBS 2015/16.[26] For households where expenses exceed incomes, the main resource used to bridge the gap in 2020 was to draw down existing financial assets, i.e. their stock of savings.[27]

Price increases for food and energy have contributed significantly to the cost of living increases that households have experienced since the end of the pandemic (Lydon, 2022). These are expenses, which are difficult to substitute out of and make up around 35 per cent of HFCS households' total spending. Plotting this across deciles of equivalised income (Figure 4) shows a similar result to the gross savings rate. The middle household in the first decile of the income distribution spends 48 per cent of their gross income on food and energy. This implies that only half of their gross income is available to cover additional spending, including debt repayments and taxes. Figure 4 also shows that as income increases, the proportion spent on food and energy declines such that the richest households spend only 9.4 per cent of gross income on food and energy, leaving wider coverage for other expenses and savings. In absolute terms, the level of food and energy spending increases with income,

[23] Equivalised income is defined as total gross annual household income equivalised using the modified OECD equivalence scale which accounts for the number of consumption units in the household (1 unit for the first household member, 0.5 for each additional household member aged 14 and more, and 0.3 per additional household member aged 13 or less).
[24] Income equivalisation is routinely used in household income surveys including the Survey of Income & Living Conditions (SILC) and HFCS. Equivalised gross income accounts for differences in household size and composition.
[25] As is standard in HFCS, we use median values (the middle value of a ranked variable) to better summarize the skewed nature of the distribution of savings and income.
[26] See Figure 2.5 in this CSO overview of the HBS 2015/16.
[27] For lower deciles, asking for help from relatives/friends and leaving bills unpaid were additional strategies reported.

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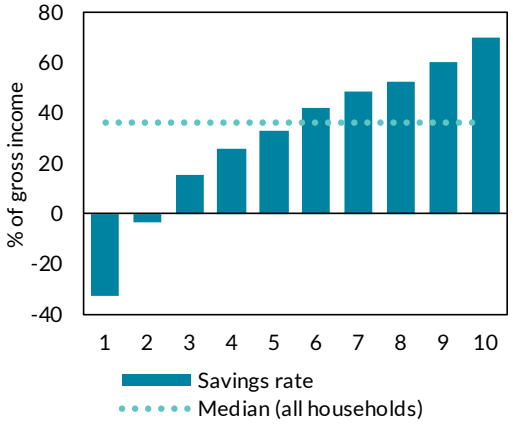
with the middle household in the tenth decile spending more than twice the middle household in the first decile.[28]

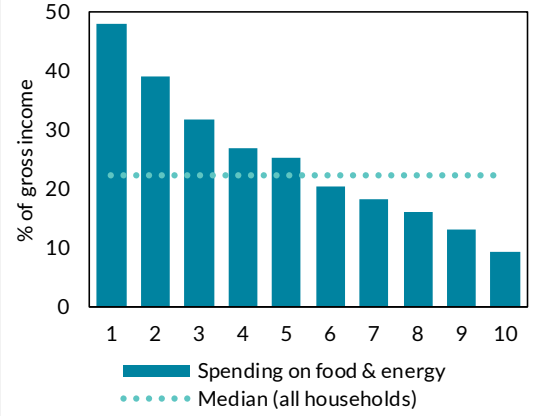
Savings rate in 2020 are heterogeneous across the income distribution

Figure 3: Savings rate (2020, median, by equivalised income deciles)



Source: HFCS 2020 (CSO and Central Bank of Ireland)

Figure 4: Spending on food and energy (2020, median, by equivalised income deciles)



Source: HFCS 2020 (CSO and Central Bank of Ireland)

Savings stock across the income distribution

To complement the analysis on savings rates, it is important to look at the stock of savings as it provides information on financial resources available to households. Using HFCS data, we look at two measures: the amount of deposits and savings in bank accounts, and net liquid assets (NLA). The latter are defined as the sum of all liquid financial assets minus non-collateralised debt (i.e., overdrafts, credit card debt, and non-mortgage loans). [29] Accounting for debt repayment commitments is important when considering how households might meet increased prices on consumption of goods and services. Figure 5 presents both of these stock measures for 2020 by equivalised income deciles. The median saving stock in 2020 was €8,000, while the median NLA stock was €5,347. Compared to 2018, and accounting for price differences, the stock of both savings and NLA is higher for all income deciles, except for the first decile (savings only). [30] These large increases, present across the income distribution

[28] This difference is reflective of, among other things, preferences. As a share of total consumption on food and energy, spending for food at home is decreasing with income while spending for food outside home is increasing in income. This has implications for total spending as prices for these two options are significantly different.
[29] Excluding, following the HFCS definition, non-liquid financial assets such as money owed to households, voluntary pensions, and other assets.
[30] 2018 values have been inflated to 2020 prices as part of the analysis, using the HICP index (Source: CSO, CPM15).

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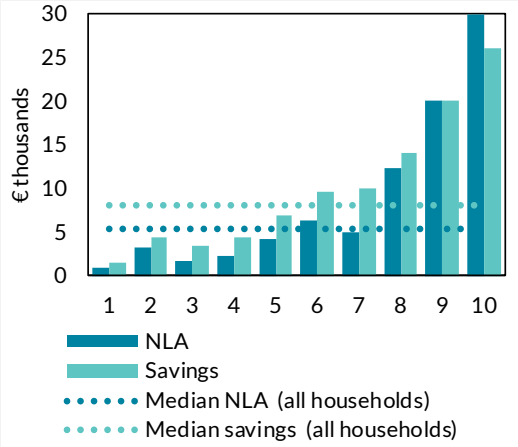
and larger in levels towards the top deciles, reflect the increase in savings that followed the Covid-19 pandemic.

Finally, to obtain a more informative view of the financial buffers that Irish households had at their disposal in 2020 H2 to meet future income shocks or planned future spending/investment, liquid financial coverage across the distribution is explored. [31] Liquid financial coverage is defined as the stock of available financial resources as a share of equivalised gross income, and it is calculated using both savings and NLA respectively as stock measures. The resultant coverage measures (Figure 6) provide the number of months of income that households have in the form of liquid assets. Between 2018 and 2020, the median liquid asset coverage across all households increased by 0.9 months when savings is used as the stock measure and 1.1 months with NLA.

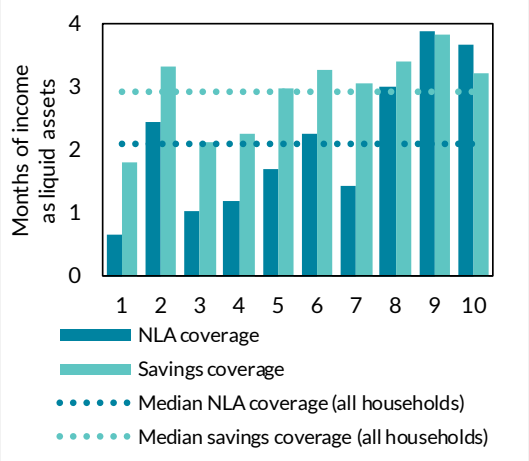
Stock of savings in 2020 increases with household income. Savings buffers are more evenly distributed

Figure 5: Stock of available financial resources (2020, median, by equivalised income deciles)



Source: HFCS 2020 (CSO and Central Bank of Ireland)

Figure 6: Liquid asset coverage (2020, median, by equivalised income deciles)



Source: HFCS 2020 (CSO and Central Bank of Ireland)

Note: Savings = amount of deposits and savings in bank accounts. Net liquid assets (NLA) = sum of liquid financial assets minus non-collateralised debt (overdrafts, credit card debt, and non-mortgage loans).

Compared to savings rates and levels of financial buffers, the distribution of both measures of liquid asset coverage is more equally distributed across equivalised income deciles. Relatively homogeneous coverage ratios, compared to saving rates and levels, across the income distribution are consistent with

[31] Compared to the 2018 wave, the share of respondent households that report "provision of unexpected events" as a purpose for their savings increased by 14 per cent.

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the fact that lower income households spend a significantly higher share of their incomes on essential expenditures (Figure 4), which may incentivise them to hold relatively more buffers in order to be adequately insured against price increases on these essentials. The negative savings rate and low-income growth in 2020 for the first decile may however have frustrated any desire to accumulate additional buffers for these households. Further, the differences in liquid financial coverage between lower and higher income households is substantial. Households in the bottom half of the distribution on average have coverage rates 0.4 and 0.7 months lower than the median for savings and NLA coverage respectively.

Figure 6 also indicates that accounting for debt is important, as savings coverage is higher than NLA coverage for all deciles, except 9 and 10. At the median, non-collateralised debt reduces the coverage households have against price increases by 28 per cent, from 2.9 months to 2.1 months' worth of gross income.

Overall, the analysis implies that in 2020 many households were able to save more than they used to and that this improvement has continued into 2022 at an aggregate level. However for some, particularly those at the lower end of the income distribution, buffers are limited. This is despite net equivalised disposable income growing more strongly for lower income than higher income households, both before and during the pandemic (Roantree et. al., 2021 and CSO, 2022). While the aggregate savings ratio remains high (average 21.4 per cent in 2021 and 19.1 per cent in Q1 2022) and substantially above pre-pandemic levels, it is possible that for some households, savings accumulated during the pandemic may have been drawn upon already. Specifically, given that low-income households are dis-savers on average (Lydon, 2022) and have lower levels of buffers to draw on (both in levels and as a share of their income), those at the bottom of the distribution are more likely to have dis-saved and used up their buffers. This implies a large variation in the current level of resilience to ongoing inflationary pressures. However, in addition to the measures in Budget 2022, the Government has introduced supports to assist low-income households affected by rising inflation amounting to about €1 billion.[32] This could help households in the bottom of the distribution to preserve part of their stock of savings, reduce their need to curtail consumption or borrow from other sources.

[32] Source: Department of Finance, Stability Programme Update 2022 (Box 8, Table 10).

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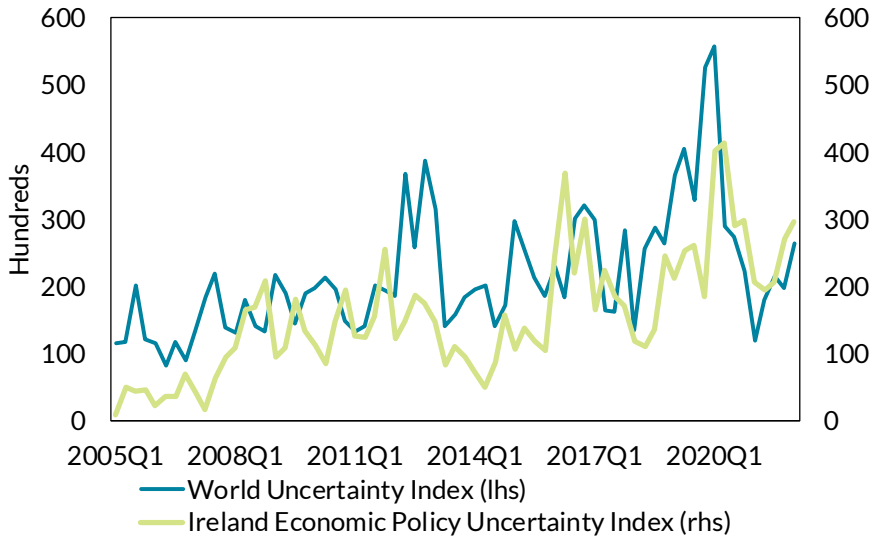
Investment

The outlook for modified investment growth is less favourable than that contained in the previous *Bulletin*. The Russian invasion of Ukraine, the higher global inflation environment and the prospect of tighter financing conditions has increased uncertainty. In addition, outbreaks of Covid-19 in China and continued problems with global supply chains and increasing input costs make for a less favourable investment environment. Measures of uncertainty based on market data and high-frequency analysis of online news and commentary have risen in 2022. (Figure 16).

Uncertainty levels remain high both domestically and globally

Figure 16: World Uncertainty Index and Irish Economic Policy Uncertainty Index



Source: Rice, J. (2020) and Ahir, H., N Bloom, and D Furceri (2018)

On the housing front, labour supply and material constraints, along with substantial rises in construction input costs, mean that new house completion forecasts are slightly lower than previously forecast. While commencement figures are running at approximately 33,000 on an annual basis (Figure 17), planning and procurement delays, material and labour supply constraints and delays in connecting to public infrastructure mean that it is unlikely all of these commencements will be converted into completions in 2022. Respondents to the European Commission's Business Survey revealed that the main factors limiting their activity were shortages of labour and shortages of material and equipment.[33] The lag

[33] ECB Business and Consumer Survey Data.

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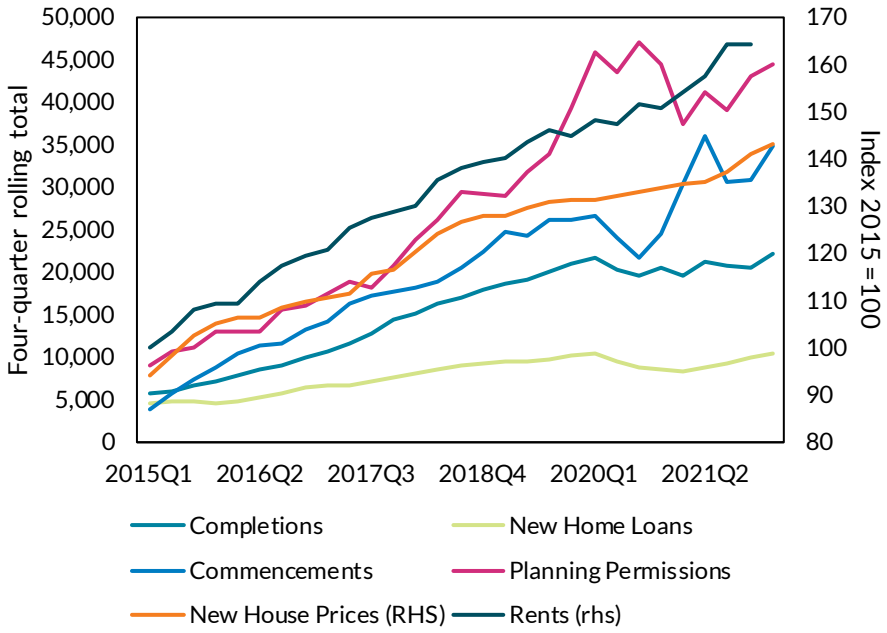
between commencements and completions is growing due to material and labour availability issues. House completions are forecast to number approximately 23,500 this year, increasing to 27,000 and 31,000 in 2023 and 2024, respectively. This is a reduction of approximately 5,000 housing units over the forecast horizon compared to the previous *Bulletin*. The decline in nominal expenditure on housing, however, will be less as higher costs absorb more of the spending. Despite the introduction of Home Renovation Incentives, home improvements are projected to increase at a more moderate rate than the previous *Bulletin*, as inflation constrains disposable incomes and available labour supply in the construction sector is already limited.

Recent months have seen rising planning permissions and higher new house prices

Figure 17: Housing Supply Indicators



Source: CSO, DoHLGH, BPFI, Central Bank of Ireland

On the non-residential side, despite signs of a relatively healthy pipeline of commercial investment with strong demand in the industrial and logistics sectors, civil engineering projects have been slow to get off the ground. Weakness is apparent in the building and construction data for Q1 2022 – down almost 12 per cent compared to the previous quarter – (Figure 18) and in the PMIs – which is below the 50 level which signals a contraction (Figure 19). The

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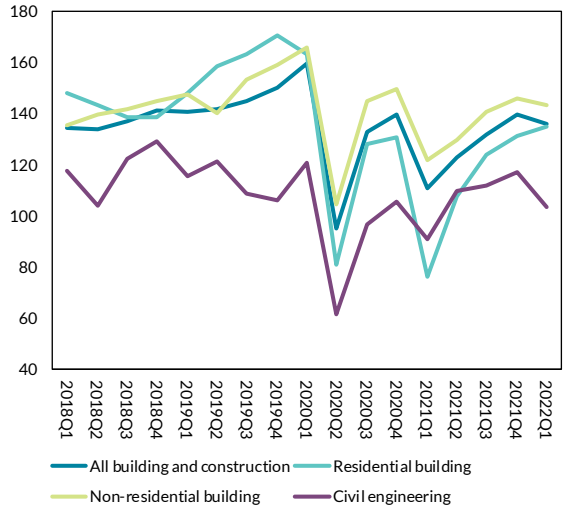
limited availability and substantial increase in the costs of building materials and construction labour has meant that developers are reluctant to continue work on fixed price contracts. Recent commitments by Government to cover up to 70 per cent of the increase in building costs may protect the pipeline of activity over the forecast horizon. Nevertheless, the forecast for non-residential building and construction for 2022 has been revised down to 5 per cent, as the possibility of reaching original NDP commitments for 15 per cent real growth in government capital expenditure is challenging. Given the continuing skills gaps evident in the construction sector outlined by National Skills Council as part of Housing for All[34], it may be difficult to achieve all the targets within the forecasting horizon regarding new housing output, retrofitting and repair of chronic faults in certain regions (e.g. mica), national infrastructure, commercial real estate and other projects.

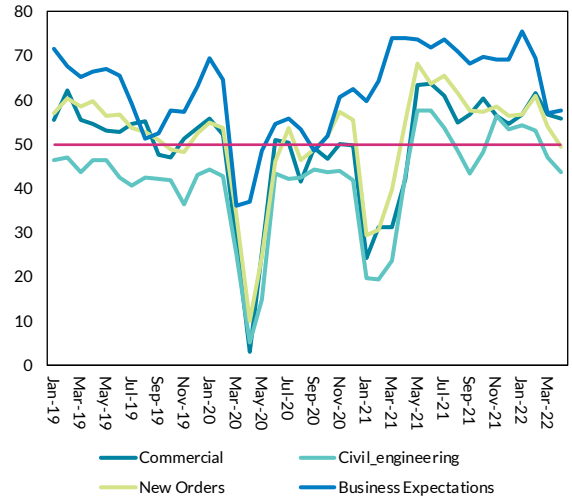
Outturns and expectations in the construction sector have weakened

Figure 18: Building and Construction Indices



Source: CSO

Figure 19: PMI - Construction sector new orders



Source: IR BNP PARIBAS Purchasing Managers Index
Note: Levels below 50 indicate a contraction and levels abo indicate expansion

The implications of the Russian invasion of Ukraine for raw materials generally is expected to weigh on machinery and equipment investment. Russia is an important supplier of certain metals. Ukraine is also part of the value chain in the production of certain capital goods. The war is likely to pose challenges in terms of the price and availability of such goods, which in turn dampens the

[34] Expert Group on Future Skills Needs and National Skills Council (2021): Labour Demand Estimates for Ireland's National Housing Targets, 2021-2030.

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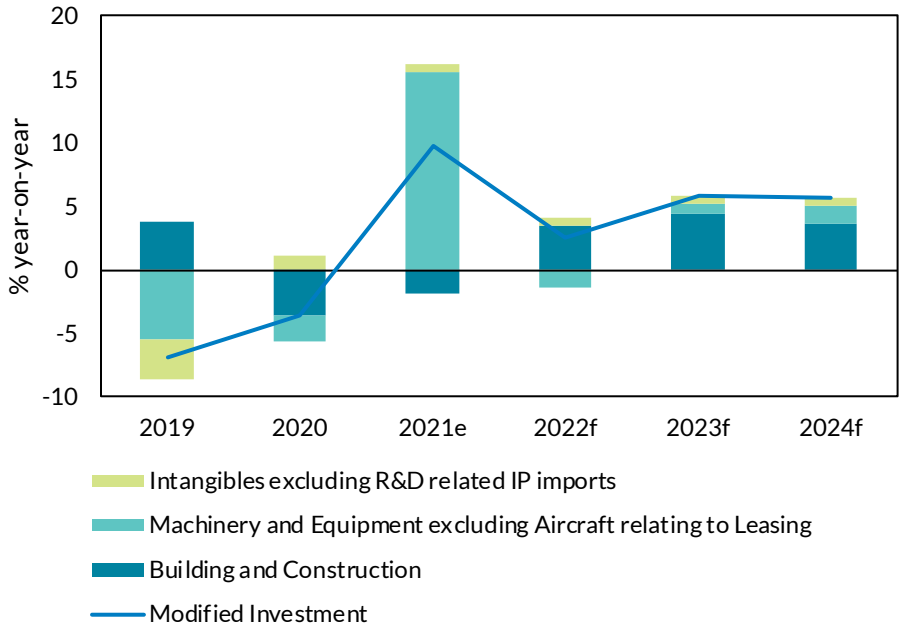
extent of machinery and equipment investment. Overall, modified investment is forecast to grow by approximately 2.5 per cent this year and 5.8 per cent next year, and increasing slightly to 5.6 per cent in 2024 (Figure 20).

Building and construction growth will be the primary driver of investment growth over the forecast horizon

Figure 20: Modified Investment Growth Contributions



Source: CSO and Central Bank of Ireland

Exports, Imports and Balance of Payments

Exports continue to grow strongly, despite uncertain global economic conditions. Net exports grew by 12.8 per cent in year-on-year terms in Q1 2022, up €5.96 billion from Q1 2021. Partly driven by strong rates of global inflation, both nominal export (19.4 per cent) and import (22.9 per cent) growth remained robust, despite fears of trade contractions, and declining global international trade integration. Adjusting for inflation, real exports grew by €25.6 billion (14.4 per cent) on an annual basis in Q1 2022, while imports increased by €17.0 billion (19.5 per cent).[35]

On an annual basis, merchandise exports were the largest driver of export growth. International trade in goods accounted for €16.8 billion of the growth in exports in Q1 2022, representing a 41.6 per

[35] Real prices chain-linked and referenced to 2019 prices.

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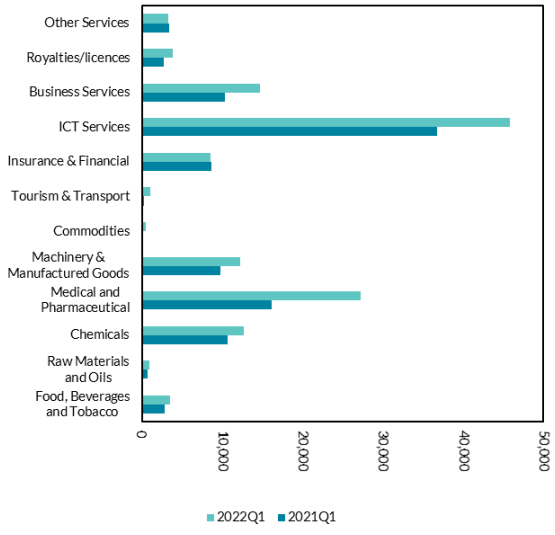
cent increase in export values. Of this figure, €11.1 billion was due to medical and pharmaceutical exports (up 68.7 per cent year-on-year) (Figure 21). However, services export growth also remained strong, with year-on-year Q1 growth of 24.4 per cent. ICT (€9.07 billion) and Business (€4.42 billion) services were the main drivers of this growth.

Import growth was broadly-based, with positive growth recorded across all major goods and services categories. The pace of import growth remained strong in Q1 2022, with services (€14.6 billion) and merchandise (€9.5 billion) imports both expanding, despite a number of countries and regions experiencing sharp contractions in imports. As in previous quarters, business services was a key growth driver, accounting for almost one-quarter of all import growth during the quarter (Figure 22).

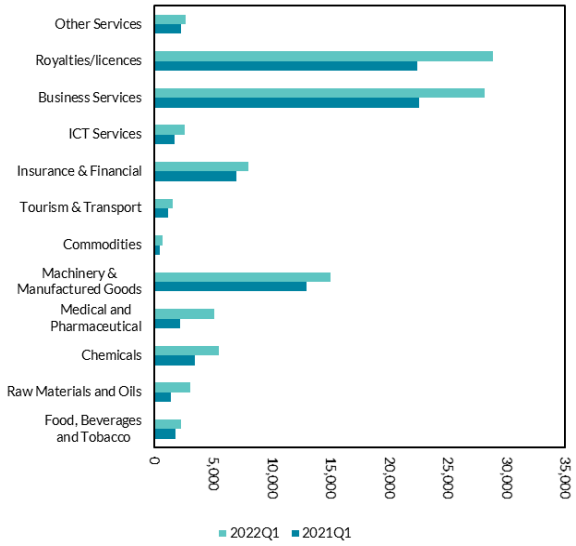
Growth in export and import merchandise and services was strong in 2022Q1

Figure 21: Goods and Services Exports (€mil)



Source: CSO International Accounts Database

Figure 22: Goods and Services Imports (€mil)



Source: CSO International Accounts Database

There is considerable uncertainty surrounding the status of EU-UK trade at present. Despite strong headline figures, UK trade data softened in Q1 2022. Both merchandise (-€256 million) and services (-€1,152 million) exports to the UK declined from 2021Q4 values, while gross UK imports increased by €106 million, in part reflecting the higher cost of energy imports. Consequently, the Q1 2021 trade balance with the UK is at its lowest level since Q4 2020, while the bilateral current account balance turned negative (-€367 million) for the first time since Q1 2020 (Figure 23). Further discussions and

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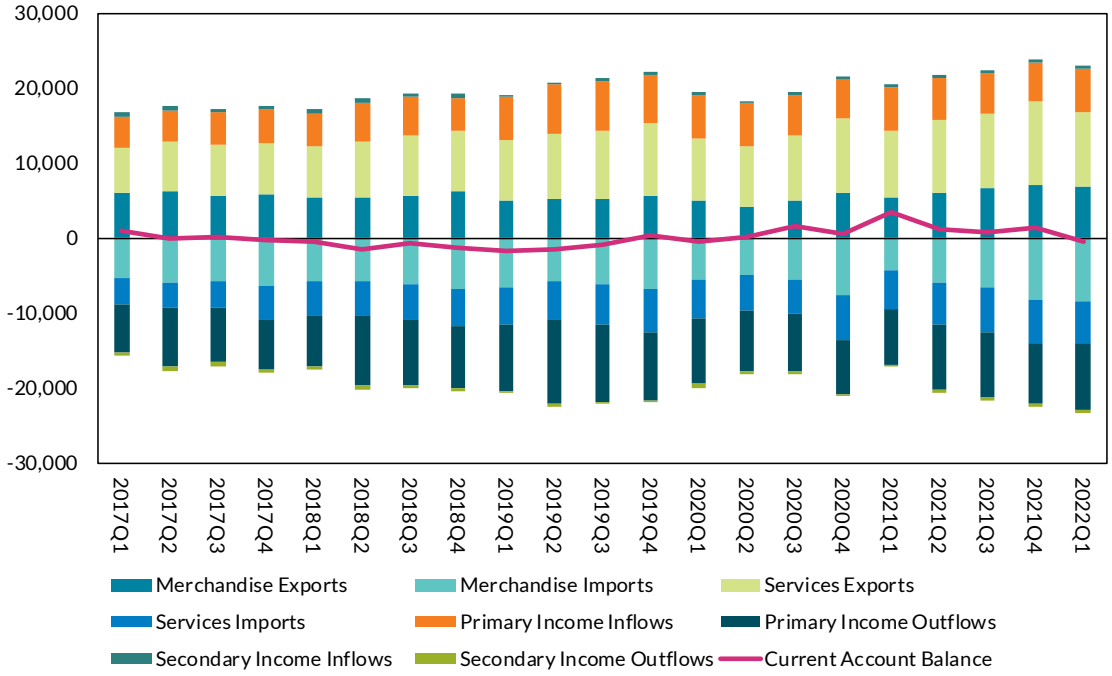
developments with respect to the Northern Ireland Protocol will influence the trade for those sectors typically more reliant on the UK market, such as agri-food.

Trade and Current Account Balances with the UK are contracting

Figure 23: Ireland – UK Trade and Income Flows



Source: CSO Balance of Payments Database

The Russian invasion of Ukraine has had far-reaching effects on global trading conditions. The conflict and subsequent international sanctions have had severely detrimental impacts on global financial and economic conditions, including: causing extreme volatility in financial and commodities markets, elevating global uncertainty measures, contributing to 30-year highs in inflation rates across several advanced economies, and increasing the likelihood of recession in a number of advanced and emerging market countries. With the Russia-Ukraine conflict disrupting agricultural, fertilizer, metals and energy markets, a large number of commodities indices are either at or near record levels (Figure 24).

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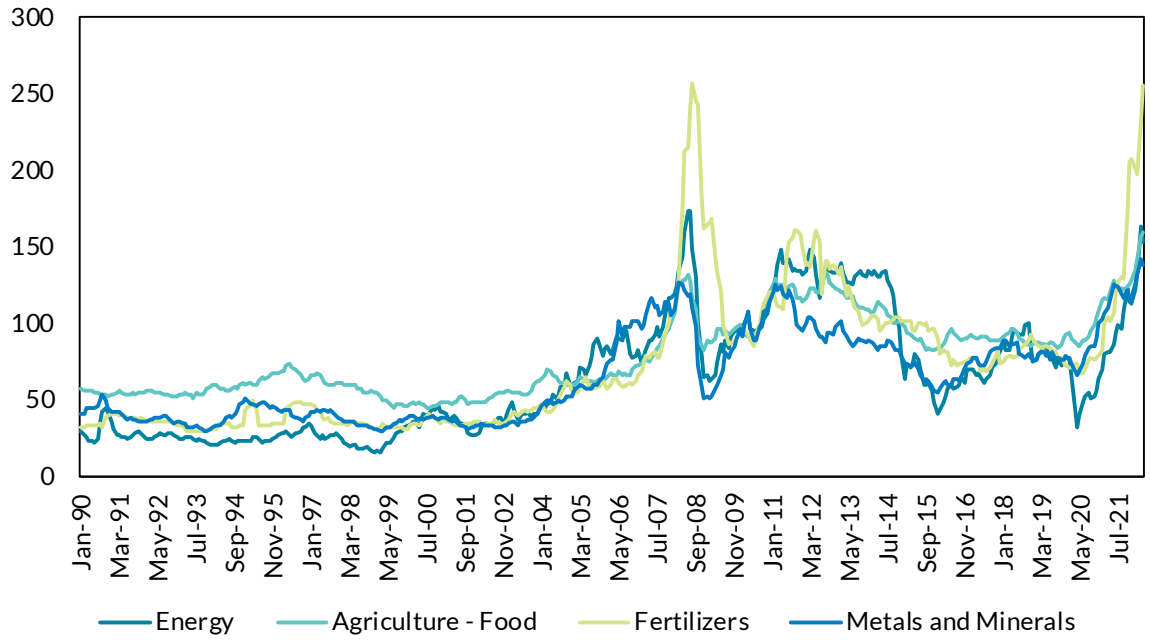
Agricultural, fertilizer, metals and energy commodity prices near record levels

Figure 24: Commodities Market Indices



Source: World Bank Commodity Price Data

Combined with increased global demand, the loss of Ukrainian and Russian exports in these markets has increased global uncertainty around future supplies. Consequently, a number of countries have introduced export bans or restrictions on domestic supplies, further constraining global availability and inducing additional upward pressure on market prices. These higher commodity prices increase the risk of more persistent inflation, which further increases the risk of below-trend external demand growth. These risks are most prominent in European economies, due to stronger direct exposures to Russian and Ukrainian export markets.

The effects of the EU sanctions on Russian energy imports can already be observed in the Irish data, although the full effects have yet to be realized. Figure 25 shows the breakdown of Irish energy imports by country group over time, while Figure 26 shows the quarter-on-quarter change in Q1 2022 import values by source country. As can be seen in Figure 25, energy import costs have risen above their historical peak in both Q4 2021 and Q1 2022, with Q1 2022 values rising 18.4 per cent on a quarterly basis, and 149 per cent on an annual basis. On a value basis, imports from the UK have increased by 36.6 per cent and imports from the US have risen by 19

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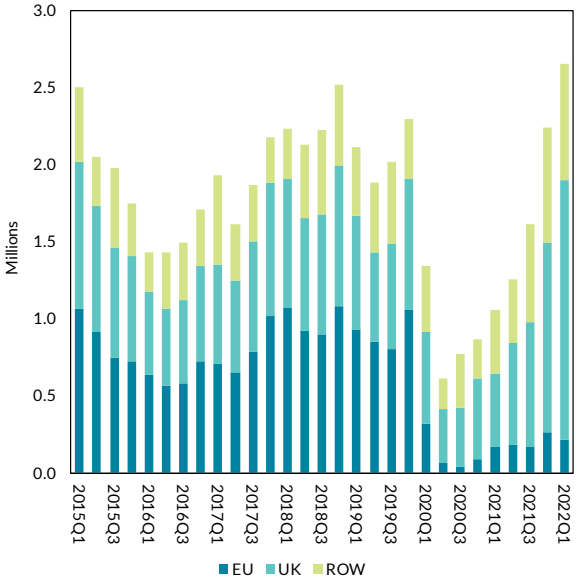
per cent, accounting for nearly 75 per cent of all energy imports in Q1. In contrast, imports of Russian energy declined by 16 per cent, and should fall further in Q2 of this year, given the EU-wide sanctions imposed on Russian gas and oil exports.

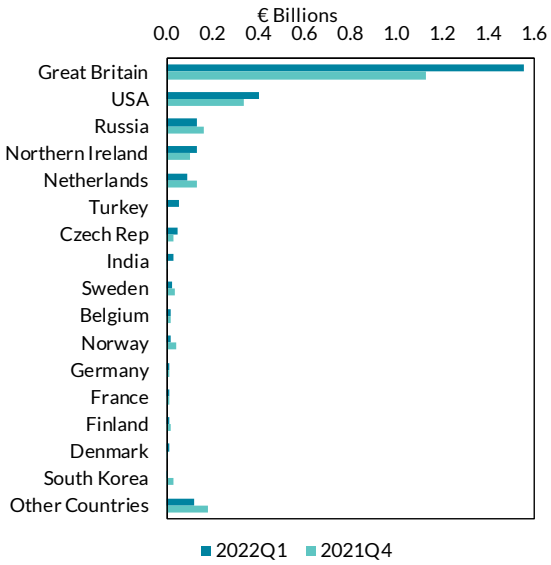
Energy supply shortages have pushed Irish import values to peak levels in 2022Q1

Figure 25: Energy imports by Region, 2015-2022



Source: CSO

Figure 26: Energy Imports by Country, 2021Q4-2022 Q1



Source: CSO

Despite these potential headwinds, the Irish export outlook continues to remain favourable, both in aggregate terms and for indigenous exporters. With growth in core elements of indigenous exports remaining strong, despite global economic conditions, these sectors should anchor Irish export volumes while other countries and sectors experience larger declines due to rising costs, supply shortages and trade barriers. Headline real export growth is projected to be 10.6 per cent in 2022, before declining to 5 per cent in 2023 and 4.5 per cent in 2024 (Figure 27).

Aggregate cross-border trade growth, buoyed by recent increases, should continue to grow at a strong pace. While some components of cross-border exports are likely to be affected by deteriorating global trade conditions, core sectors (medical and pharmaceutical goods, ICT services) should remain insulated from the majority of the commodities markets and macroeconomic uncertainty. Consequently, cross-border exports are projected to grow by 13 per cent in 2022, 6.0 per cent in 2023 and 7.0 per cent in 2024. Further

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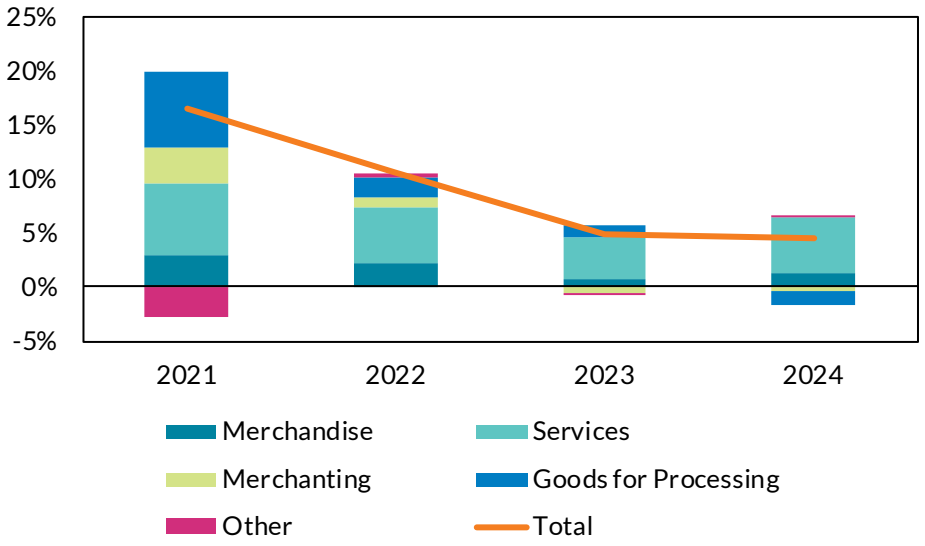
economic sanctions stemming from the Russia – Ukraine conflict, persistence in global inflation rates and potential recessions in key trading partner economies introduce uncertainty into these forecasts.

Export growth to decline, but remain robust to global trade headwinds over t 2022 – 2024 horizon

Figure 27: Contributions to Growth in Gross Exports



Source: Central Bank of Ireland forecasts, using CSO Balance of Payments and ECB Trade Consistency Exercise data

Similar to merchandise and services exports, import growth is also forecast to remain strong in 2022, before declining slightly in 2023 and 2024. Reduced growth in import demand (related to the forecast moderation of export growth in 2023 and 2024), restrictions on agricultural and energy products available for import, and further supply chain constraints could all contribute to dampen import growth. Overall, Irish import growth rates are forecast at 9.2 per cent for 2022, before slowing to 4.8 per cent in 2023 and 4.3 per cent in 2024.

Boosted by strong export growth, a surplus of €17.4bn was recorded in the headline current account in Q1 2022. While the modified current account for 2021 has yet to be published, estimates suggest that the balance should be close to €24.4 billion, with a confidence margin of ± €1.6 billion. Given projections for modified domestic demand and GNI*, this balance is projected to widen to €26.3 billion in 2022, €29.0 billion in 2023 and €31.8 billion in 2024.

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Prices and Costs

Consumer Prices

The upward trend in consumer prices is expected to continue with consumer price inflation forecast to remain higher for longer compared to the previous *Bulletin*. The higher price environment is a global phenomenon with prices increasing in the US, UK and euro area by 8.6, 9.1 and 8.1 per cent respectively in May 2022, and inflation increasing in most of the developed and developing world. The higher price environment is the result of a confluence of events including; the rapid policy-supported recovery of demand following the pandemic and the subsequent slower reopening of global manufacturing, associated global supply chain bottlenecks, a resurgence of Covid-19 in China, natural and environment-related disasters, and the Russian invasion of Ukraine. Russia's actions have led to further increases in global energy and commodity prices at a time when prices were already high. The war and related economic sanctions has also elevated volatility in commodity markets and uncertainty about its outcome has added considerable uncertainty to forecasts, with significant upside risks. Prices continued their upward trend in Ireland in June, increasing by 9.6 per cent by the annual HICP measure[36].

Driven by increases in international oil and liquid natural gas prices, energy prices for consumers increased by 46 per cent year-on-year in May 2022. Oil and natural gas prices increased rapidly as the ban on energy exports from Russia began to affect European markets. Gas prices also increased in June as technical issues with the Nord Stream pipeline, which supplies much of the European gas market, meant that production was cut by up to 40 per cent[37]. Wholesale oil prices increased by 63 per cent annually at the time of writing, while natural gas prices were over 245 per cent higher than they were a year ago. These increases in wholesale international energy prices passed through to consumers in the form of higher prices for petrol, diesel, home heating oil, gas and electricity bills (Figure 28). Inflation forecasts are conditional on the path of oil and gas futures, which are

[36] Eurostat flash estimate for June 2022.
[37] This was compounded by a fire in the Freeport LNG terminal in Texas.

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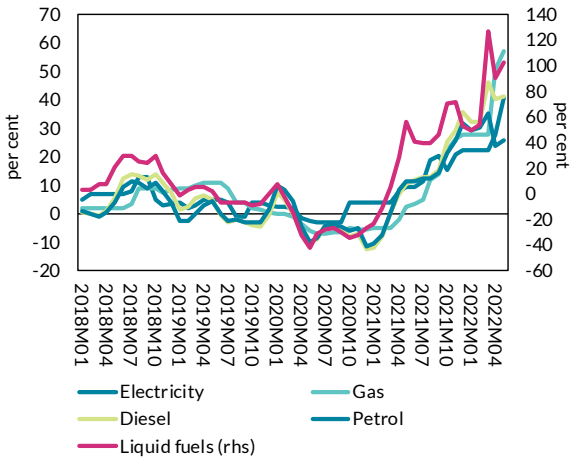
projected to decline gradually over the forecast horizon[38]. In practice, however, energy providers use the futures market to purchase energy in advance. Current consumer prices, therefore, may not fully reflect developments in the current spot price as there is a lag in the passing through of wholesale prices to consumer prices. Figure 29 illustrates a high degree of correlation between consumer energy prices and the six month lag of energy market futures. Further increases in consumer energy prices could be expected for some months even if oil and gas prices decline on international markets.

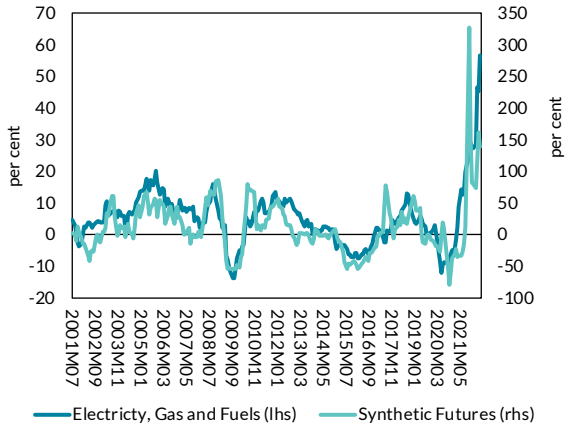
Energy inputs continue to rise while futures remain highly elevated relative to pre-pandemic

Figure 28: Growth in Wholesale International Energy Prices



Source: Eurostat

Figure 29: Electricity and Gas and 6-month Synthetic Future Lag



Source: Eurostat, Refinitiv Eikon

Increases in energy prices have contributed to rising consumer prices for other categories including food and durable goods.

Energy is a vital component of all goods and services but some goods have a heavier energy input than others and may experience a faster pass-through to consumer prices, especially in periods of high demand. Globally, food and fertiliser prices have increased rapidly in recent months, as gas is a vital component in fertiliser manufacturing (Figure 30). In turn, food prices are expected to rise further given the use of fertiliser as an input to food production. In addition, the war in Ukraine and associated sanctions on Russia, which together comprise one third of global wheat exports, have increased wheat prices by 59 per cent. Other agricultural food prices have also

[38] Implied inflation rates from inflation swaps generally under predict in periods of high inflation and over predict in period of low inflation.

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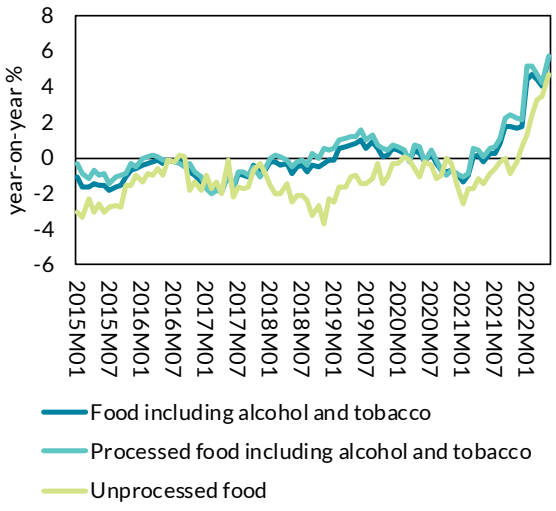
increased, as energy increases, environmental disruptions, protectionism and sanctions have affected global supply. At the time of writing, wholesale prices of wheat, rice, soya bean and oats were up 45, 22, 21 and 63 per cent year-on-year. These agricultural prices are feeding through to consumer food prices, which increased by 5.5 per cent year on year in May 2022. Further increases in food prices are forecast as energy and agricultural prices continue to pass through to consumer goods. Food prices are forecast to increase by 6.4 per cent in 2022.

Non-energy Industrial Goods (NEIG) prices have also reversed a longstanding downward trend in Ireland. NEIG prices increased by 4.3 per cent year-on-year in May, with durable good prices increasing by 7.5 per cent (Figure 31). Shortages of semiconductors continue to impact the production and prices of many industrial goods, including motor vehicles, laptops and white goods. Lithium, used in the production of batteries for electric vehicles and other electronics, has also witnessed severe price increases as demand has increased, up 430 per cent year-on-year. Increasing energy and transport costs are likely to pass-through further this year with overall NEIG prices forecast to be up almost 4.0 per cent in 2022.

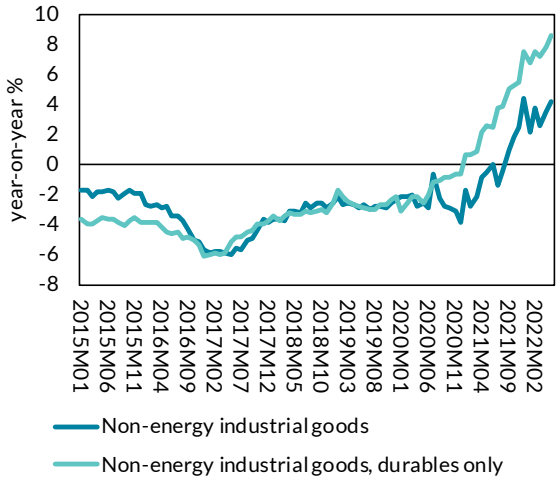
Higher energy prices continue to drive non-energy components of inflation

Figure 30: Food price inflation



Source: Eurostat

Figure 31: Industrial goods inflation



Source: Eurostat

Supply bottlenecks continue to drive up input prices in a number of sectors and these prices will continue to feed through to consumer prices. In addition to energy supply concerns, the war in Ukraine and

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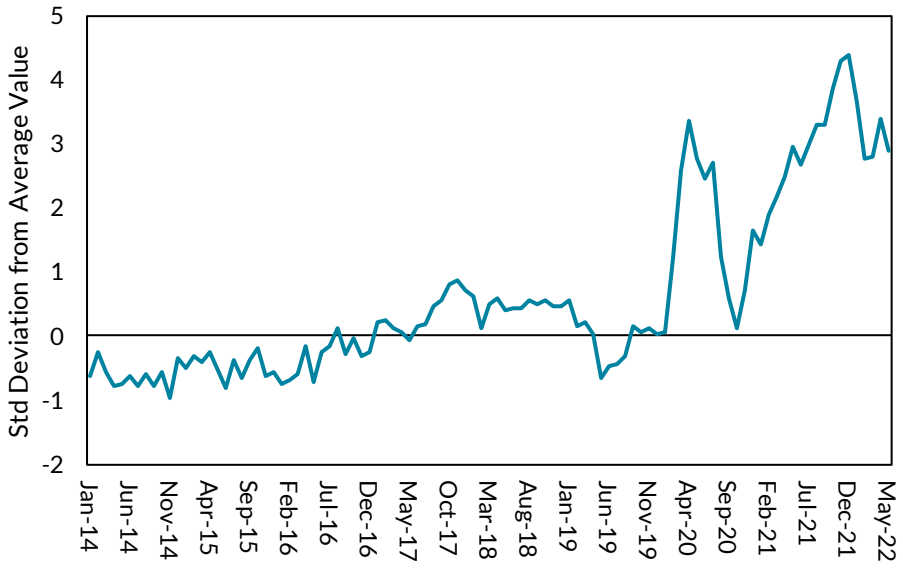
associated sanctions are likely to exacerbate supply chain concerns in a number of areas. Available indicators of global supply chains point to continued pressures. The Global Supply Chain Pressure Index (Figure 32), which combines data on global transportation costs with delivery times, backlogs and purchased stock data in global PMIs, suggest that supply chains remain extremely stretched, although there was a slight easing in May 2022. Lockdown measures in China associated with Covid-19 and the invasion of Ukraine by Russia resulted in increased pressures on delivery times and transportation costs in China and the euro area.

Global supply chain pressure on par with height of pandemic

Figure 32: Global Supply Chain Pressure Index



Source: Federal Reserve Bank of New York

Inflation is forecast to peak in the third quarter of 2022 at approximately 9.4 per cent, before declining in fourth quarter of 2022 and thereafter. The average for 2022 is forecast to be 7.8 per cent. On the goods side, the source of the upward revision compared to the previous *Bulletin* primarily reflects higher commodity future assumptions. In relation to services, there was some upward revision to the outlook for wages but this was offset to some extent by a lower outlook for modified domestic demand. Inflation prospects this year reflect the atypical, asymmetric demand/supply imbalance of the pandemic and the impact of war in the Ukraine. The underlying situation is also one of an economy that is growing at or above its productive capacity. Furthermore, the impact of

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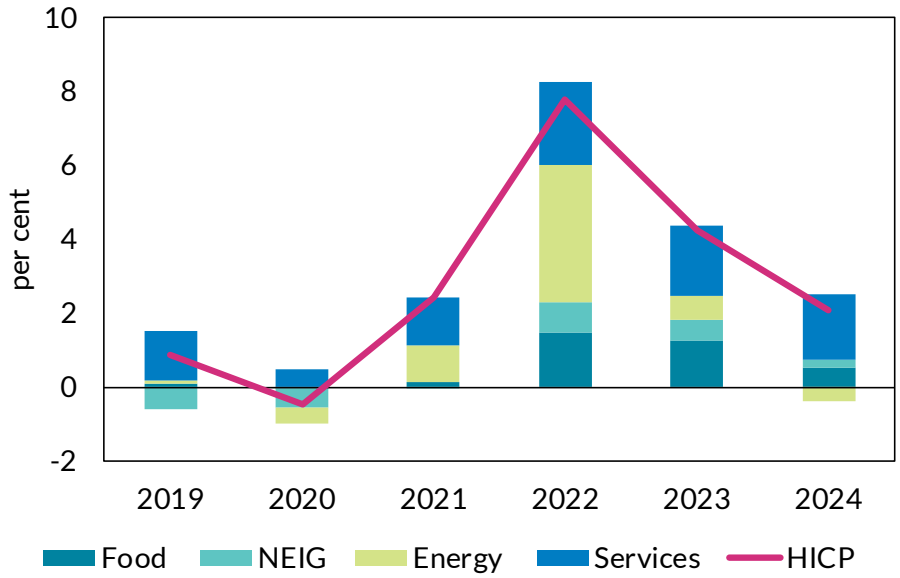
environmental pressures on global supply chains is increasingly evident. Some internalising of fossil fuel externalities is likely to result in upward pressures on global prices in the years ahead. Headline HICP inflation is expected to average 4.2 per cent in 2023, moderating to 2.1 per cent in 2024 (Figure 33). Core inflation, excluding food and energy prices, is forecast to increase by 4.3 per cent in 2022 and 3.4 per cent and 2.9 per cent in 2023 and 2024, respectively.

Energy is the main driver of inflation in 2022

Figure 33: Headline Inflation and Components



Source: CSO and Central Bank of Ireland

Risks to the inflation forecasts remain tilted to the upside. The war in Ukraine and the potential for further Covid-related disruption increase the risk that supply bottlenecks persist longer than anticipated, adding to the costs of consumer goods and services. Significant upside risks remain around food prices, with a more prolonged war in Ukraine disrupting food supplies, increasing energy, grain and fertiliser prices, with potential negative consequences for next year's crops. The exchange rate channel also presents an upside risk to inflation if the euro falls further against its main trading partners. The euro has already fallen by over 9 per cent against the dollar since the start of the year. In addition, rising wages amidst a tight labour market and cost-of-living pressures continue. The dynamics between wages and prices remain an important determinant of future inflation developments, with expectations for

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future inflation showing some upward movement for next year. In addition, the capacity of businesses to absorb higher labour and other input costs without passing those on to prices charged to their consumers is also relevant in understanding the inflation outlook.[39] Some downside risks could emerge if monetary policy reacts faster than anticipated. A more prolonged surge in inflation could also dampen consumption and investment prospects, with negative demand consequences and second round knock-on effects for inflation.

Broader Costs in the Economy

Domestically, input and output prices in the manufacturing, services and construction sectors continue to point towards supply constraints and significant price pressures in the months ahead. The index for input costs and output prices continue on upward trajectory and remain at historical highs (Figure 8). Inflation is also evident in other price measures, including agricultural prices, and domestic wholesale prices (Figure 34). The rise in these measures reflects the broad-based nature of price increases across the economy expected over the forecast horizon. The rise in agricultural input and output prices reflects growing global food price increases, particularly in the cost of grains, fertiliser and energy products, exacerbated by the Russian invasion of Ukraine. These broad-based price developments are reflected in the forecast deflators for National Accounts. The modified investment deflator is forecast to increase by 8.4 per cent this year, moderating to 4.8 per cent in 2023. Increases in building costs present upside risks to these forecasts. The modified domestic demand deflator is forecast to increase by 6.6 per cent in 2022 and 4 per cent in 2023.

[39] Byrne, McLoughlin and O'Brien (2022), Business Costs and Consumer Price Inflation in Ireland.

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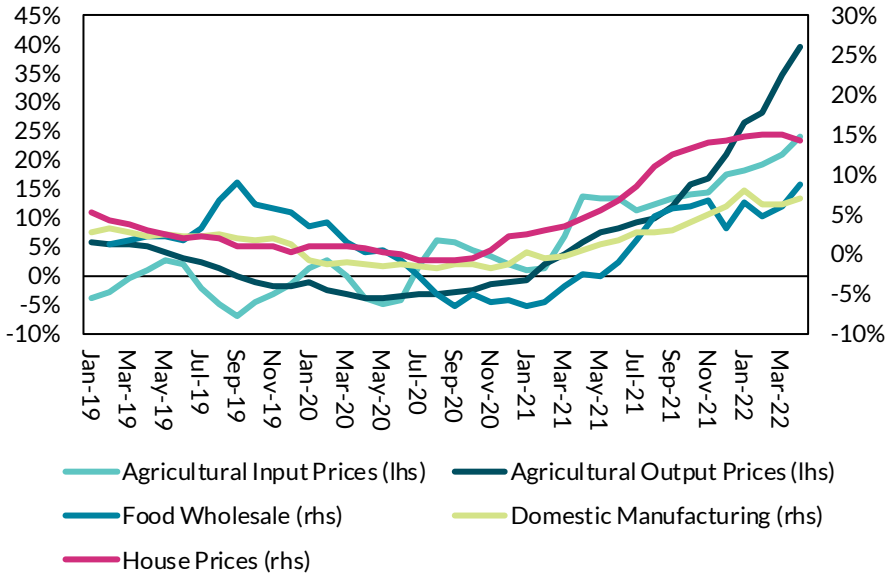
Broad based price increases evident throughout 2021

Figure 34: Wholesale, Asset, Agricultural and Manufacturing prices



Source: CSO

Table 2: Inflation Projections

	2021	2022	2023	2024
HICP	2.4	7.8	4.2	2.1
Goods	2.0	10.9	4.5	0.6
Energy	12.3	41.6	7.6	-4.2
Food	0.5	6.8	5.9	2.4
Non-Energy Industrial Goods	0	3.7	2.4	1
Services	2.4	4.5	3.8	3.6
HICP ex Energy	1.5	4.7	3.8	2.7
HICP ex Food & Energy (Core)	1.7	4.3	3.4	2.9
Modified Domestic Demand Deflator	3.3	6.6	4.0	2.8
Private Consumption Deflator	3.3	7.7	3.1	2.5
Modified Investment Deflator	4.6	8.4	4.8	3.6

Source: CSO, Central Bank of Ireland

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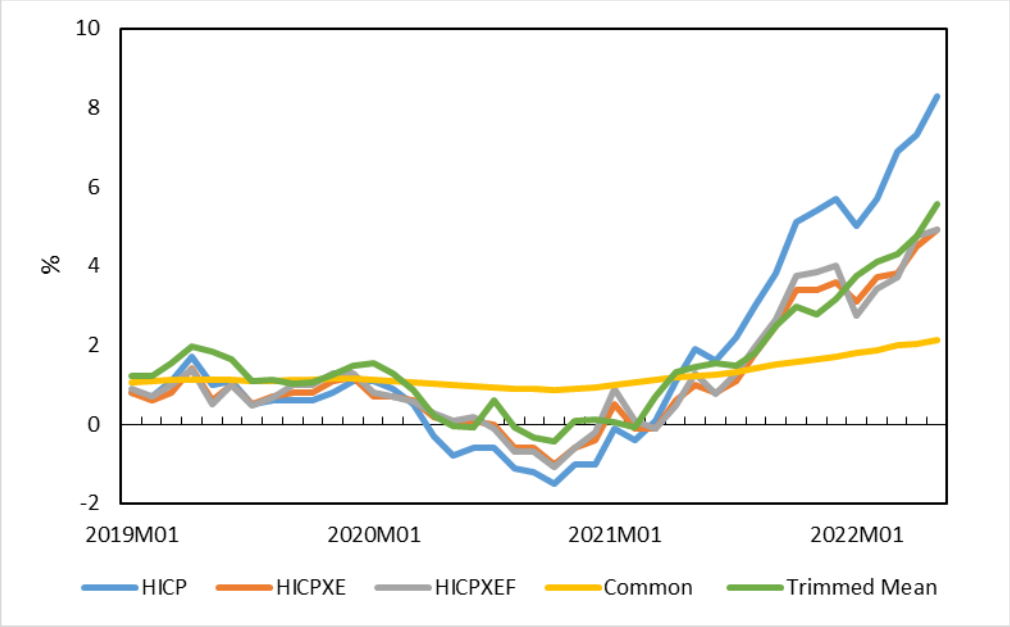
Box E: Developments in underlying inflation trends – have sector specific shocks become broader?

By John Scally, Graeme Walsh and Zivile Zekaite[40]

This *Box* builds on *Box* E in *Quarterly Bulletin 1 2022* that looked at a measure of underlying inflation known as common inflation. We present updated estimates of core, trimmed and common inflation for Ireland and consider whether increases in energy and food prices are broadening to other categories of consumer goods and services.

Figure A shows estimates of underlying inflation for Ireland for the 2019 to 2022 period.

Figure 1: Measures of Inflation 2019-2022



Source: CSO, Author's calculations

The most common estimate of underlying inflation is core HICP inflation, which permanently excludes the most volatile components of food and energy. Figure 1 indicates that inflation excluding energy (HICPXE) and inflation excluding food and energy (HICPXEF) increased to 4.9 per cent in May 2022. This measure of underlying inflation could be indicative that price pressures are broadening. Traditionally, components of inflation that exhibit high volatility also tend to be less persistent (Figure 2). Volatility in inflation can sometimes be attributable to temporary factors that may not affect the medium-term

[40] Irish Economic Analysis Division and Monetary Policy Division.

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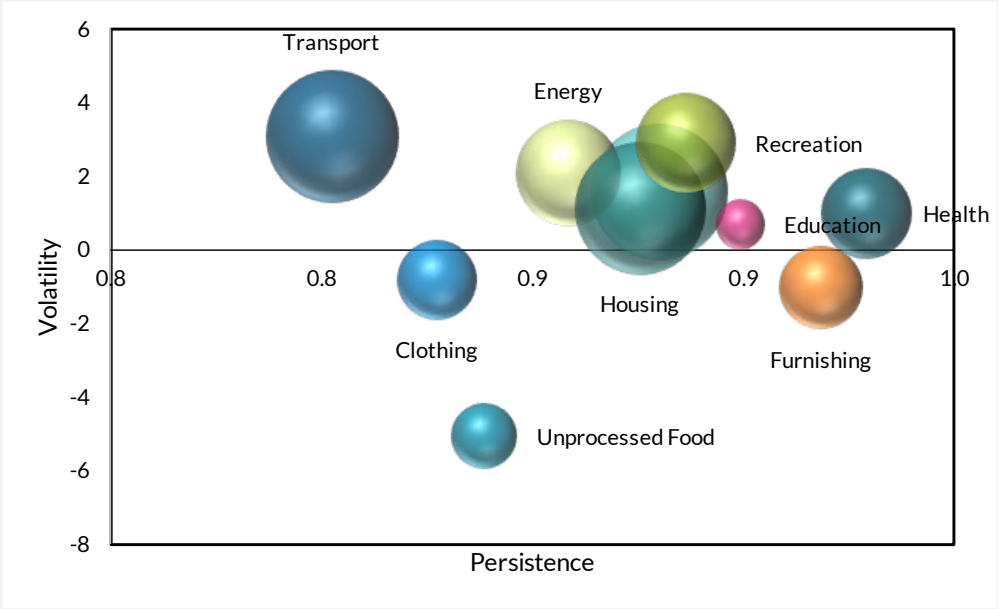
inflation outlook. Swings in energy and food prices can be short-lived and reflect temporary factors like mechanical problems in pipelines or adverse weather that could quickly reverse and are not general inflationary (or deflationary) trends. In the present situation, however, the increase in energy and, to a lesser extent, food prices has been more protracted than previously anticipated. These measures of core HICP inflation – excluding energy and excluding food and energy – may still include the effect of other transitionary effects not in the food and energy categories. One such possibility is base effects related to low inflation experienced during the pandemic. It is useful, therefore, to examine a range of underlying measures to gauge changes in the medium term inflation outlook.

Figure 2: Persistence and volatility of sub-components of inflation



Source: Author's calculations
Note: Volatility is measured by the coefficient of variation, which scales the standard deviation by the mean of the series. Persistence is measured as the sum of the autoregressive coefficients where the optimal lags are chosen according to the Schwarz information criteria.

Other measures of underlying inflation use temporary exclusion methods like the trimmed mean. Large temporary outlying fluctuations can occur in sub categories of inflation that may be unrelated to broader macroeconomic developments that can impact headline inflation. Trimmed means that exclude the outlying fluctuations may give a better sense as to broad-based movements. These measures offer more flexibility than the core measures as they can abstract from large one-off price changes in items that are traditionally non-volatile. We also present estimates of the trimmed mean (Figure 1). This is the

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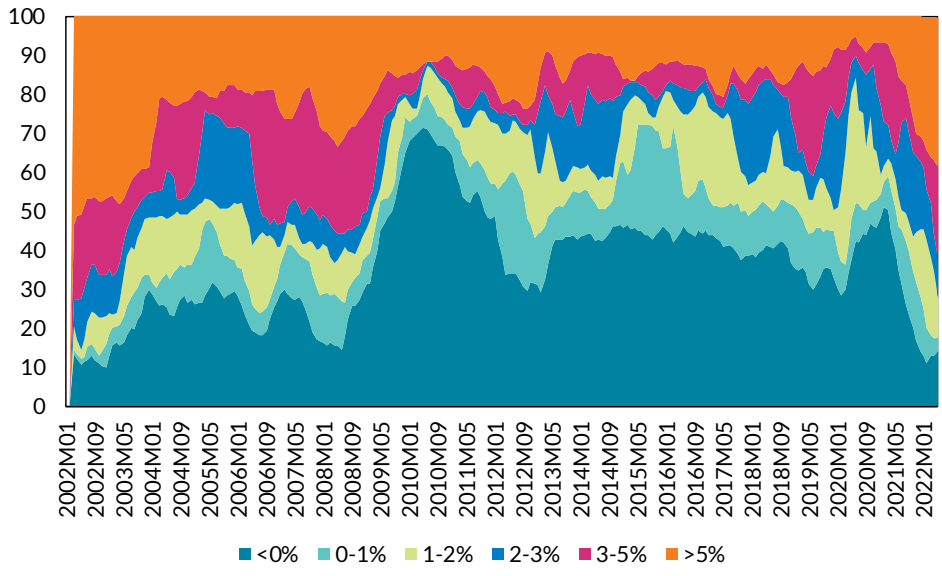
average rate of inflation after trimming away a certain percentage of the distribution of price changes at both extreme ends of the distribution, in this case the 30 per cent trimmed mean. This measure also shows an increasing average trend during 2021 and 2022, and stood at 5.6 per cent in May 2022.

Related to the trimmed mean concept, Figure C presents a weighted distribution of price changes across sub-indices of the HICP at a more disaggregated level over time. Each area in the figure denotes a percentage share of the consumer basket with year-over-year inflation rates falling in the specified intervals. In the latest months, a shift towards the higher rates of inflation is evident, with rates over 3 per cent representing 63 per cent of the consumer basket on average. This suggests there has been a broadening in the range of consumer goods and services experiencing higher inflation rates, but not on an unprecedented scale. [41] The lower rates of inflation are now a minority in the basket of HICP goods and services.

Figure 3: The proportion of the overall consumption basket seeing price rises greater than 3 per cent has increased to 63 per cent in recent months



Source: CSO and Central Bank of Ireland calculations

Note: Chart shows the proportion of the HICP basket by inflation pace.

We also present updated estimates of common inflation, building on the methodology presented in Nir, Haberkorn, and Cascaldi-Garcia (2021) and

[41] Prior to 2009, the share of sub-aggregates with inflation rates above 2 per cent is on average 59 per cent.

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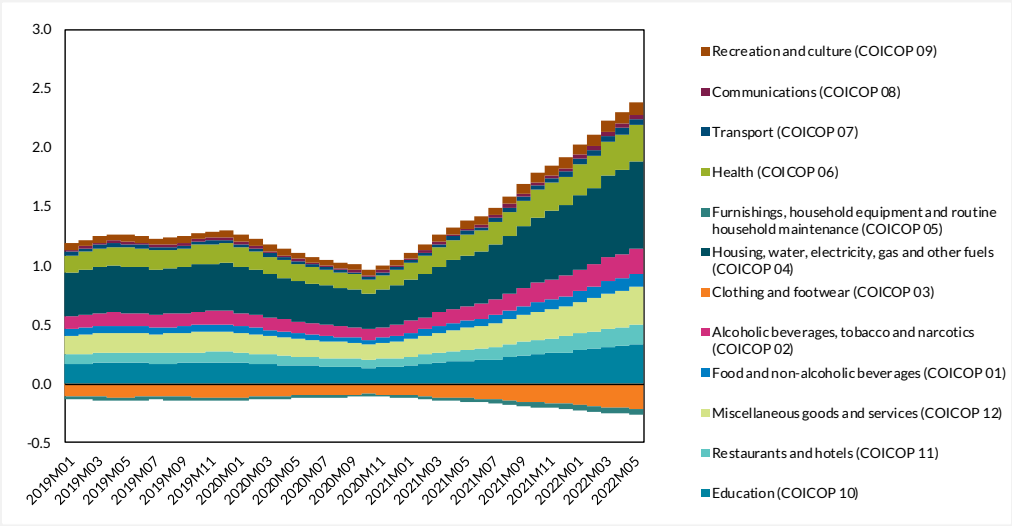
discussed in previous *Bulletins*. Taking on board the latest inflation data for May 2022, the common component of inflation is estimated to be 2.1 per cent[42]. This compares to a common inflation measure of 1.1 per cent at the end 2021 and shows that the common component estimate started to trend upwards since around the middle of 2021 (Figure 1). This increase in the common component measure suggests that the post-pandemic environment and Russian invasion of Ukraine are having knock-on effects on underlying inflation in Ireland, not just headline inflation.

Figure 4 shows a decomposition of the common component into the contributions of each broad category. The main driver behind the recent upward trend is Housing, water, electricity, gas and other fuels (COICOP 04), which contributed 0.7 percentage points (or 35 per cent) to the common component in May 2022. This provides evidence that higher energy prices are feeding through to underlying inflation and highlights one of the advantages of the common component over exclusion-based measures of underlying inflation, such as core inflation, that exclude energy on an a priori basis. Miscellaneous goods and services (COICOP 12), Education (COICOP 10), and Health (COICOP 06) each contributed 0.3 percentage points (or a total of 45 per cent) to the common component in May 2022. Two categories made small negative contribution; namely, Clothing and footwear (COICOP 03) and Furnishings, household equipment and routine household maintenance (COICOP 05).

Figure 4: Common Component Decomposition



Source: Author's calculations

[42] We focus here on the aggregated version of the common inflation measure, which uses the 12 category 2 digit COICOP division of the HICP.

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To examine the relationship between the HICP and common component, we estimate a bivariate VAR model and examine how each variables responds to a shock. This allows us to assess the dynamic properties of both series, and whether there is some relationship between them.[43] Figure 5 presents the results.[44] In response a shock to HICP, there is an immediate jump in HICP with the peak effect occurring after about 3-4 quarters. HICP returns to the baseline after about 7-8 quarters (see panel A). The common component reacts to a shock to HICP with a lag and peaks around 6-7 quarters later. While the common component increases by less than the shock to HICP, the effect is more persistent, with the common component remaining above the baseline after 8 quarters (see panel B). In the case of a shock to the common component, both HICP and the common component increase and remain above the baseline after 8 quarters (see panels C and D). In summary, there are three key points (i) HICP is more responsive to shocks, particularly in the shorter run, (ii) the common component reacts more slowly with a smaller peak effects, and (iii) shocks have persistent effects on the common component. These simple statistical properties highlight the medium term risk to the underlying inflation outlook.

[43] Note that this is a statistical model and not structural economic model but is useful in examining the inherent properties of the time series. These findings are consistent using a quarterly VAR with 4 lags and a monthly VAR with 14 lags.
[44] Confidence intervals are plus/minus 2 standard deviations.

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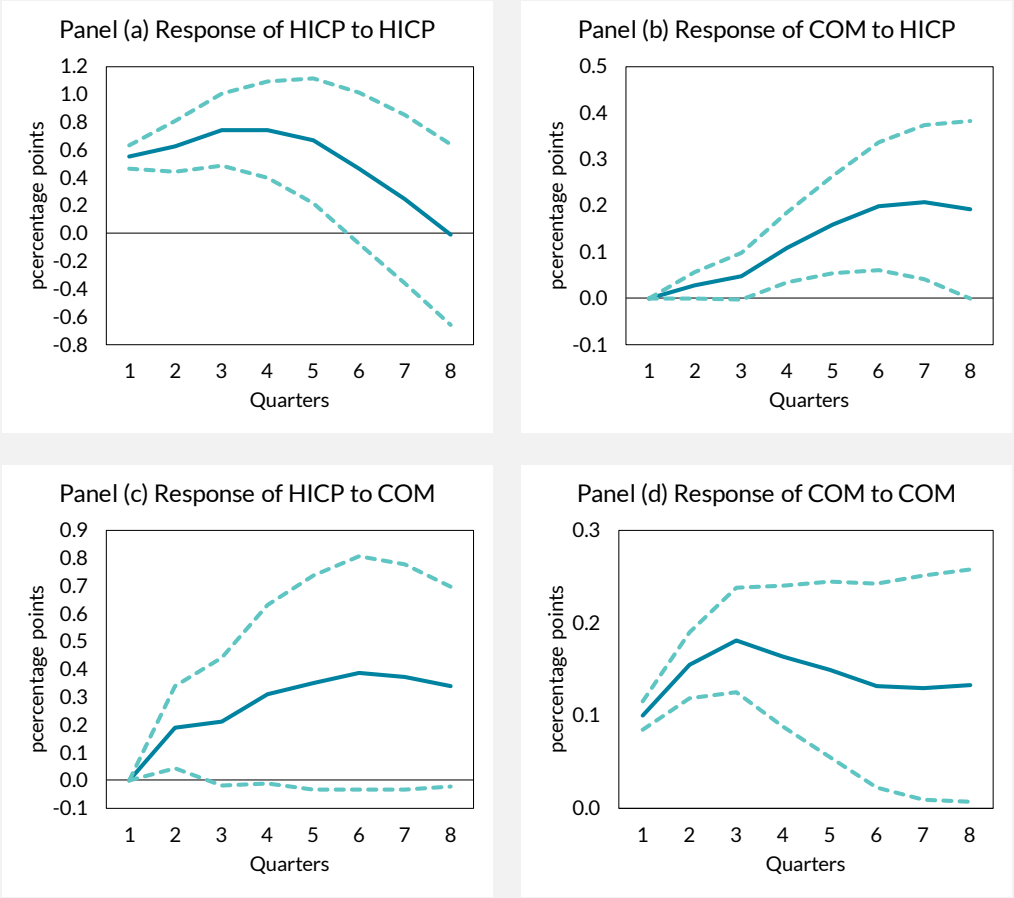
Figure 5: Reaction to a shock in inflation time series



Source: Author's calculations

Examining different selected categories of goods within the HICP can also give an indication as to whether price increases are being observed across a broader range of goods and services. In particular, the Special Aggregates HICP category Non-Energy Industrial Goods (NEIG) is of interest. This sub-component contains a wide spectrum of consumer goods including footwear and clothing, furniture, large and small household appliances, electronic goods, cars and recreational equipment. This category of goods has experienced a long pronounced price decline in Ireland, evident from the decline in the index in Figure 6. In Q4 2021, however, the year-year rate for NEIG turned positive for the first time in almost two decades, reaching its highest recoded rate of 4.5 per cent in May 2022. This points to a more general rise in goods prices across a range of different products.

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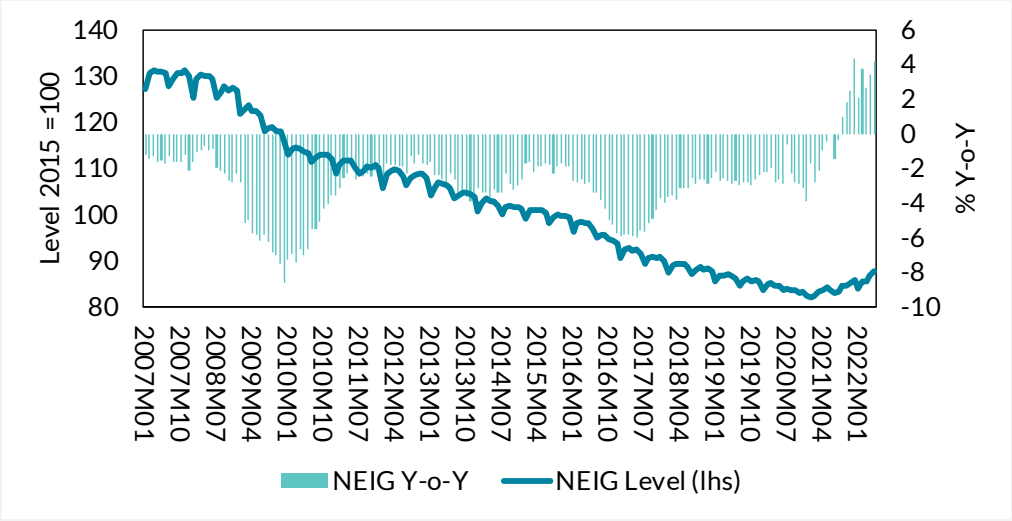
Figure 6: Special Aggregates Non-Energy Industrial Goods



Source: Eurostat

Taken together, the range of measures of inflation presented in this Box – the core, trimmed, common, NEIG and distribution of indices with high rates of inflation – all suggest that underlying inflationary pressures are increasing, with inflation becoming more persistent and widespread over recent months. It should be noted that these underlying measures of inflation are largely statistical in nature and should be supplemented with analysis of the underlying macroeconomic forces driving these developments, presented in the main text.

Labour Market

Labour market projections have been revised upwards due to a combination of continued strong labour demand, the success of the income-support schemes in limiting flows to unemployment and robust trends in expanding sectors. Employment levels are relatively unchanged in Q1 2022 from the previous quarter at 2.5 million persons and remain at historical highs. A new peak of 80.8 million hours per week was recorded in Q1 2022, representing a 17.6 per cent annual increase. In terms of numbers employed, there was a 12.3 per cent annual increase in the first quarter of the year compared with the period immediately prior to the recent notable expansion in labour force participation. There are, however, a number of downside risks to the labour market outlook such as the current inflationary environment and closure of the EWSS scheme in

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Q2 2022. There may be potential for a moderation in employment or hours worked growth, particularly in contact-intensive sectors, as firms begin to realise full wage costs alongside other rising input costs and lower consumer expenditure. Employment is projected to increase by 4.5 per cent in 2022 before slowing to 1.8 per cent in 2023 as base effects level off and the availability of labour becomes a more binding constraint to further expansion.

While the aggregate series remains at a historical peak, employment in contact-intensive sectors have yet to fully recover to pre-pandemic levels. The accommodation and administrative sectors are the furthest behind Q4 2019 employment levels (9.2 per cent and 8.5 per cent, respectively). While the removal of the remaining pandemic restrictions in March 2022 may enable these sectors to recover close to previous activity levels, many contact-intensive sectors are experiencing difficulties in recruiting staff following movement to other employers or sectors over the pandemic. The diminishing level of available slack in the labour market presents a downside risk to the potential expansion of firms in the hospitality sector, while sectors most severely affected by the pandemic may have lower capacity to absorb increasing business and wage costs.[45] Employment growth may occur on a slower and more gradual basis relative to expanding sectors such as ICT (28.4 per cent) and Finance (17.5 per cent). Trends in the total number of actual hours worked have started to catch up with recent employment developments as Covid-related distortions in the data begin to lessen and the contribution of full-time employment to overall growth increases (Figure 35).[46]

[45] European Commission (2022) Post-Programme Surveillance Report: Ireland, Spring 2022
[46] The share of persons in employment in Q1 2022 who were absent from work for reasons such as holidays, sick leave or maternity leave was estimated to be 6.7 per cent in Q1 2022. This was lower than previous corresponding periods in Q1 2021 (13.9 per cent) and Q1 2020 (8.9 per cent).

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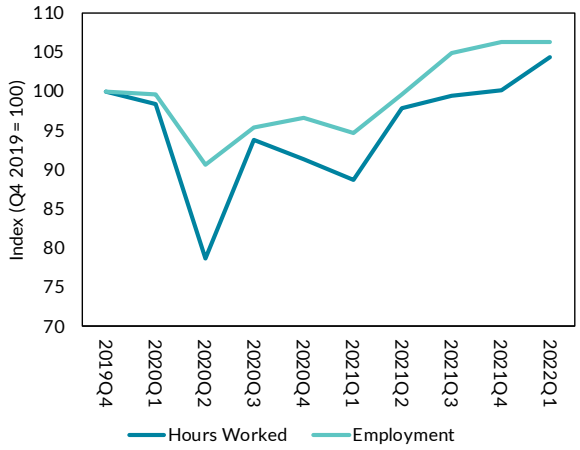
Actual hours worked has started to converge with employment expansion

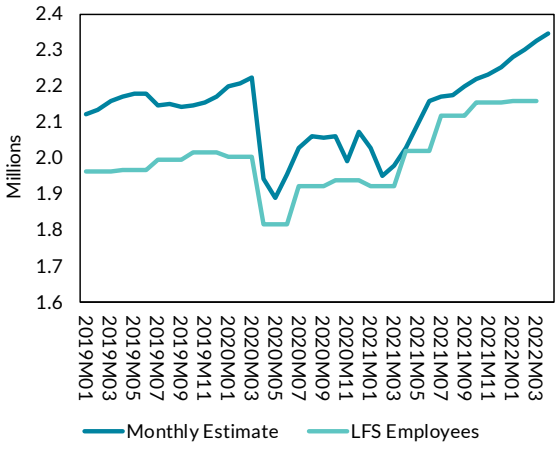
Figure 35: Change in total actual hours worked and employment



Source: CSO

New monthly indicator shows strong growth in employee levels in line with official LFS statistics

Figure 36: Monthly Employee Estimate and LFS Employee series



Source: CSO

The CSO have introduced a new monthly estimate of payroll employees that uses administrative data to complement existing data sources. This new indicator provides age, gender and sectoral employee breakdowns both in indexed and absolute level terms from January 2019 onwards. While this monthly measure cannot be directly compared with the official Labour Force Survey, which is operated on a quarterly basis; it will be a useful tool in analysing the labour market in a more high-frequency manner particularly as pandemic income-support schemes are phased out.[47] Figure 36 shows that the monthly series moves in a similar trend to the LFS employee subseries albeit with a number of differences in the underlying methodology such as the objective nature of income payments compared to a person's subjective survey response. The most recent data for April 2022 recorded just over 2.4 million employees on a seasonally-adjusted basis, representing an annual growth rate of 15.6 per cent.

The labour force increased by 9.6 per cent annually as result of the recent expansion in female and youth labour force participation. However, as activity levels of various cohorts may offset one another there may be limited scope for further increases in the labour force participation rate (LFPR) far beyond the current rate.[48] The LFPR

[47] See further information on the underlying methodology of Monthly Estimate of Payroll Employees using Administrative Data here.
[48] Full Employment refers to an unemployment rate where any individual who wants a job is able to find one. Full employment does not mean that the unemployment rate is zero, as

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declined slightly from 65.1 per cent to 64.8 per cent on a quarterly basis in Q1 2022 following a decrease in the number of persons aged under 25 years in the labour force. Measures of potential additional labour supply continue to decline. Compared with the previous quarter the number of persons in the Potential Additional Labour Force fell to a new low within the LFS series (81,000). As these and other measures of labour slack diminish, sectors may increasingly rely on net inward migration flows to fill current vacancies.[49] The arrival of over 33,000 Ukrainian nationals to date (of which 70 per cent are aged 15 years or over) may be slow to appear in official working age population or labour force statistics due to the nature of the survey data collection.[50] If these arrivals were to be counted alongside the recovery in traditional net inward migration flows following the removal of international travel restrictions, it would then contribute to a greater than projected increase in the working age population. This would then generate subsequent upward or downward effects on the labour force participation rate depending on the individual's labour status or barriers to labour market participation.[51] The labour force is forecast to increase by 3.3 per cent in 2022 before slowing to 1.5 per cent in 2023.

Unemployment projections have been revised downwards given the relatively low numbers in receipt of the Pandemic Unemployment Payment (PUP) and Employment Wage Subsidy Schemes (EWSS) at their points of closure. The PUP scheme closed at end-March with under 45,000 recipients and early-stage trends from indicators such as the Live Register suggest a lower than previously anticipated transition to traditional supports and unemployment.[52] The closure of the PUP scheme has resulted in a discontinuation of all Covid-adjusted labour market series as distortionary effects begin to lessen with respect to official ILO statistics, although, Q1 2022 data is inclusive of over 240,000 EWSS-supported

some unemployment occurs as workers move between jobs, referred to as frictional unemployment.

[49] The Potential Additional Labour Force (PALF) consists of two groups classified as outside of the labour force: 'Available for work but not seeking' and 'Seeking but not immediately available'. These groups have a historically higher transition rate to employment compared to other cohorts outside of the labour force.

[50] The Labour Force Survey covers all citizens living in private households and excludes those in collective or institutional households. Persons living in hotel accommodation or other short-term residential settings would not appear in LFS data under the current methodological process.

[51] ECB (2022) The impact of the influx of Ukrainian refugees on the euro area labour force

[52] See Labour Signed Article Box A "Duration on the Pandemic Unemployment Payment"

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employments. The EWSS concluded at end-May for all remaining firms in the contact-intensive sectors with an estimated 97,700 recipients, of which 89 per cent were employed in the Accommodation and food services sector (Figure 37). While a clearer picture regarding employment risks will emerge later in the year, if increased business and wage costs were to result in a reduction in employment levels, the subsequent effect on the relatively higher levels of younger workers in these contact-intensive sectors may see a greater transition out of the labour force rather than towards unemployment (Figure 38).[53] This would then result in a relatively lower increase in the unemployment rate compared to separation from employment for workers aged over 25 years. While strong labour demand in expanding sectors may absorb spare labour capacity, this would be dependent on a number of factors such as the level of skills mismatch and geographical proximity to new employment opportunities among others. The unemployment rate is projected to increase in the second half of the year as sectors worst affected by the pandemic face relatively greater financial constraints. There were 126,700 unemployed persons in Q1 2022 (4.8 per cent), a decline of 43,800 from the corresponding period in 2021 when the unemployment rate measured 7.1 per cent. The unemployment rate over the forecast horizon is expected to average 5.2 per cent, 4.8 per cent and 4.5 per cent in 2022, 2023, and 2024 respectively.

[53] Younger workers aged under 25 years typically display a higher transition rate from employment to outside of the labour force in the event of an employment ending relative to the transition rate to unemployment. See Keenan and McIndoe-Calder (2021) for further details. Additionally, persons in third-level education are classed outside of the labour force by the ILO classification methodology if not already in employment.

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EWSS continued into May for a number of adversely affected sectors with Accommodation sector accounting for the greatest share of total recipients and those aged under 25 years

Figure 37: Sectoral composition of EWSS recipients

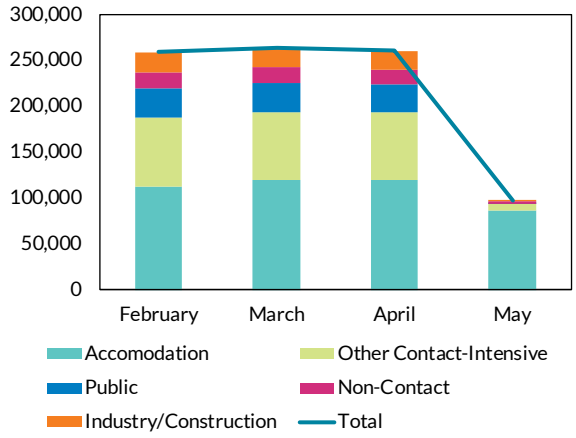
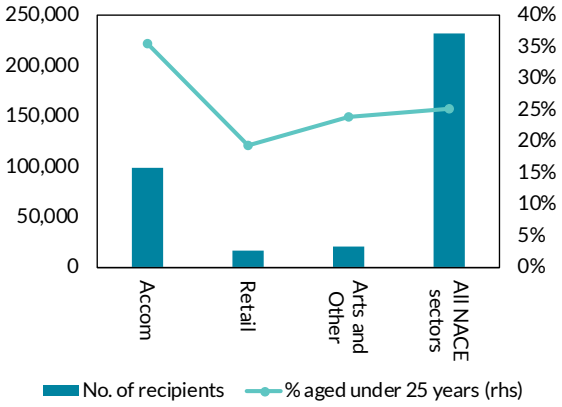


Figure 38: Age breakdown of April EWSS recipients



Source: Revenue Commissioners, CSO
Note: 'Other Contact-Intensive' includes Admin, Retail, Transport, Arts and Other sectors. 'Non-Contact' sectors include ICT, Professional and Finance. 'Public' includes Education, Health and Public Admin

Earnings and Incomes

The annual growth rate in average hourly earnings has slowed for the third consecutive quarter to 1.7 per cent as a number of decomposition effects in the EHECS persist within the series. These effects will begin to dissipate over the coming months as income support schemes have been phased out in Q2 2022.[54] To lessen these compositional issues, Figure 39 decomposes the change in total sectoral earnings in the two-year period to Q1 2022 by the change in employment, hourly earnings and hours worked. The largest overall change is evident in the ICT sector (44 per cent) with increasing employment levels accounting for 31 per cent and growth in hourly earnings constituting 14 per cent. At the other end, increases in hourly earnings are observed in Arts, Accommodation and Administration. However, corresponding declines in employment signify this may be reflective of a lower share of lower-earners.

Employees in sectors more applicable to remote-working have exhibited the highest share of irregular earnings in recent years, potentially reflecting efforts by firms in tighter labour markets to retain or attract staff. The share of irregular earnings across all sectors has remained relatively steady over time, moving from 6.4

[54] See Signed Article Box B "Data Challenges to Understanding Wage Developments" for discussion of earnings developments with respect to compositional issues

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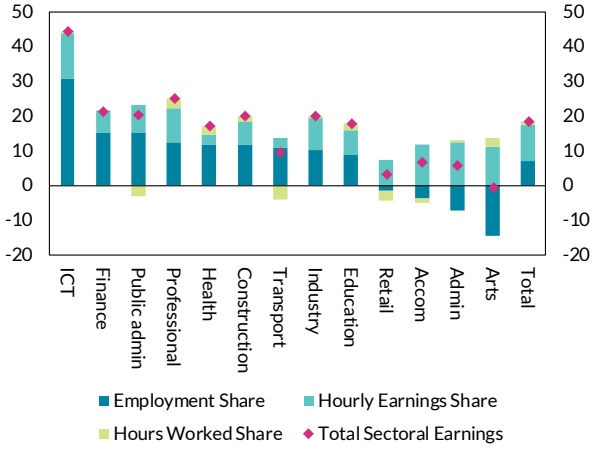
per cent in 2008 to 8.6 per cent in 2022; however, within the ICT sector it has increased from 9.3 per cent to 21.1 per cent over the same period (Figure 40).[55] These firms may have relatively greater financial capacities to provide productivity bonuses to attract staff while also operating in sectors experiencing tighter labour market conditions pre-dating the pandemic due to the increased international competition for highly skilled candidates.[56]

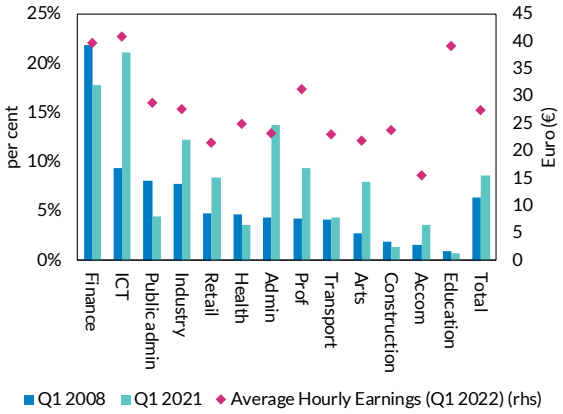
Effects of pandemic remain evident in contact intensive sectors but continued earnings expansion in remote-working sectors which also display high share of bonus payments

Figure 39: Decomposition of two-year change in total sectoral earnings (Q1 2020- Q1 2022)



Source: CSO – EHECS

Figure 40: Average Hourly Earnings and share of Irregular Earnings (Q1 2022)



Source: CSO – EHECS

The EHECS job vacancy rate has continued to increase in Q1 2022, reaching a new peak of 1.6 per cent to reflect continued strong labour demand in the economy following the lifting of all pandemic restrictions. Vacancy rates remain highest in the highly skilled sectors of Finance (3.2 per cent), Professional (3.2 per cent) and ICT (2.7 per cent). In terms of absolute vacancies, there were 3,700 more open positions in the hospitality and retail sectors than in Q4 2019 as the combined sectors remain over 18,000 persons below pre-pandemic employee levels. Analysis from PUP data has shown that of those known to have joined the scheme from the hospitality and retail sectors and who have since returned to work, 47 per cent are currently working for a new employer or within a different sector.[57] This would suggest a high degree of job churn within the labour

[55] Irregular earnings refer to bonuses that are not paid regularly at each pay period. For example: end of quarter or year productivity bonus
[56] Indeed (2022) Brain gain or drain? How shifts in international job search are accelerating global competition for talent
[57] IGEES (2022) Trends in Post-PUP Employment: Examining the employment transitions

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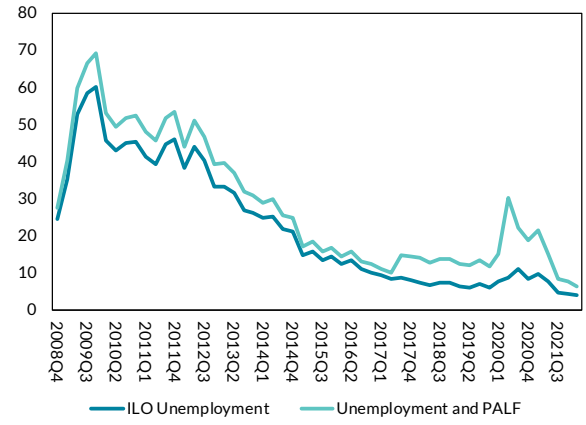
market at a time when firms sought additional labour supply to cope with increased consumer expenditure activity. The ratio of vacancies to unemployment as a measure of labour market tightness has reached a new low of just under four persons per vacancy (Figure 41) indicating that as the pandemic recovery continues, net inward migration is likely to play a greater role in addressing labour demand pressures across various sectors. Across Europe, firms are increasingly citing the availability of labour as a factor limiting business operations across Europe (Figure 42). The growth rate of Indeed job postings, a high frequency labour demand indicator, has shown signs of plateauing albeit at an elevated position. Levels for May have slowed to 56 per cent above the pre-pandemic reference period, having measured 65 per cent in February.[58] The slowdown in job postings is considered to be a combination of inflationary headwinds and postings having reached their natural peak months.[59]

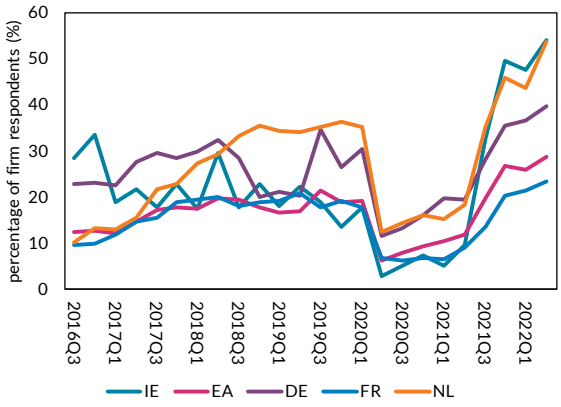
Measures of labour market tightness reach new low point as pools of labour supply continue to diminish with firms increasingly citing as a main factor limiting business

Figure 41: Ratio of job vacancies to labour slack measures



Source: CSO – EHECS

Figure 42: Share of firms citing availability of labour as a limiting factor



Source: EU Commission Surveys

The increasing net flow of younger workers into the labour market over the course of the pandemic observed in the Signed Article analysis may have acted to ease potential wage pressures in contact-intensive sectors that could have emerged following the reallocation of workers to other sectors. This, in turn may help to explain current

[58] Indeed (2022) Irish Job Postings Through 20 May: Plateauing at a High Level
[59] Indeed (2022) Job Posting Growth Stalls in Europe

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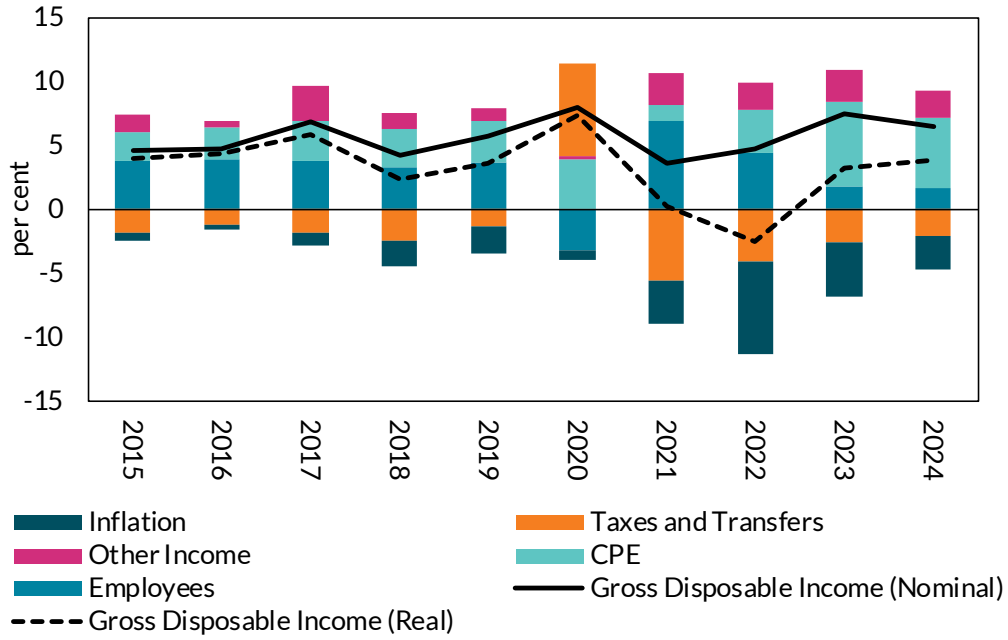
lower wage developments in Ireland relative to UK or US markets.[60] Employment in Ireland has exceeded pre-pandemic levels, while there has been a labour supply shock in the US and UK with a greater flow of workers out of the labour force. Nominal growth in total household gross disposable income of 4.8 per cent is expected to translate to a 2.5 per cent decline in real terms (Figure 43). Real compensation per employee is projected to decrease by 4.2 per cent this year before increasing by 2.4 per cent in 2023 and 3.3 per cent in 2024 buoyed by tighter labour market conditions along with compensation effects for higher rates of inflation. The gradual phasing out of the national minimum wage to be replaced with a new living wage by 2026 may have further upward effects on these figures over the forecast horizon as timelines and figures are released.[61]

Decline in real gross disposable income expected this year before rising over forecast horizon

Figure 43: Decomposition of Gross Disposable Income Growth



Source: CSO and Central Bank of Ireland

[60]Adrjan and Lydon (2022 – Forthcoming) How tight is the labour market? Evidence from online data
[61]Dept. of Enterprise, Trade and Employment: Outlined proposal for living wage for all

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Table 3: Labour Market Projections

	2021	2022f	2023f	2024f
Employment (000s)	2,389	2,496	2,542	2,584
% change	6.1%	4.5%	1.8%	1.7%
Labour Force (000s)	2,547	2,632	2,670	2,706
% change	6.5%	3.3%	1.5%	1.4%
Participation Rate (% of Working Age Population)	63.3%	64.3%	64.4%	64.5%
Unemployment (000s)	158	136	129	123
Unemployment Rate (% of Labour Force)	6.2%	5.2%	4.8%	4.5%
COVID-adjusted Unemployment rate (% of Labour Force)	14.7%	5.2%	-	-

The Public Finances

Overview

Against the backdrop of a strong economic recovery and a decline in temporary pandemic related expenditure, the general government balance improved significantly last year. In nominal terms the deficit declined by €11bn to -€8.1bn, with the deficit ratio estimated to have fallen to -3.6 per cent of GNI* (See Table 4).[62] Revenue growth was extremely strong, increasing by 17.3 per cent, reflecting very favourable developments in both direct and indirect tax receipts. Taxes ended the year 10 per cent ahead of profile and, while both income taxes and VAT were stronger than anticipated, the largest positive surprise – in nominal and percentage terms – came from corporation tax receipts. As a result, corporation tax represented 22 per cent of total tax revenue last year, up from 15 per cent just five years earlier. Expenditure growth moderated sharply from the previous year, but still increased by 3.2 per cent as the strong increase in permanent 'core' spending outlined in Budget 2022 outweighed a decline in temporary Covid-19 related spending. The latter is estimated to have fallen from €14.7bn in 2020 to a still significant €12.4bn (7.1 to 5.4 per cent of GNI*).

The outlook is for the general government balance to continue to improve over the medium term. The deficit is projected to decline to

[62] A final figure for nominal GNI* has yet to be released for 2021.

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-0.5 per cent of GNI* this year, before recording a small surplus in 2023. This surplus is then expected to strengthen to 2 per cent of GNI* in 2024. The broad trends driving this improvement are further robust revenue increases – supported by continued growth in the economy – and the withdrawal of temporary spending related to both the Covid-19 pandemic and the provision of humanitarian support arising from the Russian invasion of Ukraine. These supportive factors are partly offset by ongoing strong growth in core expenditure (Figure 44). Reflecting the latter, total government spending is projected to be 30 per cent higher in 2024 when compared to before the pandemic.

The general government debt ratio is projected to decline in the coming years, but will remain at an elevated level. The debt ratio – as a percentage of GNI* - increased by 10 percentage points in 2020 and is estimated to have recorded a small improvement to 103.4 per cent last year. Debt dynamics are expected to turn more favourable this year, with the primary balance moving back to surplus, the interest-growth differential remaining strongly negative and the government planning to use existing cash balances to fund some of the deficit. While Irish sovereign borrowing rates have continued to trend upwards in recent months, the relatively low level of bonds maturing in the coming years, coupled with the large cash balances held by the National Treasury Management Agency (NTMA) provide the sovereign with some funding flexibility going forward.

The fiscal outlook remains surrounded by a considerable degree of uncertainty. This reflects not only uncertainties linked to the Covid-19 pandemic, such as the final cost of support measures, but is also those linked to the Russian invasion of Ukraine. In the short term, the current high inflationary environment raises risks to spending as delivering a set level of real expenditure will require a higher nominal outlay. There are also broader, more general medium term structural uncertainties such as those related to government spending pressures (like climate action and ageing), and risks to revenue such as the potential impact of international tax reforms on corporation tax receipts.

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Table 4: Fiscal outlook under a baseline scenario (per cent of GNI* unless otherwise stated)

	2020	2021f	2022f	2023f	2024f
GG Balance (€bn)	-19.1	-8.1	-1.4	2.3	5.9
GG Balance (% GNI*)	-9.2	-3.6	-0.5	0.8	2.0
GG Balance (% GDP)	-5.1	-1.9	-0.3	0.4	1.1
GG Debt (€bn)	217.9	235.9	233.2	229.3	230.8
GG Debt (% GNI*)	104.7	103.4	92.5	84.4	79.8
GG Debt (% GDP)	58.4	56.0	48.8	45.1	42.7

Source: CSO and Central Bank of Ireland Projections

Fiscal Outlook, 2022 to 2024

Following on from the positive developments in 2021, the general government balance is projected to record a further improvement this year, with the deficit falling to -€1.4bn or -0.5 per cent of GNI*. Revenue growth of 9.3 per cent is expected, a moderation from the exceptional level recorded in 2021, but notably stronger than the average growth rate experienced in the three years prior to the pandemic. In nominal terms, private consumption growth remains very strong, supporting indirect tax receipts, while employment and compensation growth are projected to continue to drive direct tax revenue. Tax receipts grew by 27 per cent in annual terms in the first five months of the year, when they were also 2.3 per cent ahead of profile, with corporation tax continuing to perform very strongly. This pace of growth is expected to moderate in the second half of the year, while Exchequer receipts may also overstate the general government improvement due to the impact of tax warehousing.[63] Total expenditure is projected to grow by 2.1 per cent this year, but there remains uncertainties over the resources that will be required to provide humanitarian support for refugees from the Ukraine invasion and to fund Covid-19 related spending. Consistent with the fiscal projections presented in the recent Stability Programme Update (SPU), it is assumed that the full resources allocated for Covid-19 in Budget 2022 – including the contingency reserve - is spent this year, either on pandemic, income or humanitarian supports. This still results in temporary spending measures declining by €5.5bn (2.2 per cent of GNI*) as the major Covid-19 income

[63] In general government terms these warehoused receipts are accrued back to the year in which they were due to be paid, reducing revenue for the year.

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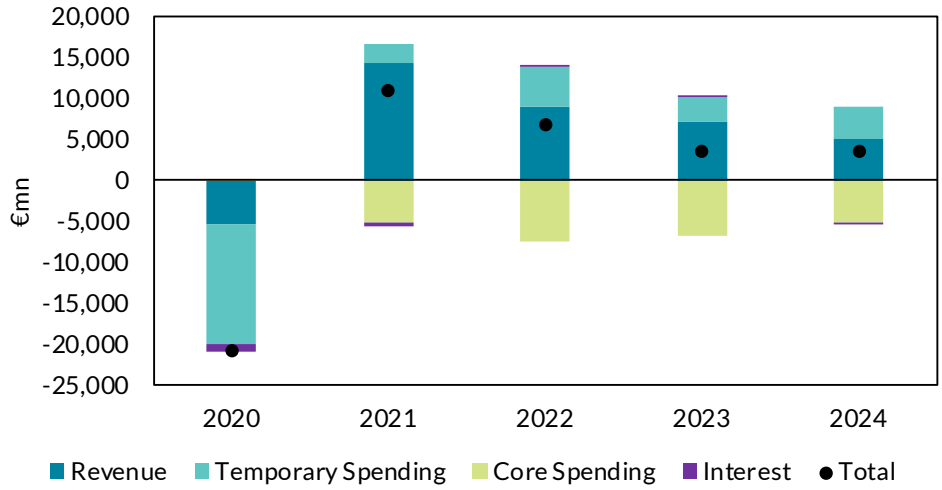
support programmes are wound down. Ultimately, however, this figure could be larger or smaller, and more timely information on temporary spending measures as they occur would facilitate a more accurate assessment. Outside of these factors, core spending continues to grow strongly. Government investment is expected to increase at a particularly robust pace, underpinned by the National Development Plan.

Deficit improves over medium term as pandemic related spending declines

Figure 44: Factors driving change in General Government Balance



Source: CSO, Department of Finance, Central Bank of Ireland Projections

The improvement in the public finances is projected to continue over the medium term, underpinned by economic growth and the withdrawal of most of the remaining temporary supports. The general government balance is projected to return to surplus next year (€2.3bn or 0.8 per cent of GNI*) and to strengthen further in 2024 (to €5.9bn or 2 per cent of GNI*). This represents a considerable achievement given the scale of the deterioration that occurred in the public finances following the emergence of the pandemic. Almost all of the remaining Covid-19 related supports are expected to be withdrawn by the end of the projection horizon, directly reducing spending by €6.8bn (2.6 per cent of GNI*) compared to 2022. It is assumed that the full €3bn contingency that the Government has provided for Ukraine humanitarian support for 2023 is utilised, but this figure fully unwinds the following year when no contingency has been set aside (a potential source of downside risk). Core spending remains strong, supported by the Government's

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Medium Term Expenditure Strategy, and, as a result, total government expenditure continues to increase and is substantially higher at the end of the projection horizon than it was prior to the pandemic (30 per cent above the 2019 level in 2024). Revenue growth moderates to 7 and 4.5 per cent in 2023 and 2024 respectively, with the anticipated negative impact of international tax reforms on corporation tax receipts weighing on total receipts. Consistent with Government expectations, it is assumed that this results in a €2bn loss of revenue over the medium term. There is upside risk to this outlook given the expected increase in the tax rate from 12.5 to 15 per cent. Despite this, both direct and indirect tax receipts are expected to continue to perform strongly against the backdrop of robust consumption and employment growth.

Against the backdrop of very favourable debt dynamics, the gross debt ratio is expected to decline to 80 per cent of GNI* by the end of the projection horizon. While below its pre-pandemic level this would still represent an elevated ratio, with the nominal stock of debt €27bn above its 2019 level. The main driver of the improvement in the ratio over the medium term is the large, negative interest growth differential (Figure 45). The effective (average) interest rate on the debt stock is expected to average 1.5 per cent throughout the projection horizon, considerably lower than an average forecast GNI* growth rate of 8 per cent. While interest rates on new government borrowing have continued to increase in recent months, they remain lower than the rates paid on the majority of the government bonds that will mature in the coming years.[64] The return to primary surplus also means the primary balance has a favourable impact on the debt ratio from this year onwards, while the deficit debt adjustment (DDA) is expected to have a broadly neutral impact on the ratio. [65] The NTMA plans to issue €10bn to €14bn of bonds this year, of which €5.75bn was raised by late June. The NTMA held significant cash and other liquid assets entering June (€30bn or 12 per cent of GNI* at end May 2022) part of which is expected to finance around one-third of government's funding requirement this

[64] Three government bonds are set to mature over the projection horizon, with yields of 0.0 per cent (2022), 3.9 per cent (2023) and 3.4 per cent (2024). There is also a bond maturing in 2025 paying a yield of 5.4 per cent. As these yields remain above current interest rates, rolling them over could actually reduce the effective (average) interest rate.
[65] This is consistent with the deficit-debt adjustment outlined by the Government in the Stability Programme Update.

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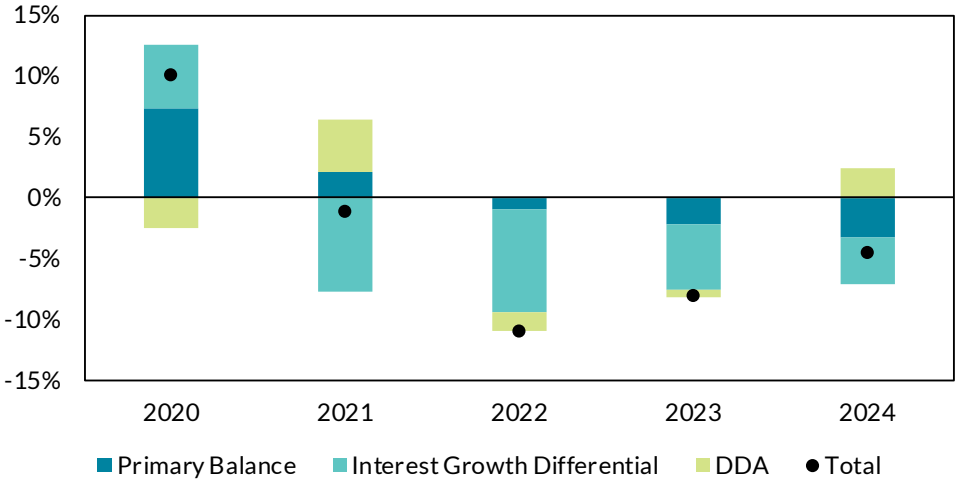
year. Coupled with Ireland's relatively long maturity profile – €20bn of government bonds are set to mature between now and end-2024 – these factors should provide funding flexibility over a less certain medium term environment.

Debt ratio declines over medium term but remains at elevated level

Figure 45: Factors driving change in Debt



Source: CSO, Department of Finance, Central Bank of Ireland Projections

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Signed Articles

The articles in this section are in the series of signed articles on monetary and general economic topics introduced in the autumn 1969 issue of the Bank's Bulletin. Any views expressed in these articles are not necessarily those held by the Bank and are the personal responsibility of the author.

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Labour Market Recovery After a Pandemic

Laura Boyd, Stephen Byrne, Enda Keenan, Tara McIndoe-Calder [66]

Abstract

Growth in employment in recent quarters has been mainly supported by women over 35 and young people. This reflects underlying trend improvements in participation, as well as the strength of the economic recovery. Currently, we find limited evidence of structural changes due to the pandemic. Employment gains have supported economic growth and earnings have risen. As the labour market tightened in the 2021 recovery period, relatively larger increases in earnings were recorded for women, younger workers and those who changed employer. With the economy currently experiencing tight labour market conditions, policy actions to support additional sustainable employment growth will be important to avoid wage developments decoupling from productivity.

[66] Irish Economic Analysis. With thanks to Sharon Donnery, Mark Cassidy, Martin O'Brien, Thomas Conefrey, Terry Quinn, Yvonne McCarthy and Vasilios Madouros for comments and to the Labour team in the CSO for granular data access. Remaining errors are our own. The views expressed here do not necessarily reflect the views of the Central Bank of Ireland nor the European System of Central Banks. Corresponding author: tara.mcindocalder@centralbank.ie

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Introduction

The labour market has seen a remarkable recovery from the effects of the Covid-19 pandemic. In the fourth quarter of 2021 there were 2.5 million people in employment, the highest on record and almost 150,000 more than at the end of 2019 (Figure 1). Employment in all but the worst affected sectors was above pre-pandemic levels as of the first quarter of 2022 (Figure 3). The recent pace of growth in employment has also outstripped the recovery in total actual hours worked, which has only just returned to pre-pandemic levels as of Q4 2021 (Figure 2). Further, the strong employment growth has occurred without a notable surge in migration. Rather, the employment surge was supported by an expansion of the domestic labour force.

These developments have led to questions around whether the pandemic ushered in structural changes that have enabled individuals on the margins of the labour force or outside it to take up employment. For example, perhaps the shift to greater remote working allowed people to work around childcare requirements, and that this disproportionately benefited women. Perhaps remote education or increases in the cost of living induced more young people to take up employment opportunities.

Employment increased above the medium-term trend, actual hours worked slower to recover to pre-pandemic levels, migration remains muted

Figure 1: Quarterly employment profile and linear trend

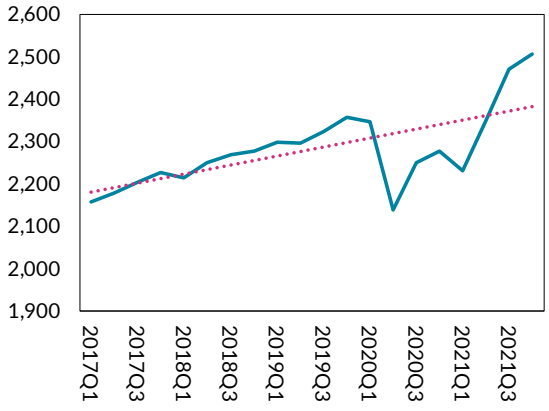
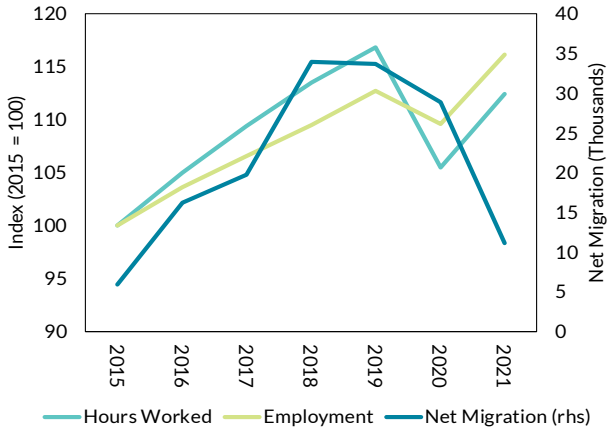


Figure 2: Indexation of employment, total actual hours worked and net migration flows



Source: CSO and authors' calculations

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The analysis in this paper suggests that there is no strong evidence to date that pandemic-related changes such as remote working are the dominant factors supporting the spike in employment. Rather, our analysis suggests that the participation expansion supporting employment growth in 2021 relates to under-25s and women over the age of 35. Our analysis shows that both of these groups tend to respond strongly to the state of the business cycle. For women, in particular those over 35, an additional "cohort" effect has seen trend increases in their labour force participation that predate the pandemic and is expected to continue for some time to come. This occurs as older age groups, with lower propensities to participate in the labour force, are replaced by younger cohorts, with higher rates of labour force participation. These cohort effects reflect long-run societal and structural changes in the economy and were also evident in the pre-pandemic period.[67] [68]

The findings in this article have implications for both labour supply and wage developments. The strong employment gains since early 2021, supported primarily by an expansion of the labour force, alongside continued high levels of job vacancies, indicate that the labour market is heading towards full employment. In addition, the increase in participation may have affected wage dynamics directly, muting wage growth in some sectors for example. The marginal effect of increased participation on wage growth is, however, likely to fall as the available pool of workers shrinks.[69]

The remainder of this article is structured as follows. Section 2 describes recent labour market developments in more detail. Section 3 outlines our hypotheses on who the workers flowing from inactivity to employment are, drawing on analysis of the key aggregate developments that have occurred in the Irish labour market in recent quarters. Section 4 presents results of our empirical analysis that test our hypotheses by exploring the characteristics of workers in the Irish labour market and how this compares with the

[67] Bercholz, M., and Fitzgerald, J., (2016) Recent Trends in Female Labour Force Participation in Ireland. Quarterly Economic Commentary: Special Articles, Economic and Social Research Institute (ESRI).
[68] Byrne and McIndoe-Calder (2019) "Employment Growth: Where Do We Go From Here?" Central Bank of Ireland Quarterly Bulletin Signed Article, QB3 2019.
[69] Inward migration is historically correlated with economic growth, specifically employment growth, in Ireland. Indeed, despite international travel restrictions, Ireland issued similar numbers of work permits in 2020 as in 2019 (approx. 16,000). Understanding the likely path of migration flows going forward will be important.

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pre-pandemic growth period. In Section 5, we discuss what the participation gains and on-going employment expansion could mean for wage developments. Finally, Section 6 concludes.

Participation Gains

The measures introduced to halt the spread of the Covid-19 virus resulted in a significant drop in economic activity in Ireland. People were encouraged to work from home where possible and movement outside of the home was limited to essential reasons. Employment declined sharply as many economic sectors saw their operations curtailed and pandemic income supports were introduced for those whose jobs were in businesses affected by the economic contraction. Over 600,000 persons were in receipt of the Pandemic Unemployment Payment (PUP) scheme in May 2020.[70] As the underlying methodology for the Labour Force Survey was not designed to reflect special pandemic-related schemes such as the PUP, many PUP recipients were classified as 'out of the labour force' rather than unemployed.[71] This contraction in the labour force saw the participation rate (LFPR) fall from 62.2 per cent in the first quarter of 2020 to a series low of 56.9 per cent in Q2 2020 (Figure 4).

The effect of the pandemic on standard measures of employment and unemployment was mitigated to a degree by the introduction of the Temporary Wage Subsidy Scheme (TWSS), subsequently followed by the Employment Wage Subsidy Scheme (EWSS) during 2020. The primary goal of the wage subsidy schemes was to limit the number of people who became permanently unemployed, to reduce the potential for labour market scarring and to hasten the recovery in the economy such that employment could resume when the pandemic abated. The EWSS enabled firms to retain employees on the firm payroll by continuing to pay a proportion of their wages using subsidies received from the government. The scheme was successful in maintaining employment levels as workers may have otherwise been made redundant following the pandemic-induced reduction in economic activity. In May 2020, more than 1.2 million people who had been employed at the beginning of 2020 were either

[70] Byrne et al., (2020) "The Initial Labour Market Impact of COVID-19" Central Bank of Ireland Economic Letter Series, Vol. 2020, No. 4.
[71] Byrne and Keenan (2020) "Measuring and Forecasting the Unemployment Rate during Covid-19" Central Bank of Ireland Quarterly Bulletin Box D, QB4 2020.

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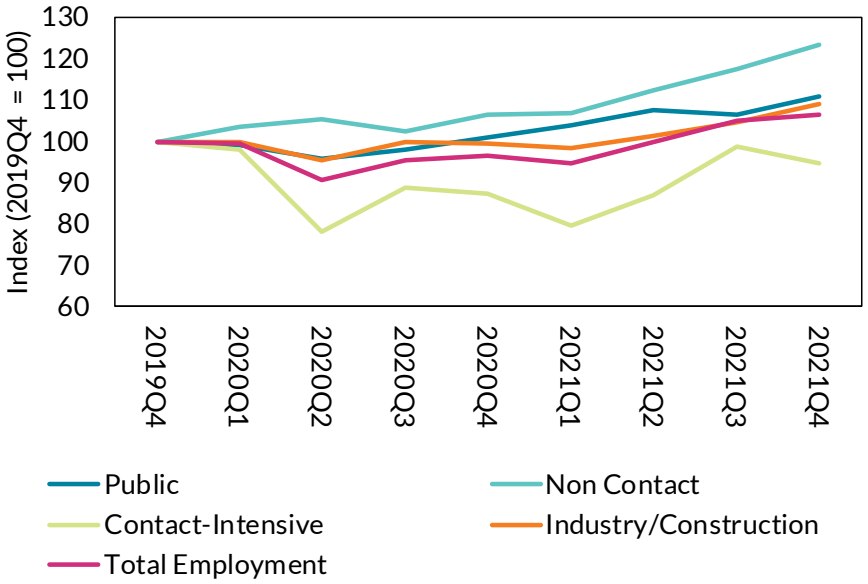
in receipt of PUP (i.e. not working due to the economic impact of the pandemic on their economic sector) or had a portion of their wages paid by the State via the TWSS/EWSS.

The rollout of the Covid-19 vaccination programme and the related easing of restrictions resulted in a rebound in economic activity during 2021. Modified domestic demand grew by 35.3 per cent between Q1 2021 and Q4 2021 as restrictions were eased and the economy reopened.

Employment growth in non-contact intensive sectors was evident throughout 2020 with non-contact sectors yet to fully recover by end 2021

Figure 3: Indexation of employment growth by broad sectoral group



Source: CSO and authors' calculations
Note: Public' economic sectors include Education, Health and Public Admin. 'Contact-Intensive' includes Accommodation, Retail, Transport, Admin and Other. 'Non-Contact' includes ICT, Finance and Professional

Throughout 2020 and early 2021, employment expansion occurred in essential and non-contact intensive sectors as well as tradable goods manufacturers less impacted by the pandemic and the related restrictions (Figure 3). The dual nature of the recession, where some sectors experienced on-going expansion despite the pandemic, is not typical of economic downturns associated with demand shocks, but rather is characteristic of exogenous shocks such as a pandemic.[72]

[72] Ma, Rogers and Zhou (2020) "Modern Pandemics: Recession and Recovery", International Finance Discussion Papers, Board of Governors of the Federal Reserve System.

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The expansion in essential and non-contact intensive sectors continued in 2021, reflecting strong export growth and continued growth in public sector employment.

In line with the recovery in economic activity, a sharp rise in employment was observed over the same period with levels increasing by 12.3 per cent or 275,000 persons between Q1 2021 and Q4 2021. The rise in employment was particularly large in Q2 and Q3 2021 with quarterly growth of 118,000 and 122,000 persons, which lifted aggregate employment levels markedly above its pre-pandemic peak. The employment expansion occurred in the absence of a substantial recovery in net inward migration flows that have been important contributors to labour force growth in Ireland since the early 2000s.[73] Net inward migration levels declined from 28,900 persons in the year ending April 2020 to 11,200 in 2021 primarily due to a fall in non-EU immigration that coincided with international travel restrictions to halt the spread of Covid-19.

Employment has recovered, supported by strong LFPR gains across both gender and age categories

Figure 4: LFPR by gender

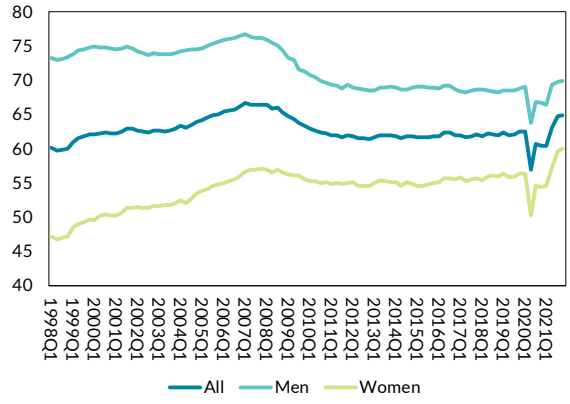
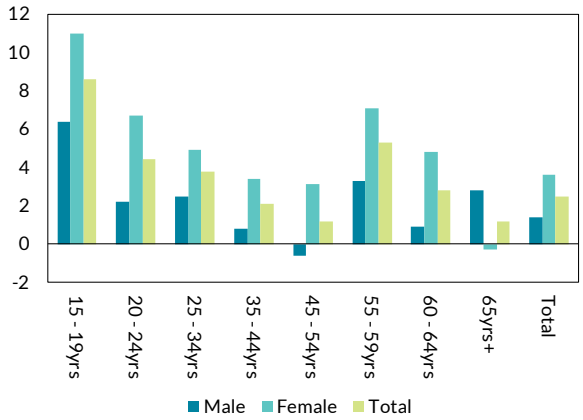


Figure 5: Change in LFPR by age category (Q4 2019 – Q4 2021)



Source: CSO and authors' calculations

In the absence of large-scale inward migration, the strong employment expansion was supported by a large rise in the domestic labour force. The female LFPR reached a new peak level of 60.1 per

[73] Byrne and McIndoe-Calder (2019) "Employment Growth: Where Do We Go From Here?" Central Bank of Ireland Quarterly Bulletin Signed Article, QB3 2019.

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cent in Q4 2021, approximately five percentage points higher than the levels recorded during the pre-financial crisis period. The composition of the female working age population (those aged over 15 years) changed, with an increase in the share of persons aged over 45 years in Q4 2021 relative to Q4 2019. The shift from 49.2 per cent to 50.3 per cent has important implications on the LFPR that are explored in further detail in the next section. The LFPR for males also increased and across the age distribution (Figure 5).

To investigate who these additional labour market participants are, we first use Labour Force Survey (LFS) microdata from the CSO to calculate the average level of quarterly net flows from inactivity into the labour force.[74] In periods of economic growth, the net flow to the labour force among the resident population is positive, due to an increase in labour demand and wage growth, which typically serves to draw in additional supply from those outside of the labour force.[75]

Figure 6 uses a four-quarter moving average to show the trend from 2003 onwards. The fall in the number of workers transitioning from outside the labour force into employment during the pandemic period (Q1 2020 – Q1 2021) was sharp and sudden but was followed by a sizeable rebound in labour force levels in Q3 2020. The negative net flow of 216,000 in Q2 2020 was subsequently followed by a positive net flow of 114,000 in Q3 2020.

[74] The LFS microdata provides detailed information on the full sample of households who are surveyed each quarter to provide published labour force aggregates, which include the official measures of employment and unemployment. Access is provided by the CSO for research purposes upon successful application.
[75] Byrne and Conefrey (2017) "A non-employment index for Ireland", Economic Letter Vol 2017, No. 9, Central Bank of Ireland.

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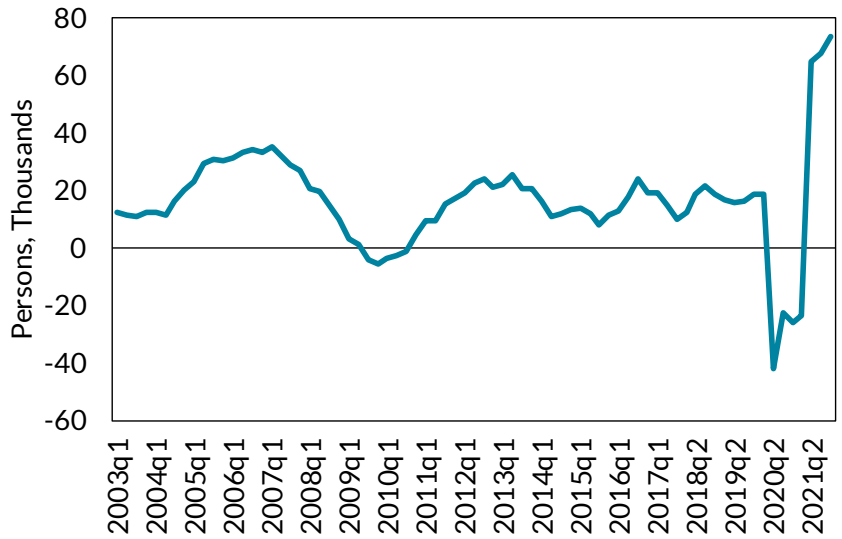
Large rebound in labour force levels as Covid-related restrictions lifted

Figure 6: Net flows from inactivity to the labour force



Source: CSO and authors' calculations
Note: Data are calculated using a four-quarter moving average. Last observation is Q4 2021

Figures 7 and 8 provide a breakdown of the average net flows in the resident population by gender and age category for recent periods of economic growth and decline in Ireland. The scale of the net flows in the pandemic recovery period (Q2 - Q4 2021) appear substantially higher than other previous phases of economic growth with an average net flow of 97,000 persons from inactivity to the labour force compared to a figure of 24,000 in the pre-financial crisis period (Q1 2003 – Q3 2008).[76] The average net flows are higher for women (56,000) relative to men (41,000).

[76] For context, the maximum and minimum range of quarterly net flows to the labour force prior to the pandemic ranged from -28,900 to 65,700.

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Net flows from resident population into the labour force during Q2 and Q3 2021 were substantially higher than previous labour force expansions

Figure 7: Average net flows to/from inactivity to labour force by gender

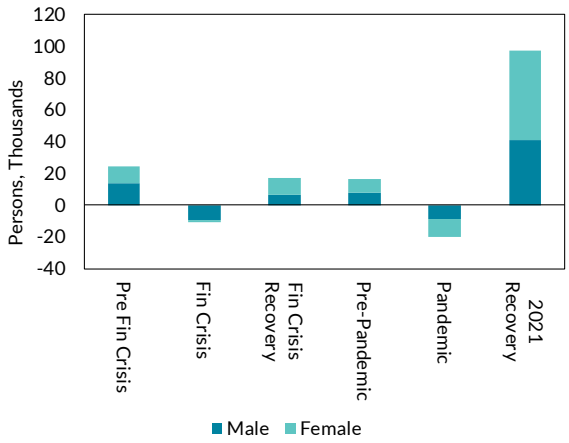
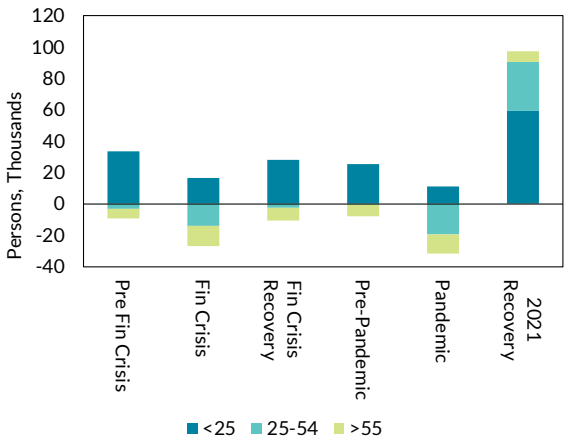


Figure 8: Average net flows to/from inactivity to labour force by age group



Source: CSO and authors' calculations
Note: The time periods are Pre Financial Crisis (Q1 2003 – Q3 2008), Financial Crisis (Q4 2008 – Q1 2010), Financial Crisis Recovery (Q2 2010 – Q4 2014), Pre-Pandemic (Q1 2015 – Q4 2019), Pandemic (Q1 2020 – Q1 2021), and Pandemic Recovery (Q2 2021 – Q4 2021)

Of the total 97,100 who transitioned from inactivity into the labour force during the pandemic recovery period, 61 per cent were aged under 25 years. Analysis by Boyd et al. (2022) showed that employment gains in the pandemic recovery period for younger people were mainly in contact-intensive sectors, such as Retail and Accommodation & Food services. 54 per cent of the total net flows into the labour force can be attributed to under 25s who are still enrolled in tertiary education. Additionally, there was a large positive net flow of women aged between 35 and 59.

Box A: Duration on the Pandemic Unemployment Payment

The impact of an economic shock on the labour market can result in scarring effects for those out of work for extended periods. These effects can increase the likelihood of being unemployed in the future and have a negative effect on prospective earnings as seen in the aftermath of the global financial crisis.[77] Scarring effects have accompanied previous economic downturns, including after the global financial crisis when the length of unemployment duration increased and youth labour force participation fell (Lydon

[77] Arulampalam, Gregg, and Gregory (2001) "Introduction: unemployment scarring". The Economic Journal, 111(475), F577-F584.

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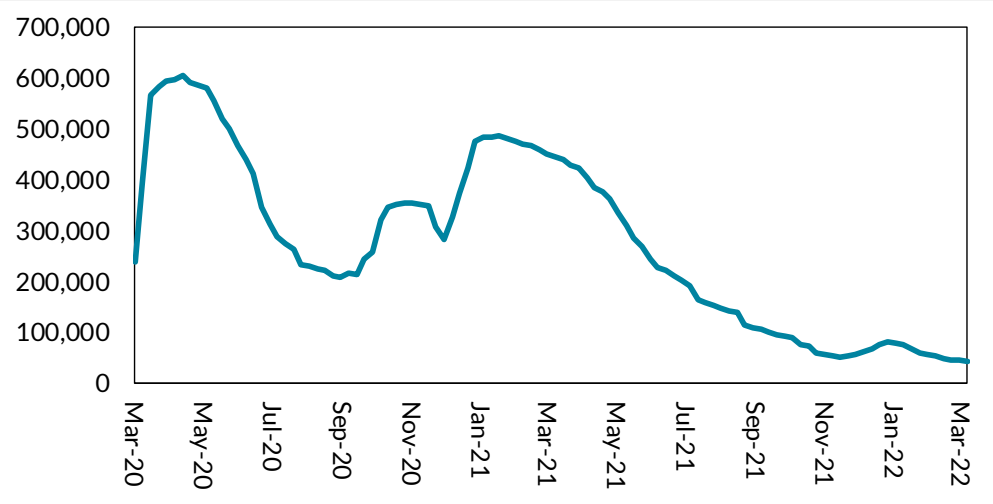
and Lozej, 2016).[78] In the case of the pandemic, the introduction of public health restrictions led to a substantial number of workers flowing onto the Pandemic Unemployment Payment (PUP) scheme. As the economy reopened during 2021, the numbers in receipt of the PUP declined sharply (Figure A1). At the point of the closure of the scheme in March 2021, just over 44,000 were still registered for the payment, down from a peak of 605,000 in May 2020. This box reviews the characteristics of those in receipt of the PUP, with a particular focus on duration of time in receipt of the payment and assesses developments in unemployment following the ending of the PUP in March 2022.

PUP levels declined steadily throughout 2021

Figure A1: PUP recipient levels



Source: DSP

PUP recipient levels peaked as economic activity was severely curtailed by public health restrictions in place due to the pandemic, with only designated essential activities permitted to continue. Job losses were initially greater among younger and part-time workers in non-essential, contact-intensive sectors relative to their share of pre-pandemic employment.[79] As restrictions eased and sectors re-opened, many people quickly flowed off the PUP to go back to their previous employment role or moved to different sectors. IGEES analysis of post-PUP activity identifies that of the cumulative 871,500 people to have received at least one PUP payment, 74 per cent had returned to employment with an approximate split of 304,700 returning to their pre-PUP employer

[78] Lydon and Lozej (2016) "The Flexibility of New Hires' Earnings in Ireland" Central Bank of Ireland Research Technical Paper Series, Vol. 2016, Issue 6.
[79] Byrne et al., (2020) "The Initial Labour Market Impact of COVID-19" Central Bank of Ireland Economic Letter Series, Vol. 2020 Issue 4.

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and 248,700 working for a different employer or in a different economic sector.[80] We use a detailed PUP dataset provided by the Dept. of Social Protection (DSP) that includes all 871,475 persons to have received at least one PUP payment between March 2020 and August 2021 by gender, age, sector and number of payments received.[81] In order to avoid distortions arising from persons flowing onto the scheme at various times due to the re-introduction of restrictions, we calculate the longest continuous duration of each recipient.

PUP durations

Figure A2 shows that an 8-week continuous period was the most common length of time for a person to receive a PUP payment (31,511 persons); followed by a 20-week period (29,782) and a 74-week period (29,472). This last group represents persons who have been in receipt of the payment each week since the beginning of the scheme through to August 2021. Focusing on the right tail of the distribution, those in receipt of a payment for a long-term period (classed as at least a 52-week continuous period) accounted for 13.9 per cent of all those claiming the PUP as of August 2021. The demographic breakdown of these long-term recipients (Figure A3) shows that there is a relatively greater share of females, persons aged over 45 years and those previously employed in a contact-intensive sector compared to the total population of recipients. Restaurants and hotel activities account for the largest number of persons from the NACE 2-digit sector data with activities in this area among the most constrained during the various periods of restrictions.

PUP data at the closure of the scheme at end-March 2022 show that persons previously employed in the Accommodation & Food, Wholesale & Retail Trade and Administrative & Support services sectors accounted for the highest share of PUP support recipients (46 per cent).[82] The re-opening of the PUP scheme in December 2021 does not appear to have considerably changed the overall composition of recipients compared to the position as of August 2021. Half of the 8,160 new entrants were from the three aforementioned sectors, reflecting the nature of the winter 2021 restrictions.

[80] Dwan-O'Reilly and McNelis (2022) "Trends in Post-PUP Employment" IGEES Working Paper.
[81] This figure accounts for 99 per cent of the total cumulative number of recipients to date as the scheme was re-opened in late-2021 due to the re-introduction of sector-specific restrictions.
[82] Department of Social Protection – PUP data: https://data.gov.ie/dataset/pandemic-unemployment-payment

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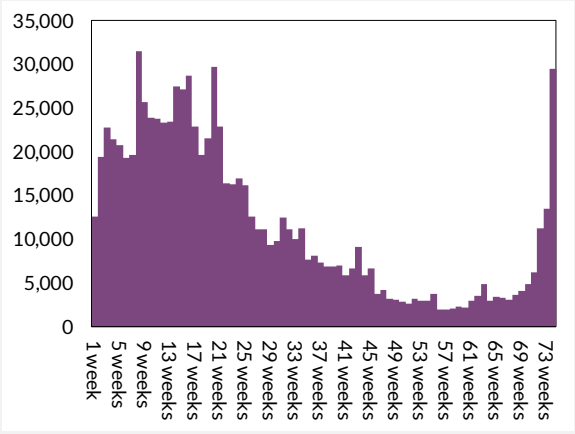
1 in 7 recipients were on the scheme continuously for over a year

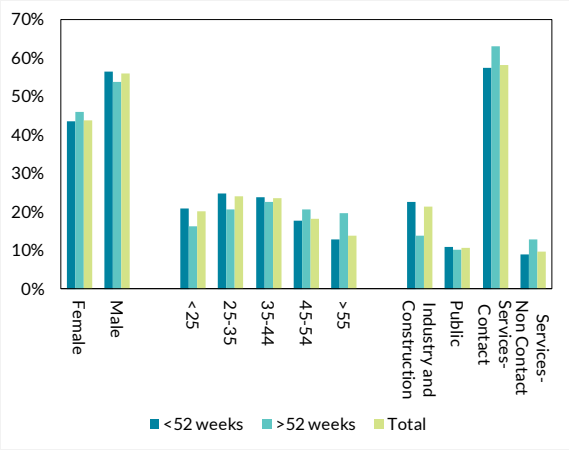
Figure A2: Longest cumulative duration of recipients



Source: DSP and authors' calculations

Long-term PUP recipients more likely to be older

Figure A3: Demographic breakdown of long-term recipients relative to total recipients

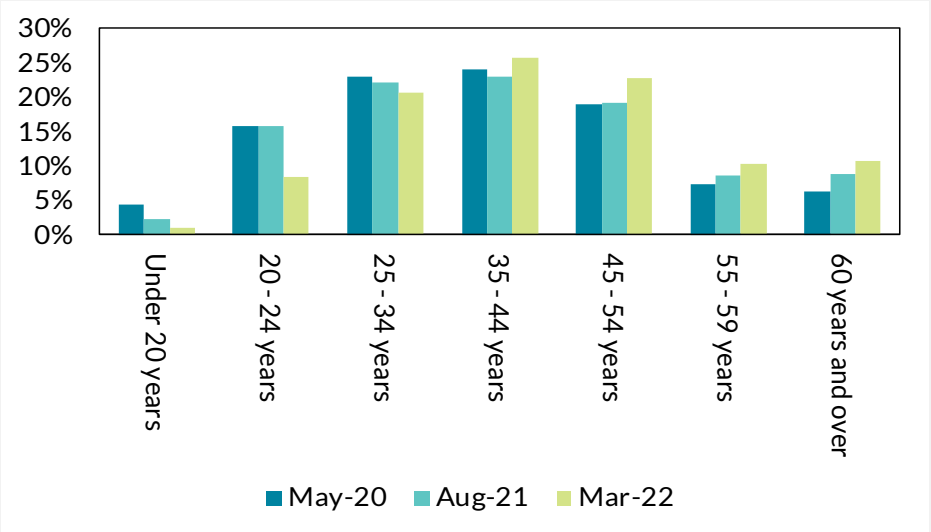


Source: DSP and authors' calculations
Note: 'Public' economic sectors include Education, Health and Public Admin. 'Services – Contact' include Accom, Retail, Transport, Admin and Other. 'Services – Non Contact' include ICT, Finance and Professional

Looking at the demographic breakdown in March 2022, younger workers (aged under 25 years) accounted for the smallest share of total (combined 9.6 per cent). This had declined markedly relative to their respective share of the May 2020 peak level (20.3 per cent). In contrast, the age share of March recipients had increased for all categories aged over 35 years (Figure A4).

Older workers constitute a greater share of March 2022 recipients

Figure A4: Age breakdown of PUP recipients



Source: DSP and authors' calculations

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Labour Market Recovery

With more than one-in-ten of those on the PUP, as of August 2021, having been on the payment for a continuous 52-week period, this suggested a risk that some of these individuals could become long-term unemployed. Instead, the strength of the labour market recovery has eased concerns over the extent of any long-term unemployment problem from the pandemic. Between August 2021 and March 2022, over 100,000 people transitioned off the PUP reducing the overall number of recipients to just over 44,000 when the scheme closed. The easing of social distancing restrictions from March 1st 2022 onwards has facilitated increased economic activity particularly in contact-intensive sectors, supporting continued growth in labour demand. Early-stage indicators from Live Register data show a 19,000-person increase in the week the PUP scheme was closed. In subsequent weeks, the number on the Live Register has declined steadily. Similarly, the monthly unemployment rate had fallen below 5 per cent by April 2022 and the COVID-adjusted unemployment rate was discontinued. The modest increase in the Live Register following the ending of the PUP, and the decline in the Live Register in subsequent months, suggests that a significant number of the remaining PUP recipients at end-March may have either successfully reintegrated into the labour force or have transitioned out of the labour force. The relatively low increase in traditional supports is a more positive outcome than would have been previously anticipated given the demographic breakdown of long-term recipients and points to the strength of the recovery in economic activity and labour demand. To encourage the remaining workers who opted to leave the labour force in Q1 2022 back into employment, activation programmes and other policy initiatives may need to be considered. [83]

Who Are The Additional Workers?

The LFS released immediately before the onset of the Covid-19 pandemic (for Q4 2019) showed that the number of persons participating in the labour force at that point stood at 2.47 million. As of the fourth quarter of 2021, this had risen to 2.63 million, a net increase of 165,500 or 6.7 per cent. The easing of pandemic-related restrictions was expected to result in many people flowing back into employment as the economy recovered. However, Section 2 shows

[83] A logit regression was run to investigate the factors influencing the likelihood of a person being in this long-term category. Controlling for other observable characteristics, these persons were more likely to be aged 45 years or over, on the lowest payment rate of €203 and have been previously employed in a contact-intensive sector. Separate regression analysis including a continuous age-squared variable exhibits a positive effect of age and a positive effect of age-squared meaning that as people get older the likelihood of being a long-term PUP recipient is stronger.

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that the scale of the participation response was larger than both the fall in participation during the pandemic and when compared to participation responses during previous tight labour market periods.

To investigate this surge in the labour force, we examine which sub-groups of the population drove the increases in participation over the period Q4 2019 to Q4 2021. Table 1 shows that, of the 6.7 per cent increase in the labour force level (165,500 persons), the largest contributors were people aged 15-24, who accounted for just under 30 per cent and women aged between 35 and 59 who contributed just under one third of the increase.

Table 1: 2021 Labour force participation gains compared to 2019, contributions by age and gender

	Males		Females		All	
	000	% Contribution	000	% Contribution	000	% Contribution
15-24	19.7	0.8%	30.8	1.2%	50.5	2.0%
25-34	6.4	0.3%	10.8	0.4%	17.2	0.7%
35-44	-1.1	0.0%	16.3	0.7%	15.2	0.6%
45-54	8.9	0.4%	21.7	0.9%	30.5	1.2%
55-59	8.9	0.4%	14.1	0.6%	22.9	0.9%
60-64	4.7	0.2%	9.7	0.4%	14.4	0.6%
65+	14.1	0.6%	0.7	0.0%	14.9	0.6%
Total	61.5	2.5%	104	4.2%	165.5	6.7%

Source: CSO and authors' calculations

We can illustrate the impact of the increases in participation for these two sub groups on the aggregate LFPR using a simple counterfactual exercise. In Figure 9, the dark green line shows the evolution of the labour force participation rate from Q4 2019 to present.

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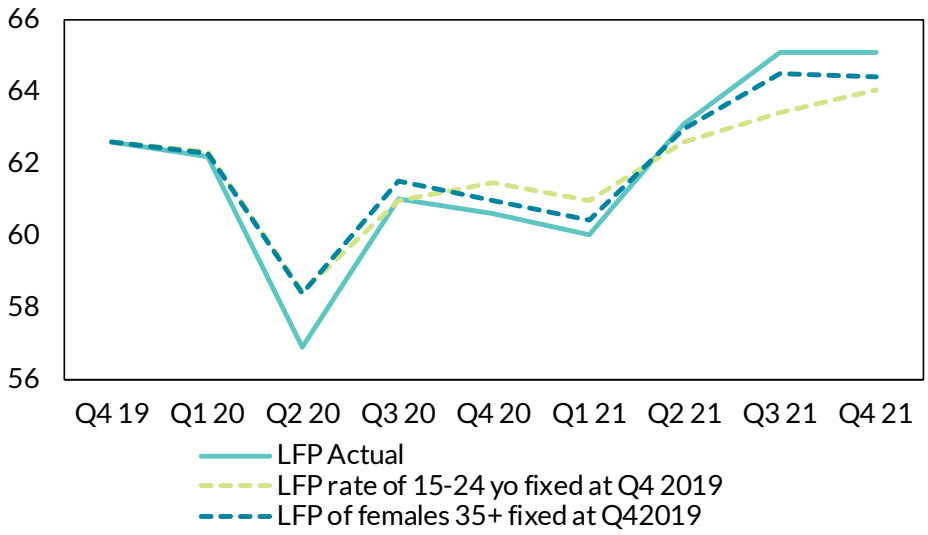
Growth in the total LFPR driven by rising participation of the young (under 25) and women over 35

Figure 9: Actual aggregate LFPR and counter-factual aggregate LFPR



Source: CSO and authors' calculations
Note: This figure can be interpreted similarly to a shift-share analysis.

The dashed purple line shows a counterfactual aggregate LFPR where the participation rate of 15-24 year olds is held fixed at its Q4 2019 level but the working age population across all age groups continues to grow as it has done in the realised data. Comparing the two shows that at the beginning of the pandemic in Q2 2020, the actual aggregate LFPR was 1.1 percentage points lower than if 15-24 year olds had kept participating at their 2019 level. However, by Q4 2021 the surge in the participation rate of this age group meant that the actual aggregate LFPR was 1.1 percentage points *higher* than the counterfactual rate had participation rate of 15-24 year olds remained unchanged at its 2019 level. The orange dashed line shows that a similar counterfactual exercise for women aged 35 and over yields a smaller difference in the overall participation rate, but still points to the fact that the participation rate for women over 35 has also driven part of the increase in the *aggregate* participation rate. We examine the reasons behind this in Section 4.

The increase in female employment does not appear to be explained by growth in sectors of the economy that have traditionally employed a greater proportion of women. Rather the increase in employment has been distributed across the fastest growing sectors

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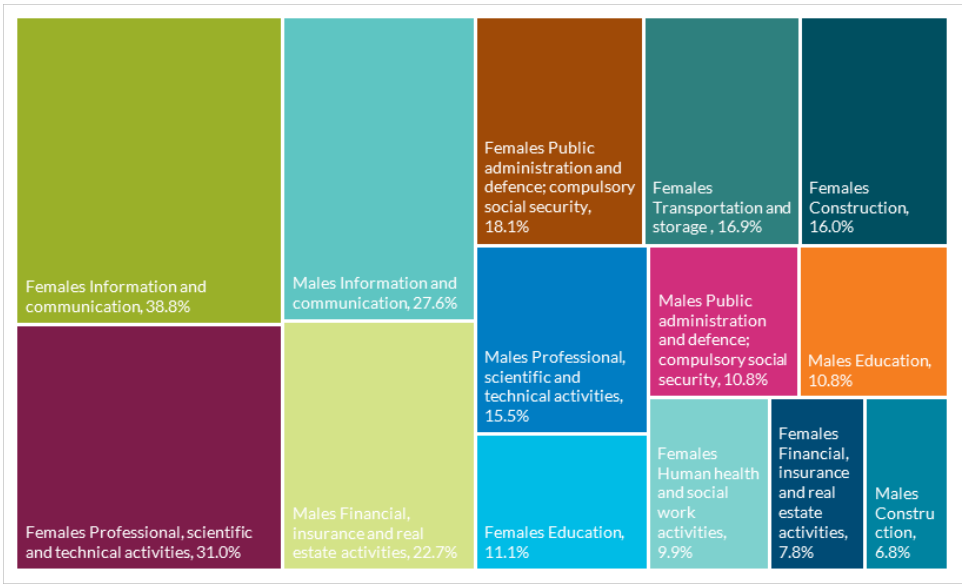
of the economy, including *Information & Communication* and *Professional, scientific & technical activities*. Figure 10 shows that the increases in employment in these sectors were comparatively larger for women, which suggests another explanation is required.

Fast growing, productive sectors lead the contribution to employment growth

Figure 10: Increase in employment within sector, by gender (Q4 2019 – Q4 2021)



Source: CSO and authors' calculations

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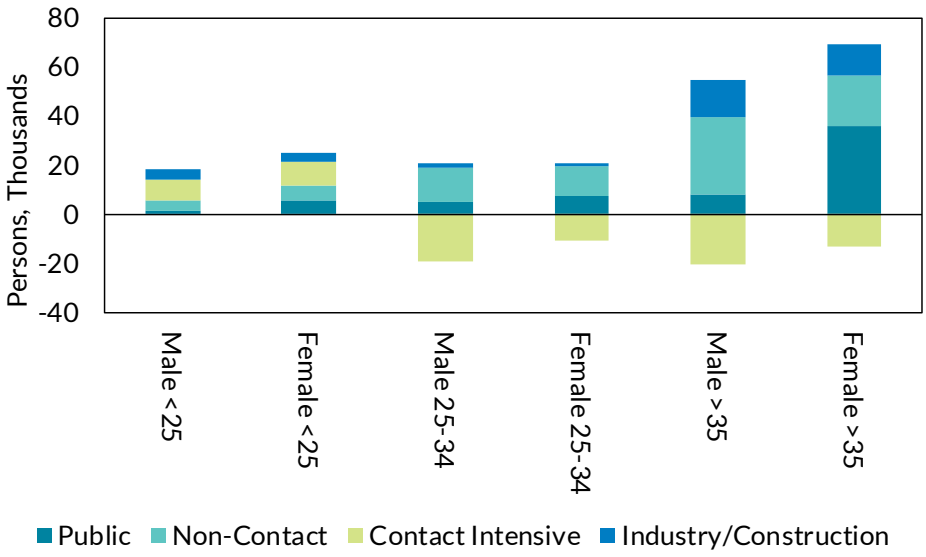
Workers over 25 years of age transition out of contact-intensive sectors, while younger workers flow into jobs across all sectors

Figure 11: Sectoral increase in employment, by gender and age category (Q4 2019 – Q4 2021)



Source: CSO and authors' calculations

Cohort Effects

Recent literature has pointed to the importance of cohort effects in understanding dynamics in aggregate female labour force participation.[84] In Figure 12, we illustrate changes in participation rates for women for different age groups over 35 since the beginning of the LFS dataset in 1998. Byrne and O'Brien (2017) show that female participation in Ireland is a function of both *age* and *cohort* effects. An example of the age effect is that a woman aged 30 is more likely to participate in the labour force than a woman aged 20. This is similar for males and is a result of 20 year olds being more likely to be in education. The cohort effect is that a woman aged 40 in 2021 is far more likely to participate than a 40-year-old woman in 1998. Her cohort, or the year in which the woman was born (1981 vs 1958 in our example), is capturing the effect of all of the societal changes around female participation in the labour force over those years. As a result, the aggregate female LFPR has been increasing steadily over the past 20 years as older women with very low participation rates

[84] Nientker and Alessie (2019) "Female labour market participation across cohorts: evidence from the Netherlands" *De Economist* 167, 407-433 and Fallick and Pingle (2007) "A cohort-based model of labour force participation" Finance and Economics Discussion Series, Federal Reserve Board.

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retire and are replaced by younger women whose participation rates are much higher. Byrne and McIndoe-Calder (2019) found that the female LFPR was arithmetically increasing over time as a result of this effect.

Looking in detail at Figure 12, while the trend female participation rate by age bracket is monotonically increasing, the speed of increase in the participation rate of prime working age women is also a function of the economic cycle. In strongly expansionary periods, women who had been inactive are more likely to transition into the labour force. In all cases however, the participation rate increases of these age groups in recent quarters are a return to a trend that has been in progress for the past twenty years (dashed lines in Figure 12). For three of the four age groups in Figure 12 (for women aged 35-44, 45-54 and 55-59 years old), participation has *surpassed* the linear pre-Covid-19 participation rate trend, pointing to the additional role of strong cyclical forces also contributing to the recent rise in female participation.

The strong increases in female participation seen in 2021 appear to be the result of the interaction of both of these forces, the continuation of the increasing trend participation rate of women aged over 35 and the very strong expansion in economic growth during the period. For some age groups, in particular for females aged 35-44, the rise in participation over recent quarters have been especially strong with the rate now above the trend rate. This is likely to reflect a degree of catch-up in the participation rate for this group following the below trend rates during 2020.

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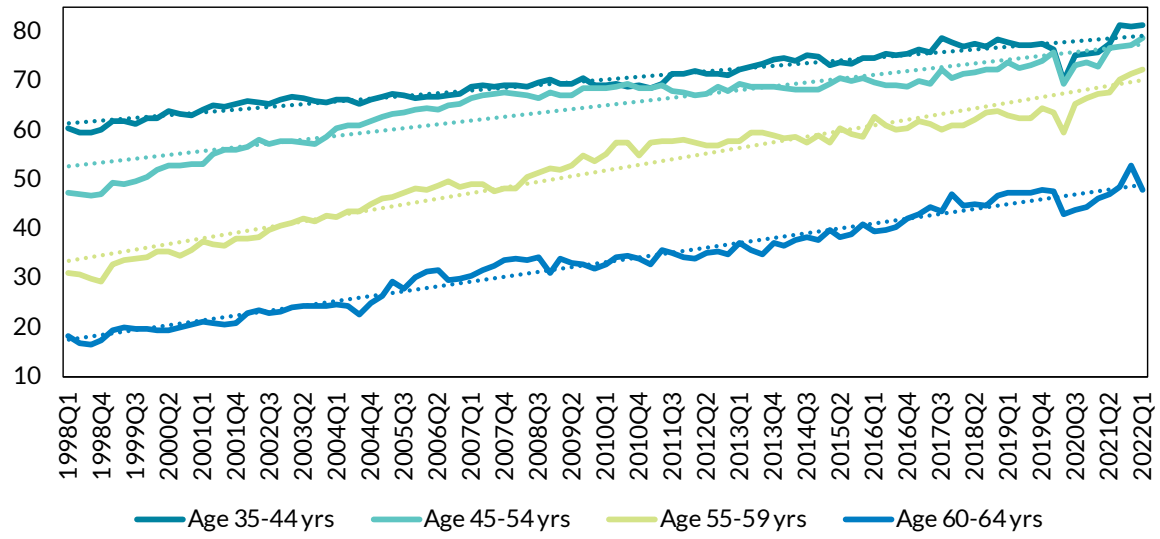
Labour force participation of women is jointly determined by cohort and cyclical effects

Figure 12: Female LFPR and linear growth trend, by age group



Source: CSO and authors' calculations

The long-run trend in the share of women in high-skilled occupational employment is flat between 2007 and 2021 (Figure 13).[85] Employment expansion throughout 2020 and 2021, in sectors characterised by relatively high-skilled occupations (Figure 10), has resulted in a shift towards higher-skilled occupations in *aggregate*, with the skill mix in new hires returning to trend by the end of 2021. These new roles have been filled by men and women at rates similar to the pre-pandemic trend, in aggregate, albeit with important sector differences.[86] The cohort effect for women then, is synonymous with increased educational and occupation skill-level attainment for women, over time.[87] The period from Q2 2021 onwards represented a recovery in the sectors and specific jobs disrupted by the pandemic. For example, the net flows analysis in Figure 14 shows low skilled occupations accounting for the dominant share of jobs lost in the

[85] Compositional effects related to the specific impacts of the pandemic on medium and lower skilled occupations during 2020 and early 2021 are evident in Figure 13.
[86] For example, in the fastest growing sectors in 2020 and 2021, women took up relatively more roles in both the NACE sectors of public administration & defence as well as professional & scientific; whereas men took up relatively more roles in information & telecommunications as well as finance. Trends in the female share of employment at sectoral level do not appear – at this time - to have been disrupted by the pandemic.
[87] This is consistent with forecasts by Bercholz and Fitzgerald (2016), namely that educational attainment of women over 30 would rise in the medium term, supporting participation rates, particularly for those cohorts with relatively low participation rates in 2016.

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pandemic period, and a relatively large number of these returning in the recovery period. However the recovery period saw a large net expansion in medium and higher skilled roles, thus appearing far more like the full employment period prior to the pandemic or global financial crisis than the recovery period after the financial crisis of 2008 (Figure 14).

Female share in high-skilled occupations remains flat even as large numbers of women over 35 years old flow into highly-skilled employment

Figure 13: Female share in employment, by occupational skill level

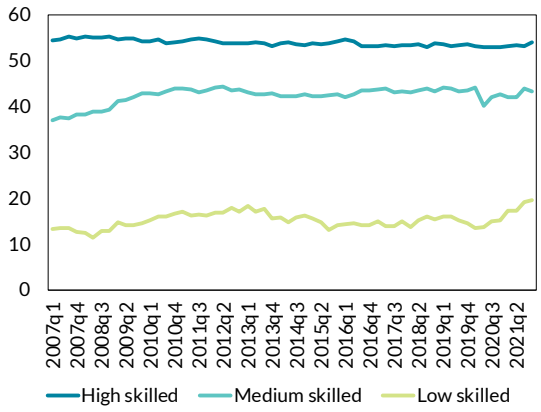
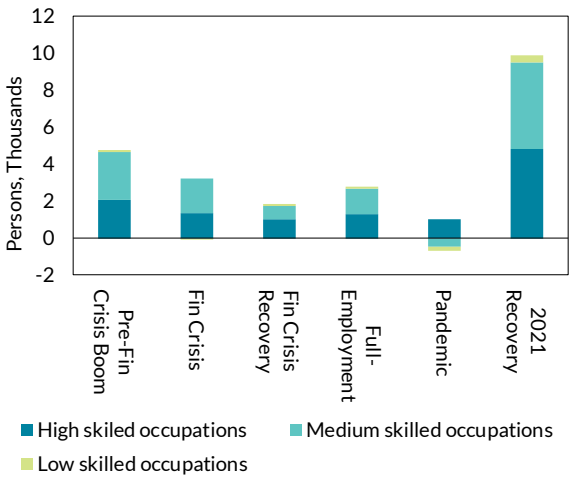


Figure 14: Net flows by women over 35 to labour force by occupational skill level



Source: CSO and authors' calculations

Empirical Results

To examine the trends above more formally, we estimate a regression model that predicts an individual's probability of transitioning from inactivity to employment based on a range of personal and job characteristics.[88] We estimate the model over the tight labour market before the pandemic (2015-2019) as well as during the 2021 recovery period (2021 Q2-Q4) in order to understand whether the impact of these personal and job characteristics has changed over time. We also estimate the regression for sub-groups of the population, reflecting the

[88] A logit model allows the estimated effects of explanatory variables on a binary outcome (move from inactive to employed, or not) to be bounded between 0 and 1. The marginal effects reported in Table 2 above describe the change in the probability of moving from inactive to employed, given a one unit change in each explanatory variable, holding all the other explanatory variables at their sample mean.

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disproportionate contributions to the labour force of those under 25 and women over 35, to explore whether the predictive power of observable characteristics differs substantially between these groups and the total active age population.

We follow Kiiver and Esplage (2016) and Byrne and O'Brien (2017) in our choice of observable characteristics likely to have predictive power in explaining observed transitions of individuals between inactivity and employment.[89] These include job characteristics - skill level, sector of employment, employment intensity (measured here using a part-time indicator) and employment precariousness (proxied here by a measure of temporary employment) – as well as demographic characteristics – age, presence of young children, migrant status and education status. Table 2 shows the average of these job and demographic characteristics for those transitioning from inactivity to employment for two time periods and two sub-samples of the total population.

Table 2 highlights the increasing skill level of women aged over 35 in the 2021 period. The highly skilled share rises to 52 per cent from 51 percent, compared to the pattern for the whole sample, which is static. The dominant effect of the recovery in contact-intensive services in 2021 is apparent (accounting for nearly 57 per cent of the newly employed) for all groups and almost two-thirds of those under 25. Whilst the share of women over 35 moving to contact intensive sector roles increased from under two-fifths prior to the pandemic to just over half in 2021.

At the aggregate level, fewer parents with young children moved into employment than was the case before the pandemic (and also for women over 35), whilst the share in education has risen (in particular for those under 25). This suggests a mixed picture for pandemic-induced work flexibility in supporting the labour force expansion in 2021, for example remote education may have supported labour force participation, whilst presence of young children may have represented additional caring responsibilities for parents hindering labour force participation. Finally, Table 2 examines the employment intensity and precariousness of jobs for those moving into the labour

[89] Kiiver and Espelage (2016) "The use of regression models in labour market flow statistics" European Conference on Quality in Official Statistics, Eurostat; Byrne and O'Brien (2017) "Understanding Irish Labour force Participation" *Economic and Social Review*, Vol. 48, No. 1.

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force from inactivity. Whilst the share of those in part-time employment is rising for women aged over 35 (up from 64 per cent to 66 per cent), it is roughly similar for those aged under 25 when compared to the pre-pandemic period. The share of temporary employment for those recently employed has fallen for all groups in the pandemic recovery period, suggesting the new employment is not more precarious than before the pandemic.

Table 2: Observable characteristics of those moving from inactivity to employment

	All		<25		Women 35-65	
	2015-2019	2021Q2-Q4	2015-2019	2021Q2-Q4	2015-2019	2021Q2-Q4
Occupational skill level* (current/previous employment), share						
Low	5.7	6.7	-	-	-	-
Medium	64	63.2	78.7	76.7	46.7	47.4
High	30.4	30.2	19.8	20	51	52.3
Sector* of current/previous employment, share						
Primary	9.3	8.7	6.9	-	-	-
Industry	8	6	6.7	-	-	-
Construction	5.8	6.4	4.3	-	-	-
Private services, contact-intensive	29.2	56.7	66.6	64.8	37.1	51.2
Private services, non-contact-intensive	7.1	9.2	6.4	-	12	9.9
Public services	14.2	13	8.5	8.9	33.1	21.4
Demographics						
Age, mean	33	34.5	19.3	19.2	48.2	49.5
Female share	53.2	53	48.1	52.1	100	100
Has children under 14, share	15.2	12.8	0.7	0	39.8	36.1
Married, share	29.6	30.6	0.5	0.3	74.2	73.7
Migrant, share	11.2	10.6	5.5	4	13.4	16.2
Employed in Dublin, share	27.3	21.5	26.9	21.6	26.3	17.7
In education, share	40.3	42.5	71.6	78.1	5	4.4
Work intensity, permanence						
Part-time share	64.2	62.3	73.7	72.6	64.3	66.9
Temporary share	41.4	36.9	60	58.6	20.9	14.5

Source: CSO and authors' calculation
Note: Sample limited to respondents appearing at least twice in LFS data.
* Occupational skill level and sector of (previous) employment known for approximately 30% of sample
- Cell size does not permit reporting for these characteristics

In order to test whether there were meaningful differences before and after the pandemic in the factors that led those who are considered economically inactive to supply their labour; we run the regression over two time periods. First for the employment expansion period between 2015 and 2019 and second for the latter

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three quarters of 2021. This allows us to examine whether the characteristics predicting transitions from inactivity to employment *after* the pandemic are substantially different to those *before* the pandemic. Moreover, this allows us to abstract from the five quarters between 2020 Q1 and 2021 Q2 when individuals' decisions to participate in the labour force were complicated by the public health restrictions in place to limit the spread of Covid-19. In 2021, it is specifically those who moved directly from inactivity to employment that drove the participation rate increase, as described in Section 2. Thus, our focus on transitions from inactivity to employment allow us to test the hypotheses put forward in Section 3.

Table A1 in the appendix reports marginal effects from the logit regression. Columns (1) and (2) report marginal effects for all working age LFS respondents. Whilst the size of some of the marginal effects differs between the pre-pandemic and 2021 recovery periods, the signs and significance on variables relating to age, gender, skill-level and sector of employment remain broadly consistent between the time periods of interest.[90] As in other published work on the determinants of labour force participation, we find age to enter the regression non-linearly. That is, transitions to employment are falling in age, up to approximately 48 years of age and are then increasing. Our finding on women being significantly more likely to transition from inactivity to employment is consistent with women being more likely to transition outside of the labour force during spells of non-employment (for example to carry out caring responsibilities) than men, who are more likely, all else equal, to remain in unemployment when not working. Compared to those in lower skilled occupations, those in high or medium skilled occupations are less likely to transition to employment from inactivity. This likely reflects the higher wage-penalty for absences from employment in medium and high skilled jobs, compared with lower skilled occupations.[91] It is also consistent with lower skilled

[90] Whilst total sample sizes are large in both time periods examined, actual transitions to employment comprise between 2 and 6 per cent of all those inactive across the sub-samples included, a relatively small number that may affect standard errors.
[91] There is a substantial literature on the positive labour market effects of developing human capital and the role of occupation in explaining wage differentials. For example, lower education is often cited as an explanation for long periods of unemployment or inactivity (Devins et al., 2011), while Abraham & Speltzer (2009) show that jobs requiring more analytical activity pay significantly higher wages. More recently, Hampf et al. (2017) shows

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jobs being more likely to be temporary or atypical and therefore subject to more churn.[92] This effect is pronounced in the pandemic-recovery period, reflecting the relatively high share of lower skilled, contact intensive service roles available once pandemic restrictions were eased from Q2 2021.[93] In fact, the coefficients on the sectors of employment reinforce this point, apart from construction; all non-primary sectors display large, negative effects on the probability of transitioning, when compared to the base sector, private contact-intensive services.

Columns (3) and (4) report marginal effects for the under-25 cohort. The absence of significance on the gender, skill level and sectoral variables in the 2021 recovery period indicate the widespread nature of employment growth for young workers: both men and women under 25 flowed into vacant roles across the skill and sectoral distribution as the economy began its recovery from the pandemic.

Columns (5) and (6) focus on women over 35. The strength of the recovery in private contact intensive services, seen already for the whole population sample as well as for the younger cohort, is again evident from the increase in the size of the coefficients between the model estimated on the pre-pandemic and 2021 recovery samples. Of particular interest however, is the reversal in sign of the relative contribution of occupation by skill level to the probability that an economically inactive woman will move into employment in the subsequent quarter. The medium term trend in employment by occupational skill level is flat overall. However, in the 2021 recovery period, women aged over 35 who are in medium or high skilled occupations are significantly more likely to gain employment compared to those in lower skilled occupations, even when controlling for sector of employment and all other baseline observable characteristics. This confirms descriptive evidence in Section 3 (Figure 14).

skill improvement is associated with potentially substantial gains in hourly wages and likelihood of being employed.

[92] Dabla-Norris et al. (2022) notes temporary and zero-hours contracts are more prevalent in low-skilled sectors, and for part-time work, and are more prevalent among younger workers.

[93] The pandemic period has been noted for its high job churn. For example, Macaluso (2021) describes the much higher flows from employment into out of the labour force in the US in 2020 compared to during the Global Financial Crisis (2007–09), especially for roles in food, hospitality and maintenance/cleaning.

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We take 2015Q1-2019Q4 as the base period for our logit model to capture the relationships between observable characteristics and the probability that an individual participates in the labour market before the pandemic. Using the explanatory variables described above and the estimated coefficients from our logit model, we can predict the likelihood of an individual transitioning from inactivity to employment during the period under examination. If the explanatory variables predicting transitions to employment remain constant over time, the base period coefficients should predict employment transitions as accurately in the post Covid-19 recovery period (2021 Q2-Q4) as they do in prior to Covid-19 at a similar point in the economic cycle.

In the base period, two per cent of the sample transition from inactivity to employment. The average predicted probability of transitioning, generated from our model, is also two per cent. When we examine the observed transition outcomes of those whose predicted probability of transitioning is higher than the model average, we find that the model captures almost four-fifths of actual transitions.[94]

We use the base period logit coefficients to predict probabilities of transitioning to employment in the post-Covid-19 LFS data and examine the actual transition outcomes compared to the predicted transition probabilities to assess how the model performs out of sample. From those whose predicted probabilities of transitioning are higher than the average transition rate in this period (three per cent), the model captures 74 per cent of all workers who actually transitioned, down marginally from 79 per cent in in the pre-Covid-19 base period (Figure 15). The remaining 26 per cent have less than the average predicted probability in the model, suggesting that factors other than those captured in the model are driving the transitions for this group.

[94] Following the methodology in Paciorek (2015) "Where are the construction workers?", FEDS Notes, Board of Governors of the Federal Reserve System and Conefrey and McIndoe-Calder (2017) "Where are Ireland's construction workers?", Quarterly Bulletin Signed Article, Quarterly Bulletin 4, Central Bank of Ireland.

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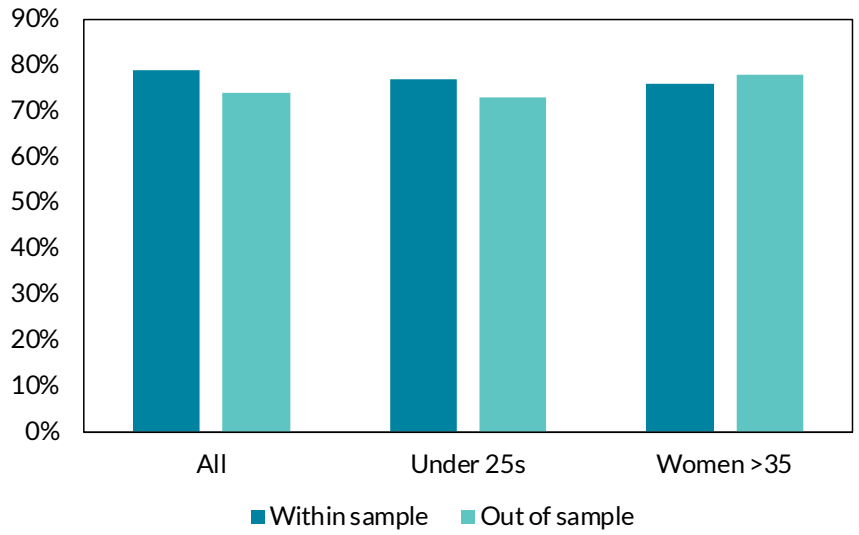
Model describing transitions to employment performs well in and out of sample

Figure 15: Share of actual transitions predicted by model



Source: CSO and authors' calculations

Summing up, this regression analysis indicates that the increased transitions of workers from inactivity to employment observed during the Covid-19 recovery period in 2021 was largely in line with what would have been expected given the changes in the characteristics of workers and jobs over this period. Other potential explanations for the increased movement of workers from inactivity into the labour force, such as changes to working practices during the pandemic, appear not to have played a significant role to date. If this had been the case, we would expect to see meaningfully different coefficients between the pre-pandemic and 2021 recovery periods used for the model estimation, further we would expect to see the model's out of sample performance deteriorate markedly compared to its within sample performance, neither of which occur. This lends further evidence to our hypotheses above, suggesting that the combination of the strength of the economic growth in 2021 and long running cohort effects are the predominant factors driving increased labour force participation.

Robustness checks

The analysis in Section 4 illustrates that the individual-level transitions into employment seen in the 2021 recovery period can be explained to a high degree using historical relationships between

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observable characteristics and the probability of transitioning from inactivity into employment. This analysis showed the importance of age, gender, skill level and shifting social norms as reflected in the cohort effect.

This should imply that the aggregate labour force participation rate (LFPR) during 2021 should be able to be explained using a standard model of the aggregate labour force participation rate incorporating cyclical effects. To test this, we specify an autoregressive distributed lag (ARDL) model similar to that contained in Byrne and O'Brien (2017):

$$lnLFPR_t = \alpha + \beta X_t + \lambda Z_t + \delta Y_t + \epsilon_t$$

Where $LFPR$ is the aggregate labour force participation rate in time t, X is a measure of the returns to labour (measured by the average weekly compensation per employee), Z is a measure of the average weekly unemployment benefit and Y is the unemployment rate in time t reflecting cyclical developments. The monetary variables are deflated using the personal consumption deflator and two lags of each variable are included.

The model is estimated over the period 1998Q1 to 2019Q4 to capture historical relationships. Using the estimated coefficients (β, λ, δ) and plugging in the realised values for the explanatory variables in 2021 yields values of the labour force participation of approximately 64.3 per cent in 2021Q3, just below the actual outturn of 65.1 but significantly above the 62 per cent in 2019 (the last data point in the model). This reflects the labour participation boost arising from a tightening labour market (lower unemployment rate), a decrease in the average weekly unemployment benefit available (as entry into the PUP schemes became more restricted), and increases in average weekly compensation per employee.

Earnings Developments

Employment is not the only aspect of the labour market to be affected by the pandemic and ongoing recovery. However, analysis of wage developments over 2020 and 2021 is complicated by compositional changes within sectors as evidenced in the Earnings, Hours and Employment Costs Survey (EHECS). Decomposition of weekly earnings growth into hourly earnings and hours worked

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components can typically identify underlying trends at a sectoral level; but the substantial employment changes at the onset of the pandemic saw large earnings increases for contact-intensive sectors. This was caused by a disproportionately greater number of lower-earning or part-time workers moving off firm payrolls (some to PUP supports) with *average* firm payrolls then increasing, as full-time or managerial staff constituted a greater share of remaining employment. As this and other changes complicate existing wage data releases, it is important to look to other data sources to analyse earnings developments for those with and without pandemic income supports in order to understand how this changes at both sectoral and demographic levels. These issues are outlined further in *Box* B.

Policy responses introduced to mitigate the negative financial impact of the pandemic, such as the TWSS, EWSS and PUP, were successful in supporting income levels. Without income supports being implemented in 2020 (and assuming no other out-of-work supports); median gross household income would have fallen annually by 20 per cent by Q2 2020 and 6 per cent by Q3 2020.[95] The EWSS provided flat-rate payments to eligible businesses that acted to subsidise wages and enabled a continuation of the link between employer and worker. A cumulative 769,814 workers across all economic sectors availed of the EWSS.

The relative success of the schemes has contributed to a strong recovery in consumption and enabled the unemployment rate to quickly return to pre-pandemic levels, aided by labour demand increasing significantly across all economic sectors. The results of the 2021 SILC Household Survey show that median household disposable income for 2021 (€46,471) rose by 5.8 per cent from 2020 levels.[96] Without Covid-19 income supports there would have been a 6.2 per cent decrease in year-on-year median household disposable income. The income supports affected households across the income distribution. Apart from the 1st decile, all others would have experienced negative income growth without the supports,

[95] Cahill and Lydon (2021) – "The Impact of COVID-19 on the incomes and debt sustainability of Irish households"

[96] Income estimates from SILC 2021 are calculated using 2020 calendar year income. In 2021, a new regulation established a common framework for European statistics relating to persons and households. In order to meet the new regulation requirements, the CSO introduced changes to many SILC business processes, which resulted in a break in the SILC time series for the 2021 release.

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with the income protection provided being relatively greater for the lower income deciles (Figure 16).

SILC data show that income supports accounted for between 6.3 and 10.8 per cent of total net household disposable income between the 2nd and 9th income deciles in 2021 (Figure 17). If a household received any Covid-19 income supports, PUP constituted the greater proportion amongst the lowest seven deciles, reflecting the relatively greater impact of the pandemic and health restrictions on the lower-earning and consumer-facing sectors.

Covid-19 income supports (EWSS/PUP) prevented negative income growth across the distribution

Figure 16: Year-on-year per cent change in net equivalised disposable income, 2020 to 2021

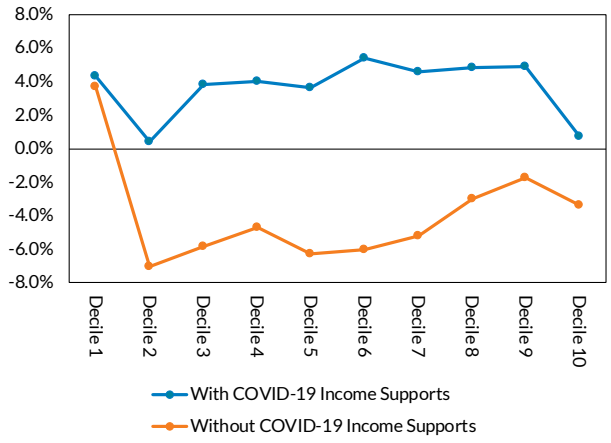
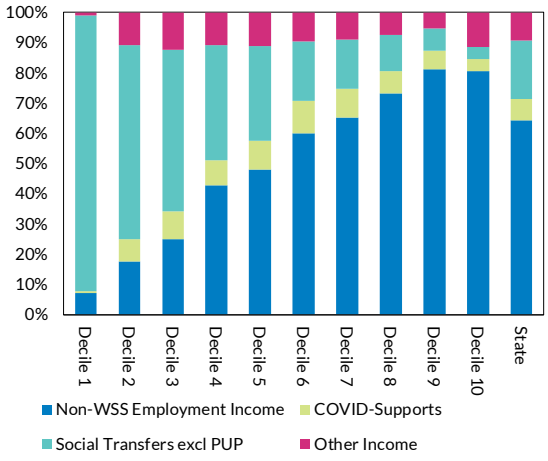


Figure 17: Composition of net household disposable income in 2021, by income decile



Source: CSO and authors' calculations

A CSO Frontier Series analysis using real-time administrative sources offers further insight into earnings developments between Q3 2019 and Q3 2021. The findings show that wage increases have been concentrated among younger workers, those in jobs that were not supported by either the EWSS or PUP schemes and among those who changed employer during 2020 and 2021. The group with the highest median weekly income were workers who had no income supports in either Q3 2021 or Q3 2020. They experienced a 13 per cent increase over the two-year period. There were relatively greater increases for females (13.5 per cent) and persons aged under 25 years (39.3 per cent) (Figure 18). Earnings increases for these two cohorts were evident regardless of whether they had received pandemic income supports.

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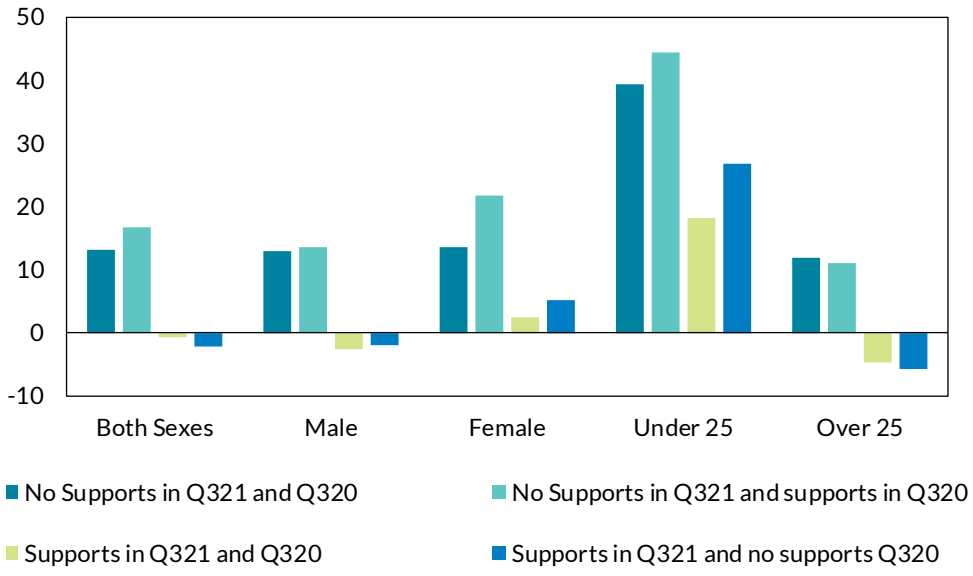
It is important to note that both females and those aged under 25 had a relatively lower base level of median earnings in 2019, while the literature on earnings profiles across the age distribution identifies that the highest rate of earnings increases typically occur in the early stages of the working career (Casanova, 2010).

Female employees and those aged under 25 experienced overall increases in median weekly earnings irrespective of receiving income supports or not

Figure 18: Change in median weekly earnings, by gender and age (Q3 2019 – Q3 2021)



Source: CSO

Workers who did not receive income supports and changed employer between Q3 2019 and Q3 2021 experienced a greater increase in median weekly earnings relative to the non-income support workers who stayed with the same employer (19.5 per cent compared to 12.2 per cent). This trend is evident across gender and age categories, with women and those aged under 25 years again exhibiting the highest relative increase in median weekly earnings.[97] However, the earnings increase for non-income support recipients aged over 25 years who either remained with the same employer or changed employer was also strong over the period (11.1 per cent and 15.3 per cent).

As workers aged over 25 years were less likely to receive income supports, their relative increase in earnings may suggest strong wage

[97] The data show that across all gender and age splits, the median weekly income level was lower for those who changed employer compared to those who stayed.

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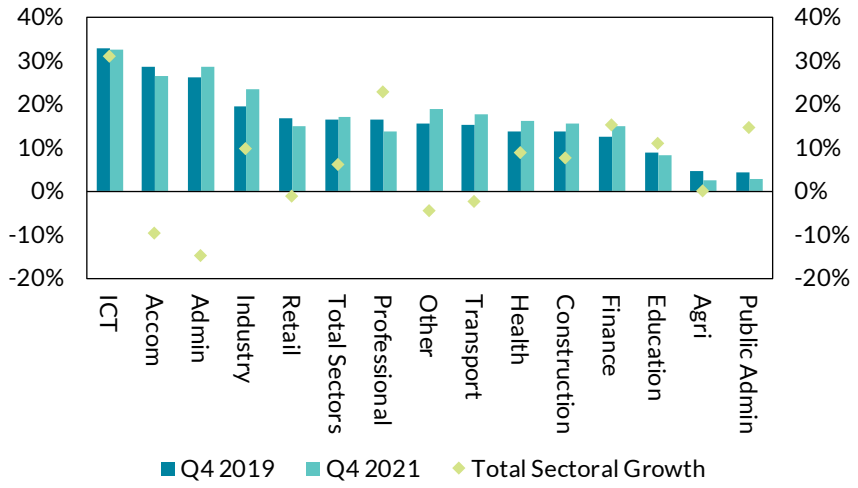
gains in sectors less adversely affected by pandemic-related compositional issues. Wage developments for non-income support recipients during the pandemic and the subsequent recovery period have been stronger than previous periods of labour market tightness. This may reflect labour shortages in expanding sectors.

Slight increase in overall share of non-Irish sectoral employment with more notable increases essential and non-contact sectors

Figure 19: Share of non-Irish employment by sector (Q4 2019 – Q4 2021)



Source: CSO and authors' calculations

Sectors such as ICT, Finance and Professional services contributed strongly to the recent expansion in employment growth whilst at the same time continuing to exhibit high job vacancy rates, perhaps reflecting a shrinking pool of available labour supply (Figures 10 and 11). Given the lower levels of net inward migration, wage developments in these sectors may continue to outpace other sectors as labour demand persists across firms.

The share of non-Irish employment increased in a number of essential and non-contact intensive sectors, including health, construction, finance and industry, between Q4 2019 and Q4 2021 (See Figure 19). Non-Irish workers accounted for 48 per cent of the increase in employment in these sectors compared to 25 per cent across all economic sectors. Overall, strong earnings growth may have acted as an incentivising factor for existing workers to change jobs in addition to serving as a pull factor for firms to attract new workers who were originally outside of the labour force, such as younger workers identified in previous sections, as well as

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migrants.[98] The ability of firms to retain labour during periods of closure through the EWSS may have facilitated younger workers to both remain in part-time employment for longer periods relative to the pre-pandemic period and contribute a higher number of hours when available in response to the increased labour demand in contact-intensive sectors.

Whilst sectoral detail was not available in the granular earnings data at the time of writing, National Accounts data shows that non-contact intensive sectors experienced a strong increase in earnings throughout the pandemic and comprise a much lower share of EWSS supports compared to contact-intensive sectors (Figure 21).[99]

Non-contact intensive sectors saw strong employment gains throughout the pandemic, coupled with relatively larger increases in earnings and low EWSS take-up

Figure 20: Sectoral contribution to employment growth and job vacancy rates

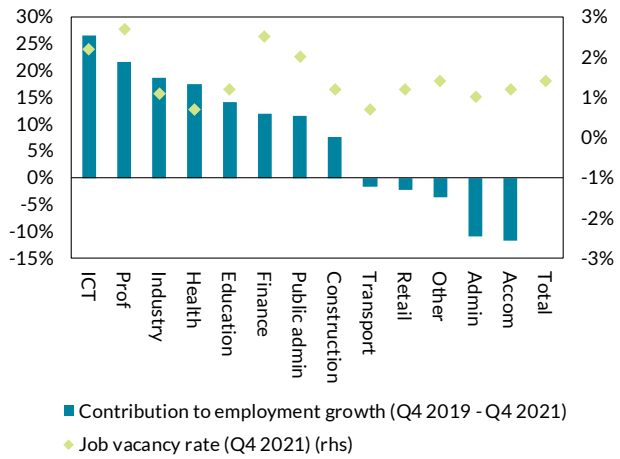
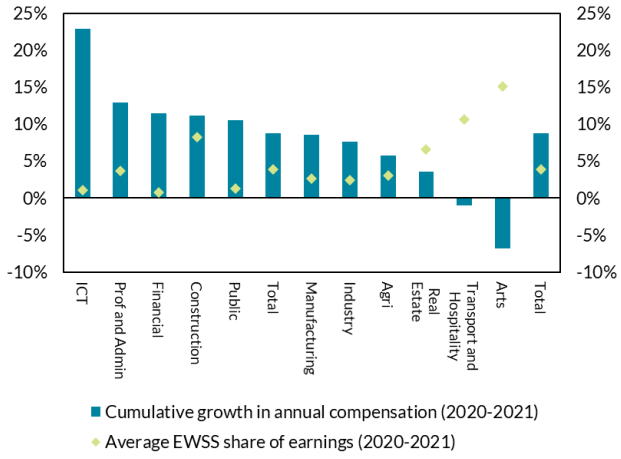


Figure 21: Cumulative change in annual compensation of employees (2020-2021)



Source: CSO and authors' calculations

Allowing for the relative compositional effects to employment, it appears that there was strong wage growth in the non-contact intensive sectors throughout 2020 and 2021, which coincides with the higher level of labour demand. Contact-intensive sectors that were more adversely-affected by the pandemic saw weaker wage

[98] Karahan et al (2017) find that job-to-job transitions are an important indicator related to wage growth particularly at low levels of unemployment, while Lydon and Lozej (2018) identified that job switching in a tight labour market tends to increase earnings by in excess of 10 per cent.

[99] Similar compositional issues exist in the National Accounts data, but they are lessened here relative to other sectors due to the more limited impact of the pandemic on employment in non-contact sectors.

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growth, especially before the impact of the income-support schemes are factored in. As these contact-intensive sectors are now recovering, following the removal of health restrictions alongside increasing labour demand, this would suggest that overall economy-wide wage growth is likely to pick up as the labour market tightens in the 2021 recovery period. Indeed, upward pressure on wages may have been greater in the absence of the labour force participation gains observed over recent quarters.

Box B: Data Challenges to Understanding Wage Developments

Monitoring developments in earnings is important for both understanding the status of the labour market as well as assessing the potential impact on prices. However, the nature of the data poses several challenges for analysing how wages have changed since 2019. In this *Box*, we summarise current challenges in interpreting wage data in Ireland and highlight some experimental sources seeking to address them.

Data challenges

A key issue relates to the impact on overall wages of changes in the composition of the labour market as a result of the pandemic. At one end of the spectrum, individuals working in disrupted sectors may have had their hours reduced or lost their jobs altogether, resulting in lower earnings. While at the other extreme, individuals working in resilient sectors who remained employed throughout may have experienced a wage increase. Some workers will also have changed jobs and certain sectors will have experienced greater job churn than others.

This diversity of pathways for employment means that the composition of the labour market now is different from what it was pre-pandemic. However, data in relation to sectoral shifts and changes in the composition of the workforce, particularly with respect to individual characteristics (such as age, education, experience, gender or type of employment contract) are not captured in core earnings statistics such as the quarterly Earnings, Hours and Employment Costs Survey (EHECS). As a result, it is not possible to confirm whether changes in earnings, as measured by EHECS, reflect genuine changes in wages or rather compositional effects.[100] For example, a firm completing the EHECS survey may report a decrease in overall average weekly earnings but this could be driven by a decreasing number of full-time workers or increasing the number of part-time or younger staff that typically command a lower wage.

[100] EHECS measures "total earnings" as the sum of regular salary, overtime payments and bonuses.

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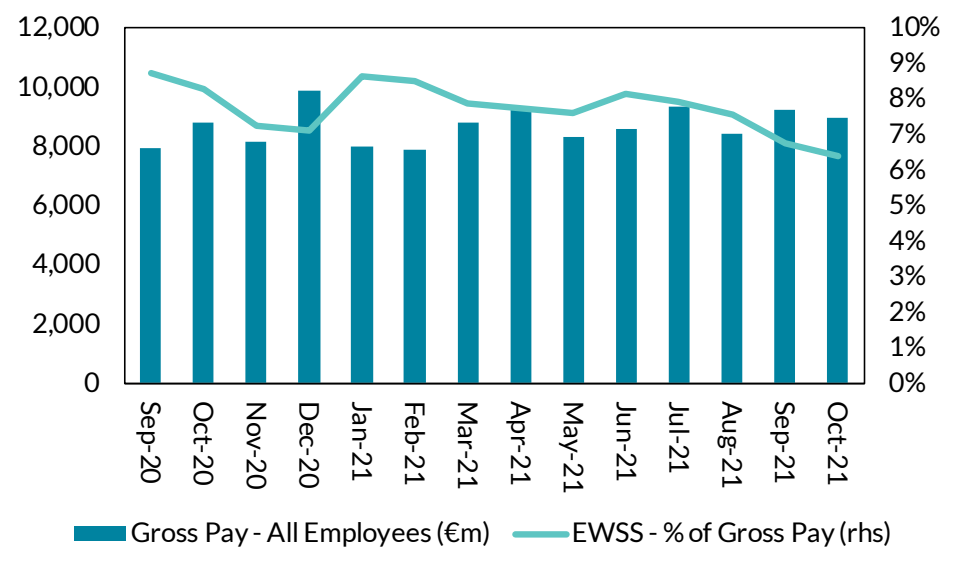
A further challenge is the impact of pandemic income supports. Revenue data on PAYE trends shows that wage subsidy schemes (WSS) worked to maintain earnings throughout the pandemic (Figure B1). The relatively higher take-up of supports in the contact-intensive sectors makes it difficult for firms in these sectors to accurately reflect developments when completing earnings surveys, as the presence of such income supports masks changes in underlying wages excluding the supports.

The share of earnings attributed to EWSS varied throughout the pandemic

Figure B1: EWSS as a share of total earnings



Source: Revenue and authors' calculations

Moreover, these additional datasets are aggregate sources and, similar to EHECS, lack information on individual characteristics which obscures the underlying dynamics for particular demographic cohorts. The Survey of Income and Living Conditions (SILC) is Ireland's official source on household and individual income. While, it can provide granular data on individual characteristics, it follows an annual cycle which hinders regular, timely analysis.

Another annual source is the CSO's Earnings Analysis using Admin Data Sources (EAADS). It presents earnings statistics, which draw on administrative returns and is linked to the CSO's Business Register. This dataset provides a demographic breakdowns of employee earnings including by gender, age, sector, region, nationality and WSS status. The data show that median weekly earnings increased annually in 2020 by 5.2 per cent, but without WSS supports, they would have declined by 1.1 per cent. Data for 2021 are not yet available.

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New sources

To overcome some of these issues, the CSO has released several Frontier publications throughout 2020 and 2021. This included an experimental SILC release in December 2021 that permitted the role of Covid-19 income supports to be analysed by various characteristics, including income deciles.[101] Similarly, a CSO Frontier Series Analysis using real-time administrative sources released in March 2022 provided insight into how availing of Covid-19 income support schemes and/or changing employer impacted a worker's weekly earnings.[102]

These experimental sources help provide granular information which, while not complete, when pieced together with aggregate sources allow a starting point for wage analysis. However, policymakers are also interested in expected future wage growth. Strong wage demand can lead to faster rising consumer prices as firms may raise their prices to offset additional wage costs. Inflation in turn has implications for real income, as well as consumer confidence, which can impact consumption and investment decisions.

In light of this, there is a growing number of surveys seeking to collect information about what economic agents think will happen in future. For example, the European Commission's Economic Sentiment Indicator (ESI) provides a composite indicator combining judgements and attitudes of consumers and businesses about the general economic situation. Within this survey, there are explicit questions on prospective wage developments.[103] The ECB's Consumer Expectations Survey (CES) asks respondents about their financial situation and expectations for their own household income.[104] As CES data for Ireland only becomes available in the summer, the Central Bank has recently conducted a pilot collaboration with the polling agency Ireland Thinks. This process involved surveying a nationally representative sample on their wage expectations in relation to inflation and whether they had taken any labour market actions to seek higher wages.[105] Together, all of these various earnings sources through their use of backward and forward-looking components can help to understand wage developments in greater detail and identify areas where further data sources are needed.

[101] CSO (2022) – Poverty Insights - Income Reference Periods 2018 to 2020
[102] CSO (2022) – Impact of COVID-19 Income Supports on Employees, - Insights from Real Time Administrative Sources, Series 3
[103] Latest ESI – June 2022
[104] ECB - Further information on the CES
[105] Cunningham, K., Garabedian G., and Zekaite, Z., (2022). A snapshot into inflation and earnings expectations by Irish residents. Economic Letter No. 2, Central Bank of Ireland.

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Conclusion

We show that the growth in employment in recent quarters has been mainly driven by women aged over 35 years and young people aged 15-24 years. We find that the recent large increase in employment reflects underlying trend improvements in participation as well as the strength of the economic recovery, rather than structural changes due to the pandemic. Our empirical analysis shows the participation expansion supporting employment growth in 2021 is mostly explained by both the effect of the tighter labour market on participation and longer run trend increases in participation for some groups. In relation to the latter, the analysis suggests that the higher levels of participation for women could be sustained, providing a boost to overall labour supply and supporting economic growth. The participation gains for under 25s could also be maintained as these cohorts are contributing labour alongside educational attainment, however, this activity is more sensitive to the economic cycle. Structural changes in the labour market induced by the pandemic do not appear to have played a major role to date.

These employment gains have thus far supported economic growth without generating substantial wage pressures. With employment approaching levels consistent with full employment, policies to enhance potential employment growth over the medium term will be important to avoid wage developments decoupling from productivity. For example, the prime working age (20-64) participation rate in Ireland (~74 per cent) is below the best performing European countries such as the Netherlands (83.7 per cent) and Estonia (79.1 per cent). One reason for this is that the female participation rate in the prime working age population is still lower than the male participation rate (11.9 percentage points difference). Policies to increase the availability or reduce the relative cost of childcare have been shown to promote female participation, particularly for lower income households (Russell et al., 2018). Policies aimed at reducing the gender wage gap could be effective in increasing continuity in female employment (McGuinness et al., 2009), while active labour market policies could improve access to employment for those outside of the labour force for extended periods (Faubert, 2019). Moreover, Byrne and McIndoe Calder (2019) show that, when the economy is close to full capacity, net

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inward migration is the most important source of employment growth but that attracting migrants in the context of tight labour markets across Europe will be challenging.

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Appendix

Table A1: Marginal effects, logit estimation of transition to employment from inactivity

	(1)	(2)	(3)	(4)	(5)	(6)
Time period	**Pre-Covid Growth**	**2021 Recovery**	**Pre-Covid Growth**	**2021 Recovery**	**Pre-Covid Growth**	**2021 Recovery**
Sample	**All 15+**	**All 15+**	**15-25**	**15-25**	**Women, 35-65**	**Women, 35-65**
Age	-0.00313***	-0.00474***	-0.0137***	-0.0191***	-0.000816***	-0.0011
	(9.96e-05)	(0.000383)	(0.000538)	(0.00207)	(0.000268)	(0.00121)
Age squared	3.26e-05***	4.99e-05***			1.01e-05***	8.22e-06
	(1.03e-06)	(3.96e-06)			(2.40e-06)	(1.04e-05)
Female	0.00326***	0.00947***	-0.00237	0.0131		
	(0.000500)	(0.00212)	(0.00212)	(0.00861)		
Skill level, low skilled=reference						
High skilled	-0.00386**	-0.0233**	0.00895	0.0131	-0.00525	0.0258*
	(0.00178)	(0.0102)	(0.00932)	(0.0331)	(0.00455)	(0.0138)
Medium skilled	-0.00417**	-0.0154*	-0.0167*	-0.00640	-0.00196	0.0266*
	(0.00174)	(0.00937)	(0.00882)	(0.0283)	(0.00456)	(0.0147)
Sector of employment, private contact intensive services=reference						
Primary	0.0145***	0.00871*	0.0134**	0.0134	0.0388***	0.0383***
	(0.00150)	(0.00515)	(0.00589)	(0.0207)	(0.00416)	(0.0133)
Industry	0.000215	-0.0186***	0.00397	-0.0123	-0.00124	-0.0146**
	(0.000874)	(0.00340)	(0.00506)	(0.0177)	(0.00137)	(0.00626)
Construction	0.00678***	0.00862	0.0111*	0.0222	0.0101***	-0.00174
	(0.00124)	(0.00560)	(0.00596)	(0.0209)	(0.00370)	(0.0121)
Private non-contact services	0.000523	-0.0115***	0.00985*	0.000953	-0.000431	-0.0168***
	(0.000836)	(0.00378)	(0.00540)	(0.0204)	(0.00108)	(0.00435)
Public services	-0.000619	-0.0202***	0.0151***	-0.00937	-0.00373***	-0.0219***
	(0.000655)	(0.00268)	(0.00489)	(0.0161)	(0.000671)	(0.00329)
Observations	426,191	41,465	58,235	5,063	159,222	10,810
Additional controls included^	Y	Y	Y	Y	Y	Y

Source: CSO and authors' calculations
Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
^ migrant; marital; location; employment intensity and permanence; sector catch-all; skill-level catch-all
The time periods are Pre Covid Growth (Q1 2015 – Q4 2019) and 2021 Recovery (Q2 2021 – Q4 2021)

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Managing the Public Finances in Uncertain Times

Thomas Conefrey, Rónán Hickey, David Staunton and Graeme Walsh [106]

Abstract

The pandemic had a major impact on the public finances, resulting in an exceptional €27 billion increase in government spending up to 2021 and adding to the national debt. As the pandemic has abated, the public finances have recovered quickly. The war in Ukraine presents fresh challenges, with high inflation and new expenditure pressures adding to existing demands on the public finances. Against a backdrop of supply-side constraints and with large increases in capital spending already planned out to 2025, the analysis here shows that additional permanent current spending funded by borrowing would add to inflationary pressures and slow down the projected recovery in the public finances. These effects would be mitigated if the spending was funded by raising revenue. Lower corporation tax revenue, higher interest rates and slower growth would result in the persistence of more elevated government debt over the medium term. In the current high-inflation environment, careful management of the public finances is required to ensure sustainable economic growth and to rebuild resilience in the government's finances following successive negative shocks.

[106] Irish Economic Analysis Division. We would like to thank Mark Cassidy, Daragh Clancy, David Cronin, Giuseppe Corbisiero, Sharon Donnery, Robert Kelly, Martin O'Brien, Gerard O'Reilly (CBI) and David Purdue (NTMA) for comments. The views expressed in this Article are those of the authors and do not necessarily reflect those of the Central Bank of Ireland or the European System of Central Banks.

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Introduction

As the pandemic has abated and the economy reopened, the public finances have improved rapidly, driven by strong growth in government revenue and reductions in pandemic-related expenditure. Just as pandemic-related pressures have subsided, the war in Ukraine is presenting new challenges. Higher inflation, while benefiting nominal tax revenue, is resulting in slower than expected real economic growth and adding to existing expenditure pressures given the need to assist those most affected by rising prices.[107] Following five years when borrowing costs for the government were at historically low levels, interest rates have started rising again, influenced by the more uncertain economic outlook and the normalisation of monetary policy.

Against this challenging backdrop, this *Article* examines the implications for the public finances and the economy over the medium term of a number of possible fiscal and economic risks. Since 2020, government expenditure on measures to address the pandemic, cost of living supports and the humanitarian response to the Ukraine crisis has amounted to over €35 billion. A significant proportion of this additional expenditure has been temporary and has already reduced. However, although intended to be temporary, there is a risk that some of the spending introduced since 2020 could prove more long-lasting, such as higher spending in the health area following the pandemic. In addition, excluding temporary measures, underlying core expenditure has also grown strongly in recent years. At the same time, current supply-side constraints mean that increases in demand from expansionary fiscal measures risk adding further to inflationary pressures. As well as through borrowing, part of the increase in expenditure in response to the pandemic was funded using the resources in the Rainy Day Fund.[108] With no contributions to the fund since 2019, it has now been exhausted.

Our analysis examines the impact on the deficit, debt and economic activity of a further permanent rise in current government expenditure on top of the plans as set out in Stability Programme

[107] In May 2022, HICP inflation stood at 8.3 per cent on an annual basis. The equivalent figure for May 2021 was 1.9 per cent.
[108] As part of Budget 2021 the Government decided to withdraw the full €1.5bn value in the National Surplus (Exceptional Contingencies) Reserve Fund – better known as the 'Rainy Day Fund' – to part finance exceptional Covid-19-related expenditure.

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Update 2022 (*SPU 2022*). We examine how the effect on the economy and public finances would vary depending on whether the additional expenditure is funded by raising revenue or by an increase in debt, taking into account the current economic context. In relation to risks to government revenue, we examine the impact of a permanent loss of corporation tax along with a slowdown in international growth. As outlined elsewhere in this *Bulletin*, the widespread surge in inflation is leading all major central banks to normalise their monetary policy stance, which had reached unprecedented degrees of accommodation in response to the large negative shock of the Covid-19 pandemic.[109] With borrowing costs rising, we assess the effect on the economy and the government finances of an increase in interest rates in excess of the path currently expected by financial markets. The results from these scenarios are conditional on the specific shocks considered. To account for a range of all feasible risk scenarios for key variables such as growth and interest rates, a stochastic debt sustainability analysis (DSA) is presented to illustrate the uncertainty around central projections for the debt-to-GNI* ratio over the longer term.

The analysis is organised as follows. Section 2 provides an overview of key changes in government expenditure, revenue and debt since before the pandemic in order to identify key risks to the public finances for the coming years. This section also outlines the operation of the State's rainy day fund (RDF) since its establishment and assesses the government's medium-term expenditure rule. Section 3 contains scenario analysis illustrating the impact on the economy and public finances of a number of potential negative shocks. Section 4 concludes.

Recent Performance of the Public Finances

Developments in General Government Expenditure

Irish government expenditure has been heavily influenced in recent years by the response to the Covid-19 pandemic, and temporary measures will continue to play an important role in the evolution of spending over the medium term. Following an average increase of 5 per cent in 2018-19, General Government expenditure grew by 18

[109] See Box B "Developments in Monetary Policy and the International Economic Outlook" in the main Chapter of this *Quarterly Bulletin*.

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per cent in 2020 as €15bn of supports were introduced to mitigate the impact of the pandemic on households, firms and the wider economy. The process of withdrawing these supports began last year, but total General Government spending continued to increase - by 3.2 per cent - reflecting strong growth in 'core' or permanent expenditure. The Department of Finance anticipates that these broad trends – declining temporary spending outweighed by increasing permanent spending – will continue to drive the evolution of government expenditure over the medium term (see Figure 1). These projections for expenditure on a General Government basis are underpinned by 5 per cent growth in core voted Exchequer spending in 2024 and 2025, consistent with the Department's Medium Term Expenditure Framework (described in more detail in Box 1).[110] Such growth would be lower than that experienced by the Exchequer in recent years, with average growth of 6.4 per cent expected to occur over the five years to 2022 (see Figure 2).[111]

[110] The Central Fund, or Exchequer, is the main treasury account held by the Irish Government at the Central Bank of Ireland. All government receipts and expenditures, unless otherwise determined by law, are recorded in the Central Fund on a cash basis. The difference between receipts and expenditures is called the Exchequer balance. The General Government balance (sometimes referred to as the government deficit) is a broader accrual based measure of the fiscal position on an accruals basis, for the whole of government, than the cash based Exchequer balance. It takes account of other agencies and bodies that sit outside the Exchequer giving a more complete picture of a government's fiscal performance. It is the main internationally recognised government accounting aggregate.

[111] The forecast increase in core Exchequer expenditure for 2023 of 5 per cent contained in *SPU 2022* was revised up to 6.5 per cent in *SES 2022*.

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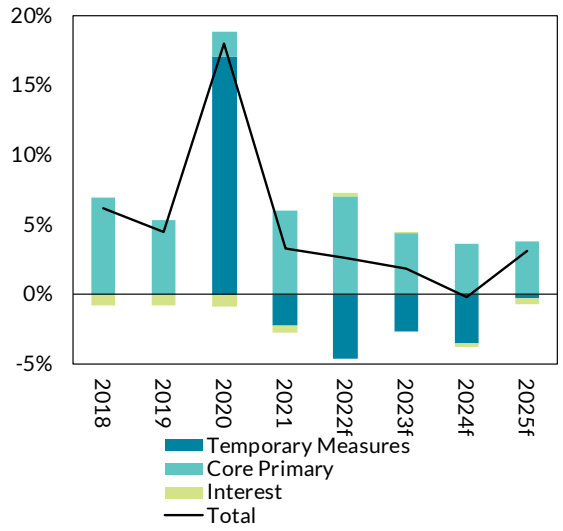
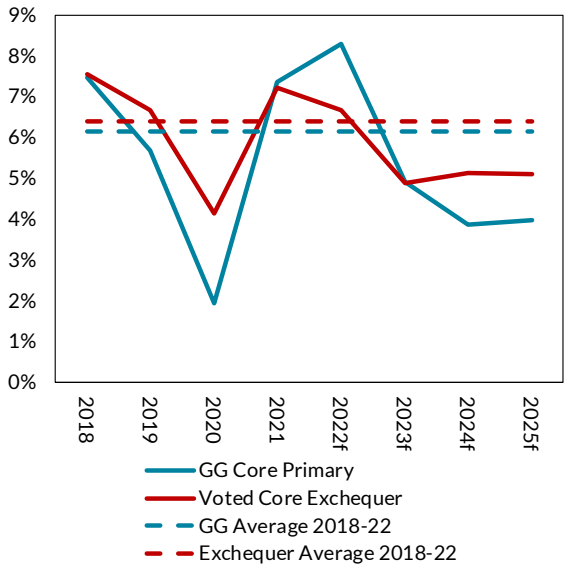
Figure 1: Factors Driving Change in General Government Expenditure



Source: CSO, Department of Finance (*SPU* 2022).

Figure 2: Growth in Key Expenditure Aggregat



Source: CSO, Department of Finance, (*SPU 2022*).

A number of different temporary spending measures are currently included in the Government's budgetary projections for the 2022-25 period. These need to be distinguished from permanent or core spending as they should unwind over time and, therefore, are not currently intended to have a permanent impact on the expenditure base. Alongside temporary measures linked to the Covid-19 pandemic, recent months have seen the Government introduce temporary spending to mitigate the impact of high energy prices on households and firms and to provide humanitarian support for Ukrainian refugees. There are also temporary spending increases linked to Next Generation EU receipts, although given that these are fully financed by EU grants they should have a neutral impact on the budget balance. Table 1 outlines the temporary spending measures introduced since 2020 and the Department of Finance projections for this expenditure over the medium term from *SPU 2022*. Latest estimates from the CSO suggest that Covid-19 expenditure totalled €27.1bn (12.5 per cent of GNI*) in 2020-21 with two-thirds of this reflecting the main income support schemes, that is the Employment Wage Subsidy Scheme and the Pandemic Unemployment Payment. The large Covid-19 Contingency Reserve that was included in Budget 2022 is expected to finance income support measures and humanitarian support costs this year, while a €3bn (1.2 per cent of GNI*) contingency is provided to finance such measures in 2023.

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Table 1 – Temporary Measures, (€bn)

	2020	2021	2022	2023	2024	2025
Covid: EWSS	4.2	4.7				
Covid: PUP	5.1	4				
Covid: Health Sector	2.0	2.2				
Covid: Other / Unallocated	3.4	1.5	6.0	0.8	0.5	0.2
Income Supports			0.8			
Humanitarian Supports				3		
NGEU			0.7	0.8	0.2	0.2
TOTAL	**14.7**	**12.4**	**7.5**	**4.6**	**0.7**	**0.4**

Source: Central Bank of Ireland calculations

There are two notable risks related to temporary spending. The first is that the resources allocated for income and humanitarian supports might not be sufficient. It is possible that the remaining Covid-19 Contingency Reserve will not be adequate to finance income and humanitarian supports this year – the lack of timely data on the allocation of temporary spending resources makes it difficult to assess – while no funding has been provided for post 2023. A second risk generated by having large levels of temporary spending is the potential for the spending to not unwind fully as planned. Some of the temporary spending could leak into the permanent expenditure base. The lack of timely data – particularly the proportion of contingency funds that has been utilised and for what purpose – raises concerns in this regard.

Core primary spending has increased particularly strongly in recent years. [112] Despite relatively subdued growth in 2020 – when lockdown restrictions appear to have reduced the demand for core government services – it is expected to average 6.1 per cent per annum over the five years to 2022 (see Figure 2). [113] This follows overspendings in gross voted spending in 2018 and 2019 (by 2.1 and 1.2 per cent respectively) and the allocation of large additional budgetary resources for voted spending in Budget 2021 and Budget 2022 (of 7.7 and 5.5 per cent respectively). As Figure 2 illustrates, the Department of Finance anticipate that total core primary spending growth will moderate sharply from its 2022 level in subsequent

[112] Core spending is defined as total General Government expenditure minus interest payments minus temporary spending measures.
[113] This view is supported by a contraction in intermediate consumption (goods and services consumed by government to produce its own output), other current expenditure and government investment (reflecting the lockdown in the construction sector).

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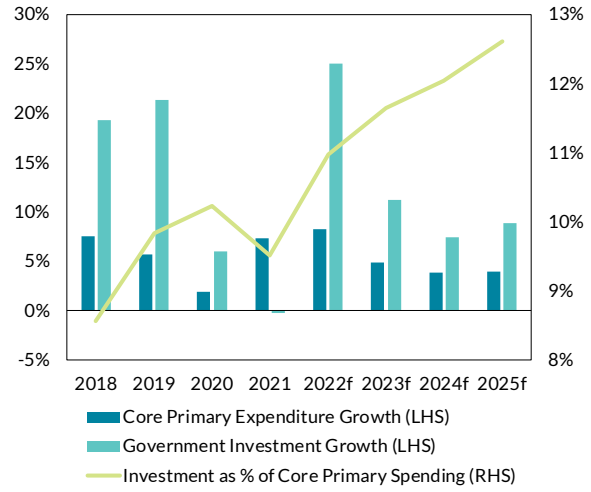
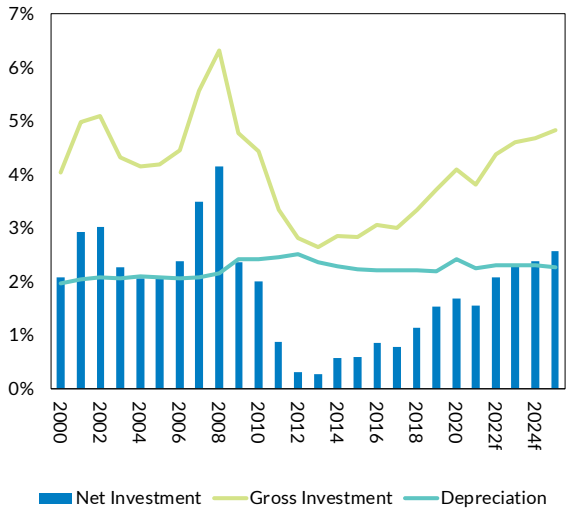
years, falling well below its 5-year average in 2024 and 2025. This would suggest some risk that spending will be higher than anticipated in the coming years, as further discussed in Section 3.

Figure 3: Change in Government Investment, %



Source: CSO, Department of Finance forecasts for 2022-2025

Figure 4: Gross and Net Government Investment, % of GNI*



Source: CSO, Department of Finance forecasts for 2022-2025

In relation to capital spending, following very strong growth in government investment in the two years leading up to the crisis (average annual growth of 20 per cent in 2018-2019), current Department of Finance spending projections anticipate further significant increases over the medium term (see Figure 3). Gross fixed capital formation is forecast to grow by an average of 13 per cent per annum in the four years to 2025, a development that is projected to result in net government investment as a percentage of GNI* continuing to recover from the lows experienced in the years following the financial crisis (see Figure 4). The recent and planned increases in capital investment are also high by international standards.[114] Reflecting the strength of these growth rates, capital spending is projected by the Department of Finance to drive around one-quarter of the total core primary spending increase from 2022

[114] See IFAC (2021): https://www.fiscalcouncil.ie/wp-content/uploads/2021/11/Irelands-next-ramp-up-in-public-investment-Nov-2021.pdf

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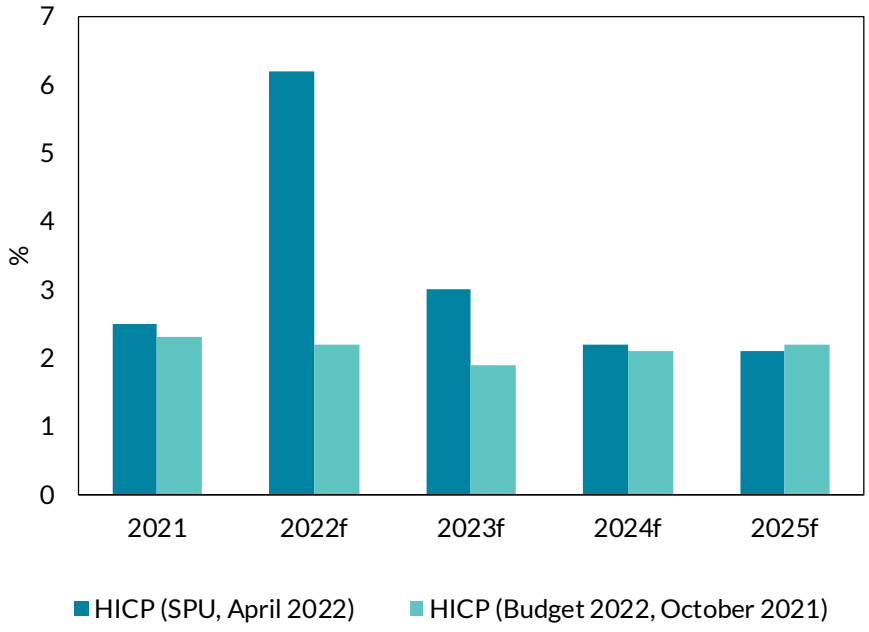
onwards, a notable development given that this spending represented just one-tenth of core primary spending in 2021.

The government investment projections are underpinned by the National Development Plan (NDP) – which sets out total public spending of up to €165bn between 2021 and 2030. In the short term, against the backdrop of high inflationary pressures, achieving the real increase in capital spending that was envisaged in the plan is likely to prove challenging. Figure 5 shows the projections for inflation at the time of the publication of the NDP in October 2021 compared to the most recent Department of Finance projections from April 2022. As shown in the chart, inflation in the most recent projections is expected to be significantly higher than envisaged at the time of publication of the NDP. If nominal capital expenditure ceilings are to remain fixed, given the higher inflation environment that is projected out to 2024, real expenditure and the actual delivery of specific projects will be lower than originally planned. This points to the need for careful planning and management of capital investment to assess priority projects.

Figure 5: Inflation revised up since the publication of the NDP



Source: CSO, Department of Finance forecasts (SPU 2022) for 2022-2025.

Targeted and productive government investment differs from government consumption as it contributes to the stock of public capital, which can have a longer lasting impact on the economy.

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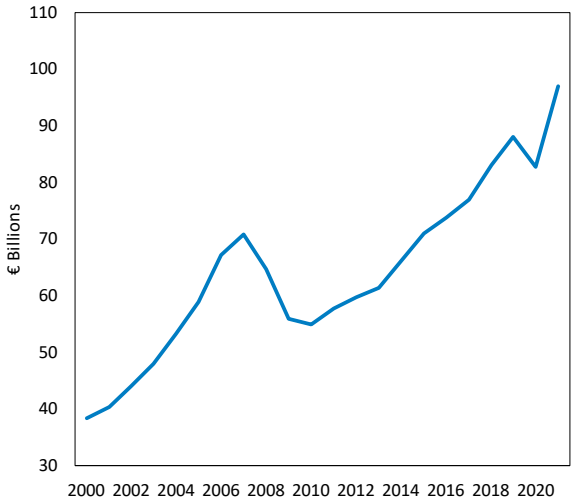
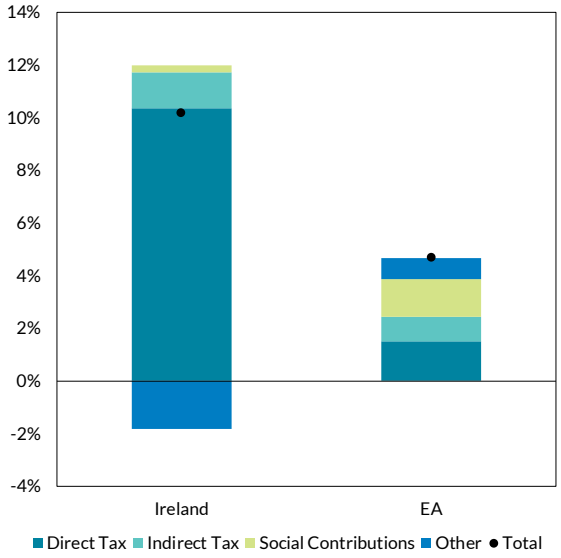
While estimates of the effect of public capital on growth vary - and depend on factors such as the composition and efficiency of spending - the literature typically finds a positive relationship between the two. [115] The positive impact of government investment is likely to be larger when there is spare capacity in the economy. Given the current supply-side constraints and high inflation, the overall fiscal stance – i.e. decisions on balancing current and capital expenditure and taxation – needs to be carefully calibrated to ensure there is room for higher expenditure on necessary and productive capital projects.

Figure 6: General Government Revenue (€ billion)



Source: Department of Finance

Figure 7: Factors Driving Change in General Government Revenue, 2019 - 2021



Source: Eurostat

Developments in General Government Revenue

Irish government revenue performed much better during the pandemic than had initially been expected. While total revenue did experience a decline in 2020 (-6.1 per cent), the recovery in 2021 was exceptionally strong (+17.3 per cent). As a result, revenue increased by 10.2 per cent for the period as a whole (see Figure 6). This was more than double the euro area average growth rate of 4.7 per cent, with the divergence primarily driven by developments in

[115] Ivory *et al.* (2019) surveys the literature on estimating the impact of different forms of public spending and provides estimates for Ireland. See also Broner *et al.* (2019) and Hickey *et al.* (2018).

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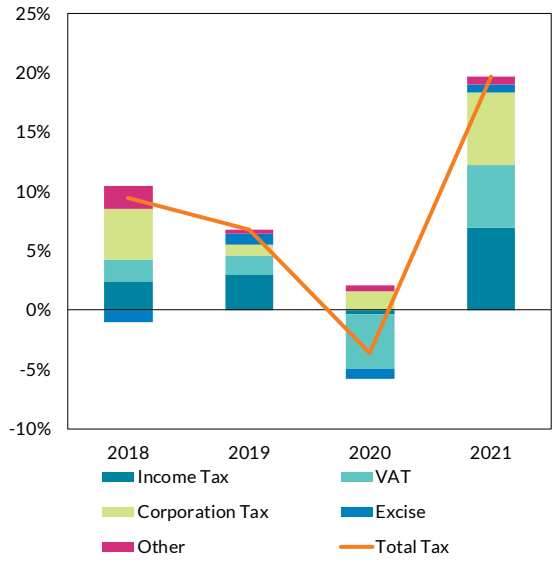
direct taxes, the biggest components of which are income and corporation taxes (see Figure 7). Indirect taxes (mainly VAT and excise duty) saw broadly similar trends in Ireland and the euro area, declining in 2020 before recovering in 2021, while social contributions performed stronger in the euro area (where they make up a much bigger proportion of total revenue relative to Ireland).[116]

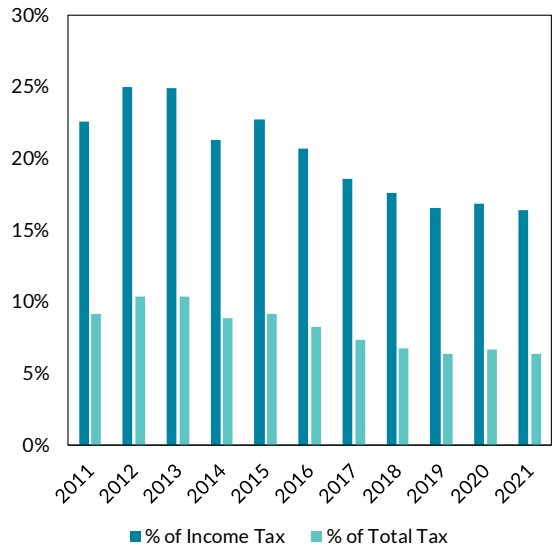
The resilience of income tax receipts was one of the more notable public finance developments of the pandemic. In Exchequer terms, they declined by just 1 per cent in 2020, despite lockdowns having a negative impact on the labour market. This resilience appears to have reflected the very progressive Irish income tax system – a relatively small proportion of the tax is paid by lower income workers - coupled with the nature of the shock on the Irish labour market, which saw job losses disproportionately concentrated among workers at the lower-end of the income distribution.[117,118]

Figure 8: Factors Driving Change in Exchequer tax receipts



Source: CSO, Department of Finance

Figure 9: Universal Social Charge



Source: CSO, Department of Finance

[116] Social contributions represent around one-third of total revenue in the euro area compared to around 17 per cent in Ireland.
[117] See Box: The resilience of income tax in 2020, Central Bank of Ireland Quarterly Bulletin 4, October 2020.
[118] See Timoney (2022): https://www.fiscalcouncil.ie/wp-content/uploads/2022/05/A-bottom-up-sectoral-assessment-of-the-strength-of-income-tax-receipts-.pdf

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Income tax, which remains the largest individual tax head, recovered very strongly in 2021 reflecting a broad labour market recovery, continued strong employment growth in high earnings sectors and part repayment of warehoused taxes (see Figure 8).[119] It is projected to continue to grow strongly in the coming years, driving around 45 per cent of the overall growth in Exchequer tax revenue between 2022 and 2025. Income tax – a large and stable tax base – playing a key role in driving overall revenue growth is a positive feature of the fiscal outlook. As noted by the Department of Finance, however, broadening the income tax base – almost one in three workers are outside the tax net - would be one way to reduce fiscal vulnerabilities, leaving the public finances less exposed to idiosyncratic shocks.[120] The Universal Social Charge (USC) remains an important component of income taxes and source of total revenue (see Figure 9). The USC, which has helped to broaden the tax base, generating almost €4.5bn - or 16 per cent of income tax receipts – in 2021. To put this figure in context, it represented more than half of total government investment spending last year.

Corporation Tax

Corporation tax (CT) receipts have continued to grow strongly during the pandemic, ending last year 40 per cent higher than they were in 2019 (see Figure 10). As a result, CT represented 22 per cent of all taxes received and were in line with VAT as the country's second largest tax head. To put the latter point in context, just five years earlier CT receipts amounted to only 60 per cent of VAT. CT remains extremely difficult to forecast, as its growth has decoupled from the underlying economic bases that would normally be used to predict it. Over the period 2020-2021, receipts were a cumulative €4.9bn or 2.2 per cent of GNI* higher than had been profiled by the Government in Budgets 2021 and 2022. This continues a longer run trend. Since 2015, CT receipts have been a cumulative €11.7bn or 6 per cent of GNI* ahead of budgetary expectations (see Figure 11). In the Department of Finance projections, CT receipts are expected to

[119] While warehoused taxes are accrued back to the year in which they were due in the General Government accounts, this is not the case in the Exchequer accounts where they are recorded in the year in which they were paid.
[120] See Department of Finance, 'Submission to Commission on Taxation and Welfare', February 2022.

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play a smaller role in driving overall tax growth in the coming years, reflecting the anticipated negative impact of the OECD Base Erosion and Profit Shifting (BEPS) reforms on the tax head. The Government's tax revenue projections assumes that these reforms will reduce the CT tax take by €2bn over the medium term.[121]

It is worth examining what increase in CT we would expect to have seen had this tax heading grown broadly in line with underlying economic activity. The difference between this Central Bank of Ireland estimate and the actual corporation tax outturn can be considered a measure of windfall revenues and may also be instructive in providing an estimate of how much of the recent inflow could be considered as potentially unsustainable.[122] We use GNI* as the base to determine the deviation from the expected level as, prior to 2015, GNI* performs reasonably well as a predictor of CT receipts. Furthermore, given GNI* has been specifically designed to exclude globalisation effects unrelated to developments in the Irish economy, it is a suitable indicator for this exercise.

[121] The draft EU Council Directive on the implementation of the BEPS Pillar II reforms proposes a transposition deadline of 31 December 2023 for the new arrangements, with the Income Inclusion Rule to become effective for fiscal years beginning on or after this date. See: https://data.consilium.europa.eu/doc/document/ST-7495-2022-INIT/en/pdf

[122] This is, of course, only one way of trying to identify the unsustainable element of corporation tax receipts, with other methodologies having been employed by the IMF, IFAC and Department of Finance amongst others.

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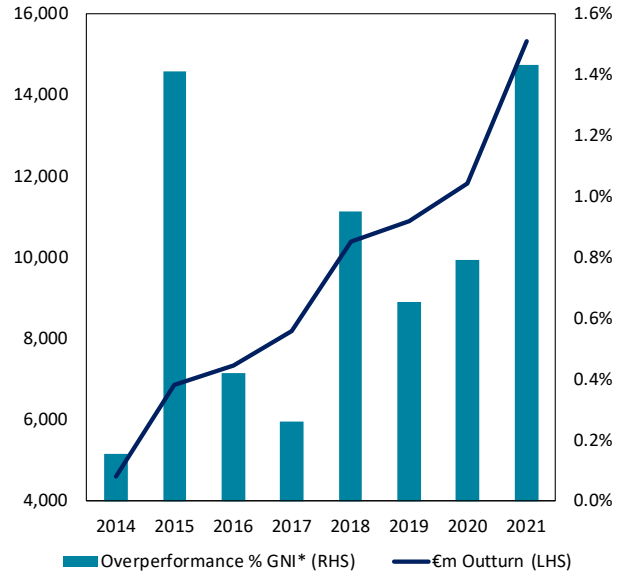
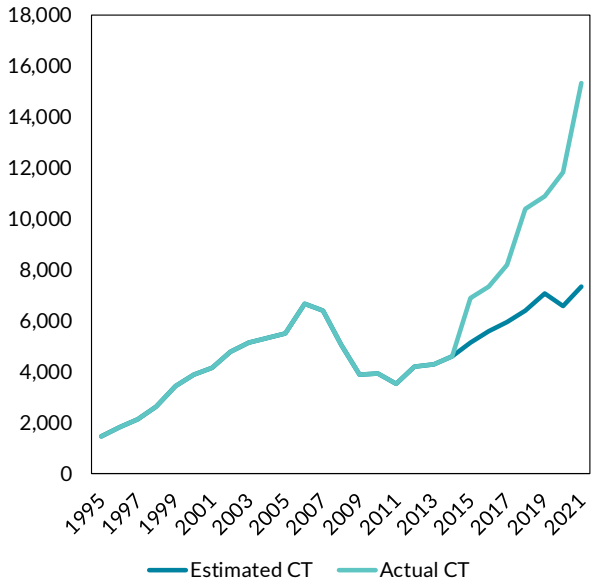
Figure 10: Corporation Tax, Outturn (€ million) and Performance v Budgetary Profile (% GNI*)



Source: CSO, Department of Finance

Figure 11: Actual and Estimated Corporation Tax Revenue



Source: CSO, Central Bank of Ireland

We use a model-based approach to compare actual CT receipts since 2015 to an estimate of CT revenue from a simple equation that relates changes in GNI* to changes in CT revenue (see Figure 11).[123] The results suggest that, given the historical relationship between CT and GNI*, €8 billion (3.5 per cent of GNI*) of the CT collected in 2021 was unexpected given the realised growth in modified national income. Estimating excess or windfall CT is an uncertain exercise and in addition to using GNI*, other approaches can be employed. These include substituting alternative measures of income or profits such as net entrepreneurial income for GNI* or comparing realised CT outturns to what corporation tax would have been had its share of overall revenue remained unchanged at its 2014 level. These approaches yield estimates of excess CT broadly in line with the GNI*-based approach. The €8 billion figure using GNI* is similar to IFAC's "central" estimate of excess CT revenue in 2021 of €7.6 billion.[124] Looking at the period 2015-21 as a whole, around €26bn more in CT has been collected than would be expected given growth in GNI*. The estimate of excess corporation tax using GNI* is likely

[123] The equation we use is: dlog(CT) = c(1) + c(2) * dlog(GNI*). The sample is 1995 to 2014.
[124] See https://www.fiscalcouncil.ie/wp-content/uploads/2022/05/FAR-May-2022-Box-G-Exchequer-has-benefited-from-some-E22-billion-excess-corporation-tax-.pdf

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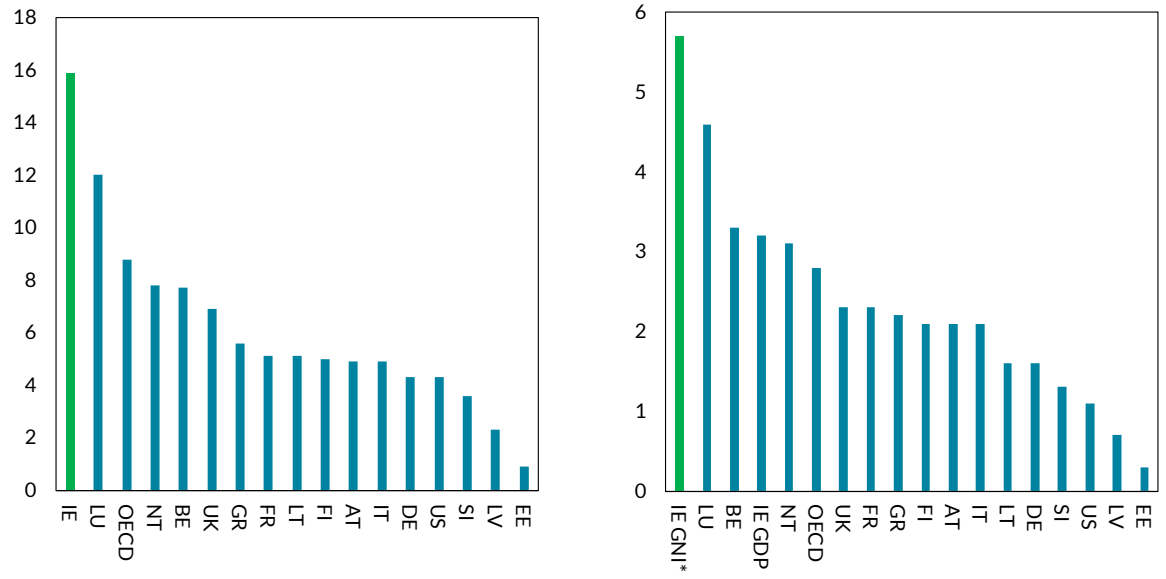
to represent an upper bound. While GNI* is the best available measure of modified national income, removing from GDP and GNP certain distortionary MNE effects, GNI* excludes some activity that is part of the sustainable tax base.

Figure 12: Corporation Tax, % of Total Tax Revenue (LHS Chart) and Percentage of GDP/GNI* (RHS Chart)



Source: OECD Global Revenue Statistics Database.
Note: Total tax revenue includes social contributions.

Irish CT receipts are high in an international context when compared to other euro area countries and the OECD more generally (see Figure 12). With just 10 large companies responsible for around half of all receipts, meanwhile, there is also a considerable concentration risk. Were some of these large companies to relocate for tax purposes, or in the event of adverse shock to specific large sectors such as ICT or pharmaceuticals, it could have a significant negative impact on the overall fiscal position. The exposure of the public finances to negative shocks to the MNE sector is not limited to corporation tax. Employees of foreign owned multinationals paid 54 per cent of the income tax from all companies in 2020.[125] In the same year, foreign-owned MNEs accounted for around 46 per cent of VAT paid by all companies in the economy.[126]

[125] This figure includes foreign-owned multinationals that service the domestic market.
[126] See Revenue Commissioners, 'Corporation tax – 2021 payments and 2020 returns', May 2022.

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The Rainy Day Fund

The National Surplus (Reserve Fund for Exceptional Contingencies) Act 2019) which established the Rainy Day Fund was commenced on 31 October 2019. The stated purpose of the fund is to mitigate severe economic shocks, in excess of the normal fluctuations of the economic cycle. In November 2019, the government initially transferred €1.5 billion into the fund from existing resources held in the Irish Strategic Investment Fund (ISIF). Under the Act establishing the fund, the Minister for Finance is required to make a payment from the Exchequer of €500 million to the rainy day fund every year from 2019 to 2023.[127] The Act also provides that in any given year the Minister may make a proposal to the Dáil not to transfer the €500 million contribution into the fund. A decision to withhold payments to the fund can be made in exceptional circumstances if the Minister assesses that payment of the prescribed amount would place an undue burden on the public finances.

The first €500 million payment due into the Rainy Day Fund in 2019 was withheld on the basis that the UK's impending departure from the EU amounted to exceptional circumstances. Similarly, in 2020, the second €500 million payment to the fund did not proceed due to the unforeseen circumstances of the pandemic. In October 2020, the government announced the drawdown of the full €1.5 billion in the fund in order to contribute to meeting the cost of the pandemic response. Combined with the cancellation of the 2019 and 2020 payments, there are currently no remaining resources in the fund.

The original rationale for the establishment of the rainy day fund – to build up resources that could be used to mitigate the effects of future negative shocks – remains valid in the current context of the Irish economy. Moreover, as outlined above, corporation tax receipts have continued to grow since the establishment of the fund and the observed increases since at least 2015 are likely to contain a significant windfall element. If further unexpected corporation tax increases were used to fund higher expenditure on top of current plans over the coming years, this would risk adding to excess demand and existing inflationary pressures in the economy, as discussed below. Resuming payments to the RDF and extending its lifespan

[127] See https://www.irishstatutebook.ie/eli/2019/act/18/section/5/enacted/en/html

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beyond 2023 would help ensure that a greater proportion of government revenue is saved and would assist in rebuilding the resilience of the public finances and the economy.

Box A: The Government's Medium-Term Expenditure Rule

In the 2021 Summer Economic Statement, a new medium term budgetary strategy was announced by Government. The strategy includes a commitment to keep annual growth in Exchequer expenditure fixed at 5 per cent in nominal terms, in line with the economy's estimated trend nominal growth rate. This expenditure rule was announced in the context of the activation of the Stability and Growth Pact's general escape clause in May 2020, which meant the requirement for EU countries to meet various targets related to debt and deficits was temporarily suspended to help Governments respond to the Covid-19 pandemic. In light of the recent expenditure growth set out in this article, and the temporary suspension of certain EU fiscal rules, a budgetary framework for managing expenditure over the medium term is warranted.

A key advantage of a rule based on expenditure growth is that it avoids the procyclicality issues associated with rules that target the General Government balance. When revenue is lower than expected, maintaining planned expenditure growth can support economic activity and maintain long run Government investment plans. When revenue is temporarily stronger than expected, the windfall gains must be saved once expenditure growth reaches the 5 per cent limit. The rule is explicitly defined so that expenditure is linked to the medium-term sustainable growth rate of the economy in nominal terms, rather than to actual growth in a given year. Adjusting expenditure growth based on the latter would raise the risk of government spending changing based on temporary fluctuations in nominal output.

A weakness in the expenditure rule announced by the Department of Finance in 2021 is that, since the 5 per cent annual limit only applies to Exchequer spending, overall General Government expenditure can grow at a higher rate. This is evident in Figure A below which breaks General Government expenditure into Exchequer (covered by the rule) and non-Exchequer spending (not covered by the rule). With one-fifth of General Government expenditure outside the rule, growth in non-exchequer

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spending could push General Government expenditure to excessive levels without technically breaching the rule. This is in contrast to the EU rules – the expenditure benchmark under the SGP is calculated on a General Government basis.[128]

Another significant difference between the EU and the Government's spending rule is that in calculating the allowable growth in spending under the EU rule, discretionary tax changes are netted off.[129] The Government's expenditure rule does not take account of discretionary tax changes. As outlined by IFAC (2021), to ensure the public finances remain on a sustainable footing, if tax cuts are implemented, expenditure should grow at a correspondingly lower growth rate than the trend growth rate under the rule (in the case of the government's current rule, 5 per cent nominal growth).[16] If expenditure is set to grow in line with the maximum 5 per cent allowed under the rule and if tax cuts were introduced that lowered government revenue, this would raise the risk of a structural imbalance opening up in the public finances. Similarly, if revenue-raising measures were introduced, this should allow expenditure to grow at a correspondingly higher rate.

[128] The expenditure benchmark under the SGP is a more complex calculation than the domestic fiscal rule, and depends on whether the member state is at its Medium Term Objective. See section 1.3.6 of European Commission (2019) and Marinheiro (2021).
[129] For a description of the Expenditure Benchmark see https://ec.europa.eu/info/sites/default/files/economy-finance/ip101_en.pdf or https://www.fiscalcouncil.ie/wp-content/uploads/2020/01/FAR-NOV-2013-BOX-I-The-EU-Expenditure-Benchmark.pdf

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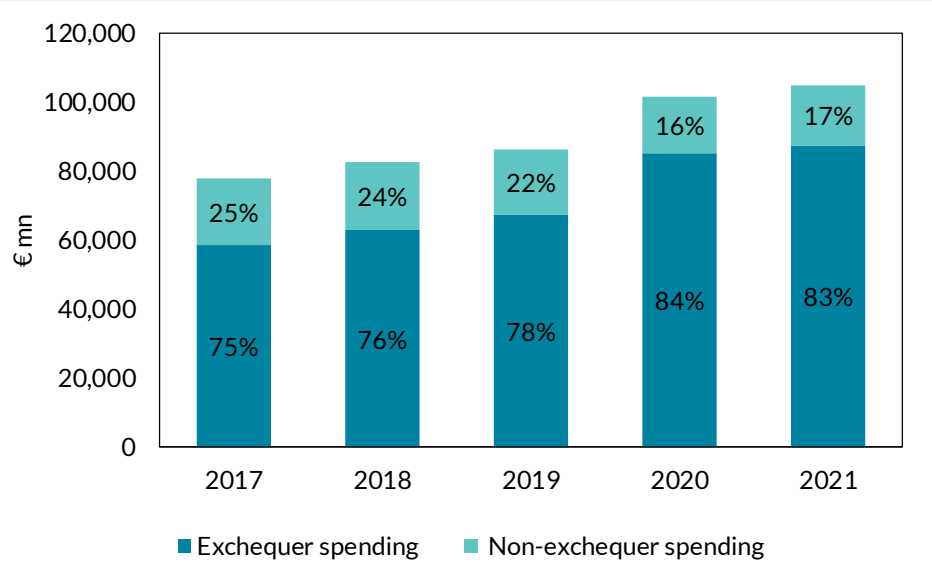
About one fifth of Government expenditure is not covered by the expenditure rule

Figure A: General Government Expenditure: Exchequer and Non-Exchequer



Source: CSO, Department of Finance Fiscal Monitors

The overall European economic governance framework is currently under review, with the European Commission expected to indicate possible changes later this year. It is likely that the revised framework will favour the use of expenditure rules over rules that rely on unobserved variables like the output gap. This will support a primary objective of the reform – to make the rules simpler and more enforceable. In addition, debt sustainability will remain a prominent part of the rules, by balancing a focus on medium term debt reduction with the need to allow for quality, growth-enhancing public spending to meet ongoing fiscal challenges such as the green transition and demographic change.

The suspension of EU fiscal rules under the general escape clause is expected to remain in place until 2024.[130] In the *Summer Economic Statement 2022* (SES 2022), the Government announced that core Exchequer spending would increase by 6.5 per cent in 2023, in excess of

[130] European Commission Q&A, 23 May 2022: "Heightened uncertainty and strong downside risks to the economic outlook in the context of war in Europe, unprecedented energy price hikes and continued supply chain disturbances warrant the extension of the general escape clause of the Stability and Growth Pact through 2023."

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the 5 per cent limit under the rule as initially set out in July 2021.[131] The domestic expenditure rule could be strengthened by addressing some of the drawbacks outlined here, to ensure it is an effective anchor for the public finances over the medium term.[132]

Developments in General Government Debt

The effects of the pandemic ended the downward trend in the General Government debt ratio that began following the financial crisis in 2013. Ireland experienced a broadly similar increase in its debt ratio to that of the euro area over the period 2020-2021 (11 percentage points). While the peak of the debt ratio – estimated by the Department of Finance to be 105.6 per cent of GNI* - was significantly lower than that experienced at the peak of the financial crisis (165.5 per cent), the nominal debt stock is nevertheless expected to be around €27bn higher in 2025 than it was in 2019 (see Figure 13). The ratio is expected to decline once again over the medium term, with debt dynamics primarily driven by the very favourable interest-growth differential (see Figure 14). GNI* growth is projected by the Department of Finance to average 6.4 per cent growth per annum in the four years to 2025, while the effective interest rate is expected to be much lower, averaging just 1.5 per cent. While interest rates have increased noticeably since the turn of the year (see Figure 15), it is important to note that the effective rate represents the average interest rate over the entire stock of debt. As a result, changes to the marginal rate – unless very large - have a limited impact over the short to medium term. The projected return to primary surplus in the *SPU 2022* forecasts is also expected to have a favourable impact on the debt ratio from this year onwards, but the ratio is still expected to be at an elevated level in 2025 at just under 80 per cent of GNI*.

[131] Department of Finance, (2022b). Summer Economic Statement 2022.
[132] IFAC (2021) Box B outlines a number of elements of the domestic expenditure rule that could be developed and improved.

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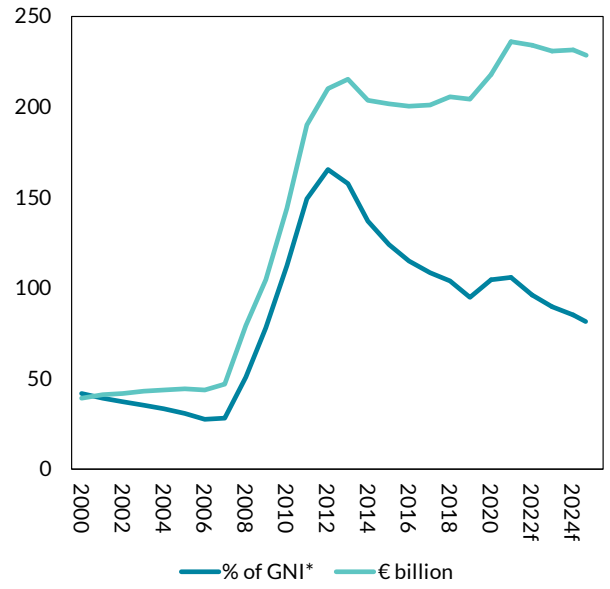
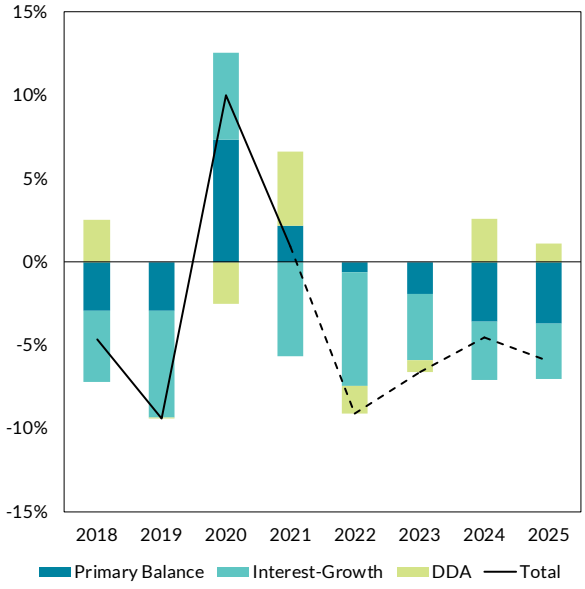
Figure 13: General Government Debt



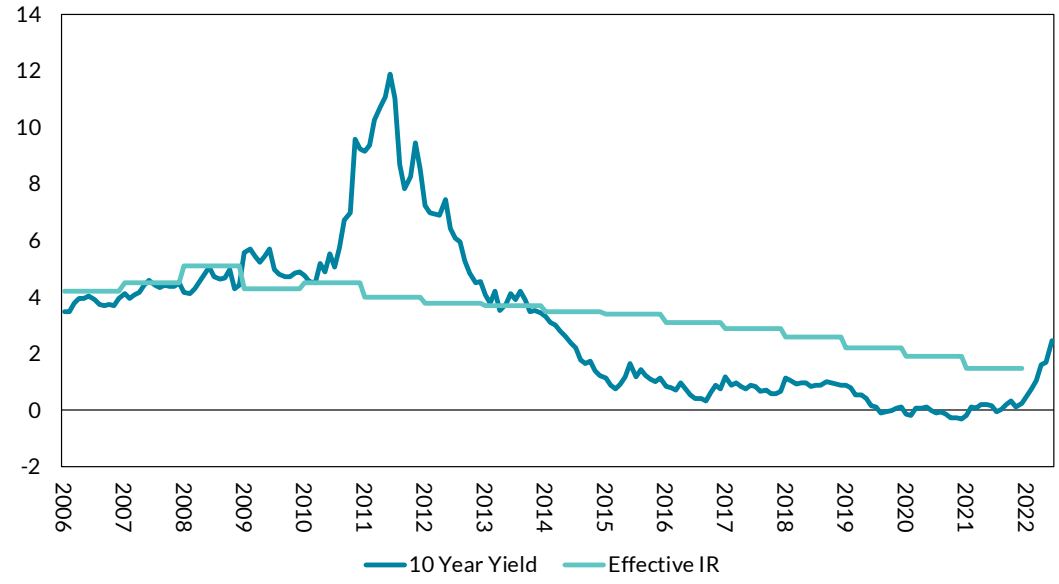
Source: CSO, Department of Finance

Figure 14: Factors Driving Change in the Debt-to-GNI* Ratio



Source: CSO, Department of Finance

Figure 15: Ireland 10-year bond yield and effective interest rate, 2006 to 2022



Source: Datastream monthly bond data and CSO annual effective interest rate
Note: The effective interest rate is calculated based on interest expenditure in a given year relative to the entire stock of outstanding Government debt.

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Modelling Risks to the Public Finances

In this section, we use the Central Bank's macroeconomic model of the Irish economy (COSMO) as well as the NiGEM global model to perform a scenario analysis of a number of risks to the public finances. The scenarios draw on the analysis in the previous section that identified particular risks to the government's finances and the economy from adverse shocks to government revenue, expenditure, interest rates and economic activity. The scenarios considered for the modelling analysis include (i) a loss of corporation tax revenues (ii) higher interest rates in the euro area (iii) higher public spending than currently projected and (iv) a scenario including a combination of these adverse shocks.

A loss of corporation tax revenue

This section considers two variations of a scenario involving a loss of corporation tax revenues. The first scenario illustrates the macroeconomic and fiscal effects of an exogenous loss of corporation tax revenues. The loss of corporation tax revenues can be interpreted as a reversal of some of the exceptional increases in corporation taxes since 2014. In this version of the scenario, we assume that there is no loss of economic activity due to this exogenous loss of revenue – the fiscal position deteriorates, but economic activity is unaffected. We assume that corporation tax revenue falls permanently by €8bn and that the reduction in revenue occurs gradually over a 3 year period. The timing and profile of any potential loss of corporation taxes, however, is uncertain. The €8bn figure used in this scenario is based on the measure of "excess" corporation tax revenue estimated in Section 2.

Figure 16 shows the estimated impact of the first scenario on the public finances. The loss of corporation tax revenue would result in a deterioration in the General Government balance (% of GNI*) of around 2.5 percentage points in 2025 relative to baseline. General Government debt-to-GNI* would increase by around 5 percentage points.

It is possible that a loss of corporation tax revenue could be accompanied by a decline in economic activity. To highlight the risk around this type of event, we consider a second version of this scenario where the loss of corporation taxes occurs alongside a

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negative growth shock caused by a downturn in the international economy. We assume that the negative growth shock corresponds to a temporary one standard deviation shock based on the historical volatility in modified national income (GNI*). This amounts to a decline in nominal GNI* of 4.7 per cent in 2023 and is implemented by reducing external demand for Irish exports. The negative effects of the shock persist beyond that year as the impact of the reduction in external demand on the traded sector filters through to other parts of the economy.

In the second scenario, the loss of CT revenue is assumed to be accompanied by lower external demand. In this case, output would decline reflecting the direct negative impact on the traded sector and the reduction in demand for Irish exports. The drop in traded sector activity would spill over to the non-traded sector following the reduction in labour demand and lower overall incomes. As a result, households and firms would reduce consumption and investment. Overall output in the scenario would fall by 4.4 per cent in 2023 and gradually return to the baseline (reflecting the size and profile of the one standard deviation shock). The deterioration in economic activity would add to the negative effect of the loss of CT revenue on the public finances. The reduction in economic activity would lower the overall tax intake while automatic stabilisers (e.g. higher social spending due to the rise in the unemployment rate – of 1 percentage point) would add to total spending. In the scenario, the General Government balance would disimprove by 3.5 percentage points by 2026. General Government debt-to-GNI* would be 14 percentage points higher in 2026 relative to baseline.

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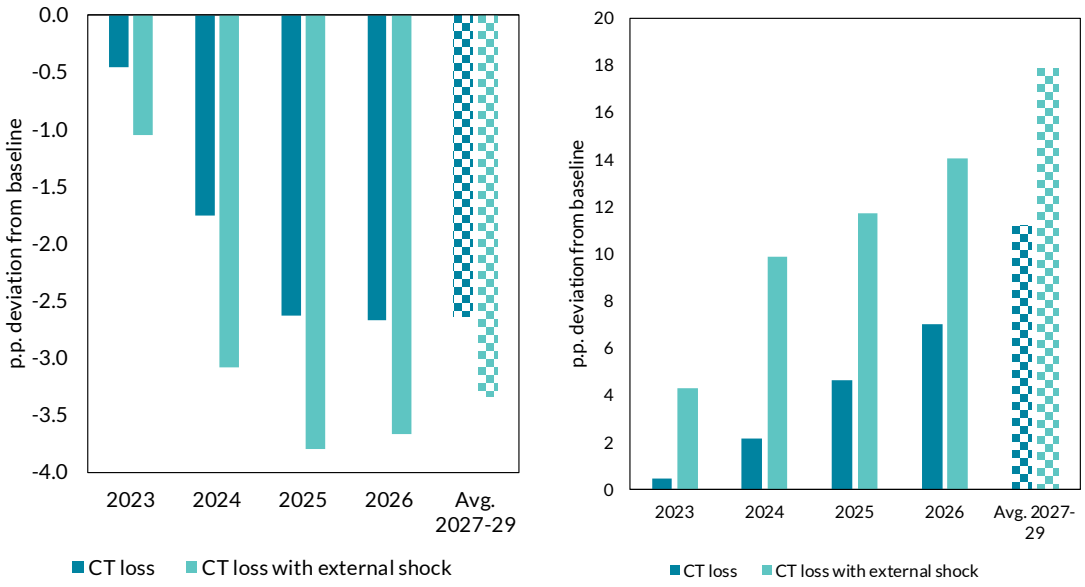
Figure 16: Impact of CT loss and external shock on General Government balance and debt, p.p. deviation from baseline



Source: Own calculations using COSMO

For the scenarios in this section, Figure 22 and Figure 23 show the implications of the scenario results for the levels of the General Government balance and debt ratios relative to the current *SPU 2022* forecasts. For the corporation tax scenario, applying the changes to the deficit and debt reported above to the baseline projections for the public finances implies that the General Government balance in 2025 would be around -1.1 per cent of GNI* compared to a surplus of 2.7 per cent in the baseline (see Figure 22). The debt-to-GNI* ratio would stand at around 91 per cent of GNI* compared to just under 80 per cent in the baseline (see Figure 23).

A higher interest rate path

In this section, we illustrate the impact of a 1 percentage point increase in euro area interest rates over and above the current baseline market- implied path for interest rates. The scenario is implemented as an additional 1 percentage point increase in the main ECB policy rate. We assume that such an additional increase in interest rates begins in 2023Q3 and occurs incrementally in steps of 25 basis points per quarter (see Figure 17). An increase in interest rates above the current market-implied path could come about in the event that higher and more persistent inflationary pressures emerged over the coming years, resulting in the need for monetary

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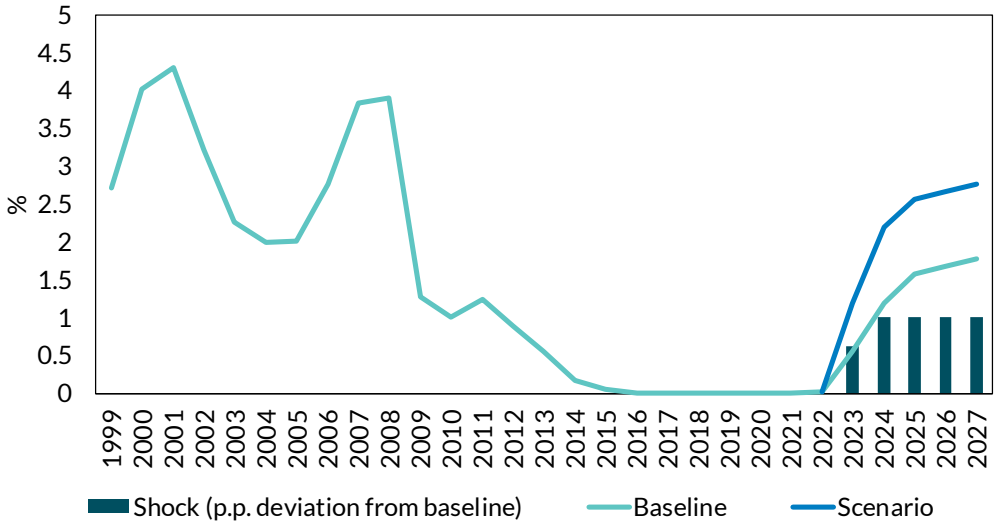
policy to react to protect price stability. To perform this analysis, we use the NiGEM model to simulate the impact of the shock on the global economy.[133] Having simulated the effects on the international environment, we then use the COSMO model to examine the impact on the Irish economy.

Figure 17: Interest rate scenario assumption, euro area interest rate increases by 1 percentage point above market-implied path over 5-years



Source: author's calculations. Baseline market-implied interest rate path from NIESR Global Economic Outlook, Spring 2022.

Increasing the euro area interest rate would affect the economy through the following key channels as captured in NiGEM: (i) reflecting higher borrowing costs and increases in the cost of capital, investment and consumption in the euro area would be reduced relative to a baseline (ii) lower activity and demand would put downward pressure on prices and (iii) the euro appreciates relative to other major currencies given the change in the interest rate differential. The primary transmission of the shock to the Irish economy occurs through the traded sector where lower euro area output would reduce external demand for Irish exports. The exchange rate appreciation would further contribute to the external shock by eroding competitiveness. Weaker external demand along

[133] NiGEM is a global macroeconomic model developed by the National Institute of Economic and Social Research (NIESR) in the UK. See https://www.niesr.ac.uk/nigem-macroeconomic-model.

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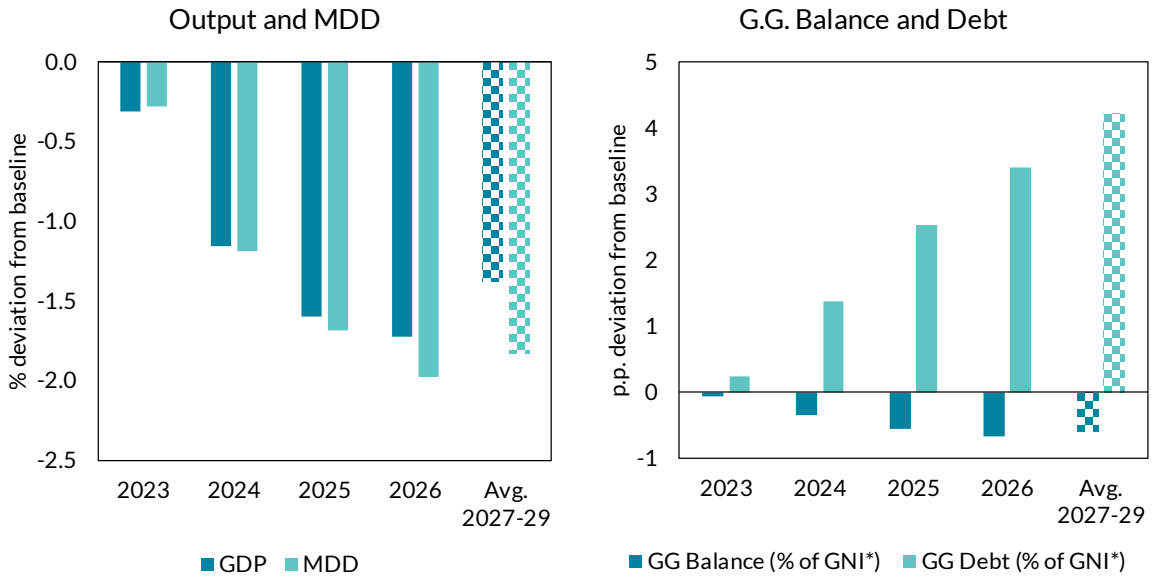
with the effect of higher interest rates on the domestic economy would reduce Irish output and modified domestic demand by around 2 per cent in 2026 compared to the baseline (see Figure 18). The fiscal position would worsen due to higher social spending, lower tax revenue and higher interest payments. The latter effect is small given the maturity profile of Ireland's debt and relatively low refinancing needs out to 2025.[134] Overall, the General Government balance would deteriorate by about 0.8 percentage points in 2025 relative to baseline. The General Government debt would be about 4 percentage points higher on average by the end of the decade (Figure 18). Taking these changes, the implied paths of the General Government balance and debt-to-GNI* ratio in this scenario compared to the current baseline forecasts are shown in Figure 22 and Figure 23.

Figure 18: Impact of 1 percentage point increase in euro area interest rates above market-implied path over a 5-year horizon, deviation from baseline



Source: Own calculations using COSMO

A permanent increase in government expenditure

The purpose of this scenario is to illustrate the implications for the public finances and the economy of a permanent increase in current spending in addition to current plans. As outlined in Section 2, the

[134] See https://www.ntma.ie/business-areas/funding-and-debt-management/statistics/maturity-profile

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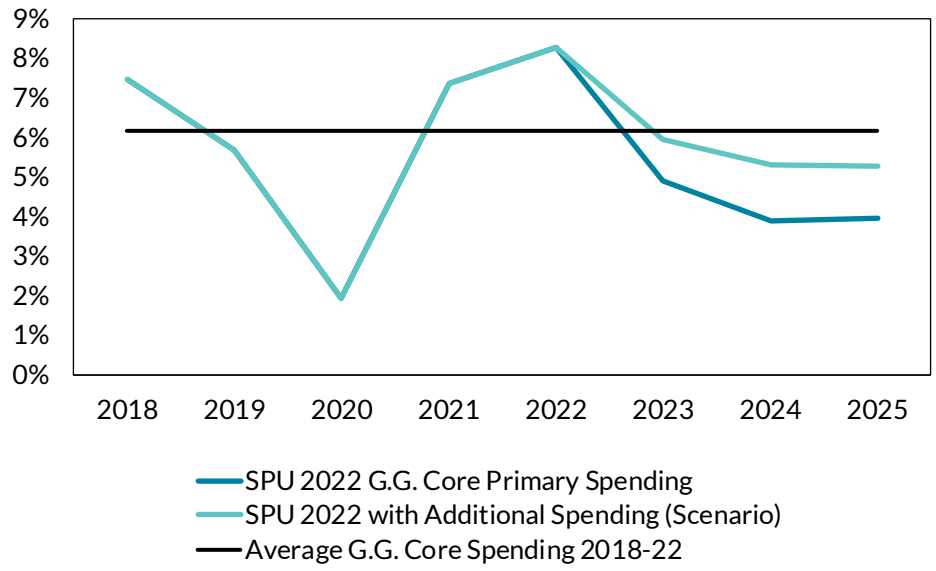
budgetary forecasts in *SPU 2022* already envisage significant increases in capital expenditure out to 2025.

The economic environment in Ireland and internationally at present is characterised by supply-side constraints driven by developments in energy and other commodity markets. In the presence of these supply-side constraints, the impact of higher demand on the overall economy is likely to be different compared to periods when such constraints are absent or less binding. To take the current inflationary environment and unusual supply-chain pressures into account, we use the non-linear Philips curve estimate for Ireland in this simulation, following the lines of Linehan et al. (2017), Faubert (2021), and Byrne (2022). Including this non-linear mechanism allows us to capture more fully how changes in demand affect the economy in the presence of supply-side constraints as well as labour market tightness.

Figure 19: General Government Expenditure Growth: SPU Projections and CBI Scenario



Source: DoF, CBI calculations.

The scenario assumes that current government expenditure increases permanently by an additional €4 billion. The increase is assumed to occur gradually with a €1bn increase in 2023 and an additional €1.5bn in each of the following two years.[135] We compare

[135] *SES 2022* announced an additional €1.7 billion increase in core Expenditure expenditure for 2023 compared to the forecast in *SPU 2022*.

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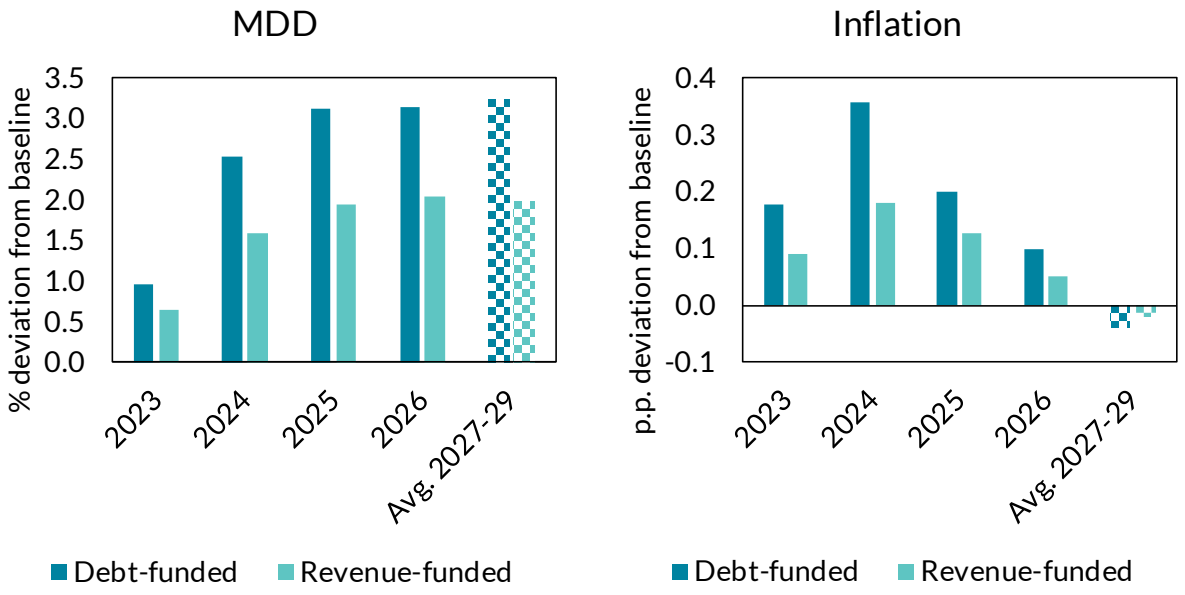
the macro and fiscal implications of this higher spending when it is *debt-funded* and *revenue-funded*. The €4bn estimate used in the scenario represents a purely technical assumption for the purpose of the analysis. It is designed to illustrate the economic and fiscal impact of a scenario where core primary spending grows at a rate closer to its five-year (2018 to 2022) average growth rate in the period 2023 to 2025. This compares to the more pronounced slowdown in spending growth envisaged in the Department of Finance *SPU 2022* projections (Figure 19). This is not a forecast, but rather an illustration of the potential implications of higher government expenditure than is currently planned. Section 2 discussed some of the factors that could give rise to higher government spending over the coming years, such as a leakage of temporary measures into core spending (see Table 1). The increase in current spending is split between government consumption and transfers.

Figure 20: Macroeconomic impact of permanent increase in government expenditure, deviation from baseline



Source: Own calculations using COSMO

The results indicate that higher government spending funded by borrowing would stimulate domestic economic activity. As shown in Figure 20, domestic demand would be about 3 per cent higher by 2025 in the debt-funded case. Given the current baseline projections for economic activity and unemployment, there is no evidence that the economy requires such an additional stimulus to demand at

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present. The latest Department of Finance economic forecasts (*SPU* 2022) indicate that the estimated negative output gap in the economy of -0.5 per cent in 2022 is expected to close to -0.1 in 2023 with a small positive output gap projected by 2025. These forecasts imply that output in the economy is expected to reach its long-run sustainable level over the coming years without the need for any further fiscal stimulus.

Moreover, in the current circumstances additional demand would risk aggravating existing supply-side constraints. The modelling results indicate that the increase in non-traded sector activity in this scenario would put upward pressure on prices and wages leading to some crowding out of the tradable sector of the economy over time. The increase in demand would add to price pressures with HICP inflation 0.4 percentage points higher in 2024 (see Figure 20). This combination of developments would result in a larger positive output gap in the Irish economy in the period to 2025 relative to the current baseline forecasts in *SPU 2022* – actual output would exceed its long-run sustainable level – raising the risk of economic imbalances emerging over time. As noted, the modelling of this scenario attempts to take into account supply-side constraints and labour market tightness; however, these effects may not be fully captured and the magnitude of the inflation effects could be larger than reported here.

In the revenue-funded case, higher income taxes would dampen the growth and price effects when compared to the debt-funded case. With revenue funding, domestic demand would be about 2 per cent higher in 2025 and inflation would be roughly 0.2 percentage points higher in 2024 (see Figure 20).

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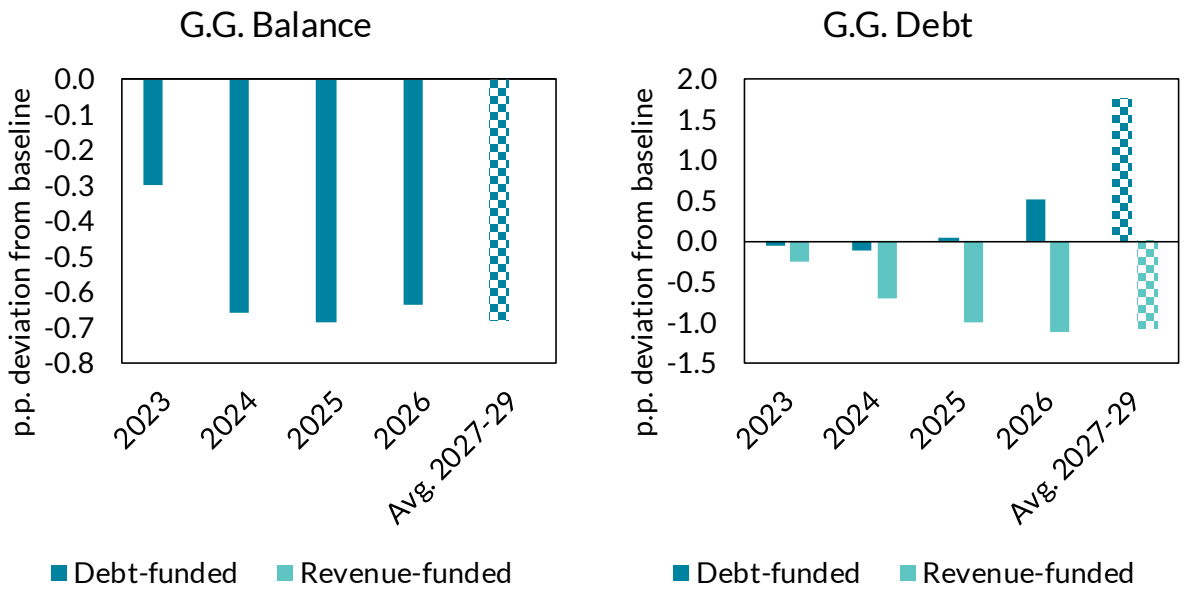
Figure 21: Fiscal impact of permanent increase in government expenditure, p.p. deviation from baseline



Source: Own calculations using COSMO

In terms of the fiscal implications, there would be a disimprovement in the General Government balance in the debt-funded case of around 0.6 percentage points of GNI* in 2025 (Figure 21). Applying these changes to the *SPU 2022* projections for the General Government balance would imply a surplus of around 2 per cent in 2025 in the scenario with additional debt-financed expenditure, compared to a figure of 2.7 per cent in the baseline. The General Government debt (as % of GNI*) would be about 0.5 percentage points higher in 2026, rising to 1.5 percentage points over the medium run (average 2027-29 period). By design, there is no change to budget balance in the case with revenue funding and, in contrast to the debt-funded case (see Figure 21).[136]

With capital spending already forecast to grow by 15 per cent per annum out to 2025 and with capacity constraints and high inflation affecting the economy at present, this scenario illustrates that a boost to economic activity from additional permanent current spending would risk creating excess demand and adding to existing

[136] The simulation results indicate that there would be a small reduction in the debt-to-GNI* ratio in the revenue-funded scenario. This is because the direct fiscal cost of the additional expenditure is offset by higher revenue from income tax while output is boosted by the higher spending – raising the denominator in the debt-to-GNI* ratio.

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price pressures. This result points to the need to ensure that any additional increases in current spending, for example to address cost of living pressures or other needs, are temporary and targeted.

Combined shock scenario

The scenarios outlined above show the impact of individual shocks on key macroeconomic variables and the public finances. It is possible that two or more of these adverse shocks could occur at the same time, particularly given the characteristics of a small open economy such as Ireland. An external shock could occur, for example, alongside a deterioration in the primary balance (caused by higher than expected government spending and a decline in corporation tax receipts) and higher interest rates.

Figure 22: GG Balance under scenarios (% of GNI*)

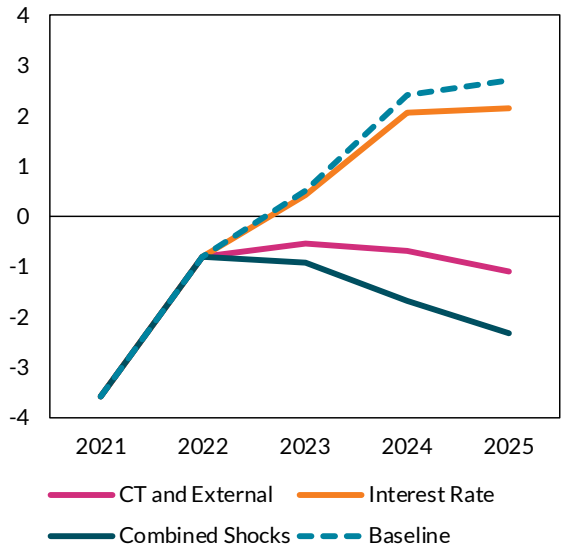
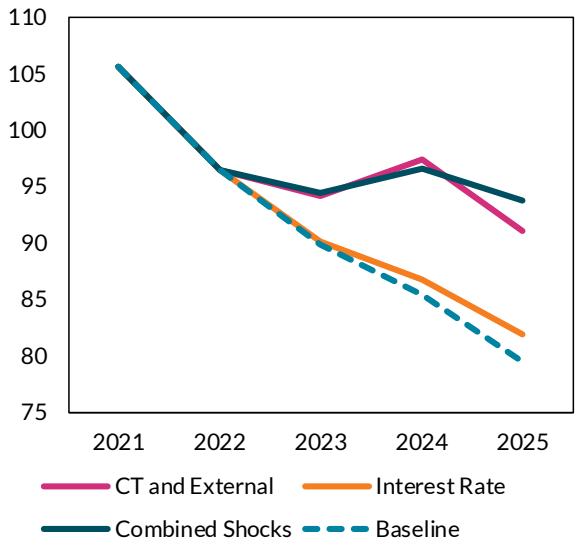


Figure 23: GG Debt under scenarios (% of GNI*)



Source: SPU (baseline), Central Bank of Ireland calculations.
Note: Combined shocks includes expenditure, interest rate, corporation tax and external shocks.

To take account of this risk, Figure 22 and Figure 23 show the impact on the General Government balance and debt ratios relative to the current baseline forecasts when the shocks to expenditure, corporation tax, growth and interest rates discussed above are combined. The combined shock would see the emergence of a deficit of -2.3 per cent of GNI* in 2025 relative to the *SPU 2022* baseline projection for a surplus of 2.7 per cent. The debt ratio in this scenario would stand at around 94 per cent of GNI* in 2025, compared to just under 80 per cent in the baseline. The persistence of a high debt-to-GNI* ratio of above 90 per cent out to 2025 in this

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scenario would increase the exposure of the public finances to negative shocks. As illustrated in the section below, at this elevated level of debt, additional shocks could cause the debt ratio to start rising again.

Longer-Term Debt Sustainability

The modelling results displayed in Section 3 assess the impact on the public finances of pre-determined economic shocks. The results are therefore sensitive to the specific shock scenarios that are used. To account for a range of all feasible scenarios, stochastic debt sustainability analysis (DSA) can be used.[137,138] A stochastic DSA builds on the modelling framework in Section 3 by allowing for uncertainty in the path of GNI* growth, the effective interest rate, and the primary balance. By creating a large number of potential paths for these key variables, central debt forecasts can be produced along with potential outcomes in the upper and lower tails of the distribution. Essentially, instead of having a single estimate of the debt ratio for each time-period, the model produces a wide distribution of possible outcomes.

The stochastic DSA used here relies on a standard debt dynamic equation, which shows that the debt ratio in any period is a function of the previous period's debt ratio, the effective interest rate, output growth, and the primary balance.[139] The model is supplied with a baseline forecast for each of the variables. Then shocks to interest rates, growth, and the primary balance are applied to give a large number of possible debt trajectories over the forecast horizon. The size of the shocks to each variable is calibrated based on its historic standard deviation. This creates a distribution of forecasts for the debt ratio in each forecast period, from which chosen percentiles can be extracted and used to construct a fan chart. Conventionally, the median (50th percentile) of this distribution is treated as the central outcome, with the 5th and 95th percentiles representing the lower

[137] For an overview of Stochastic DSA methods, see Di Bella (2008). Casey and Purdue (2021) also include a stochastic DSA for Ireland.
[138] See Cronin and Dowd (2013).
[139] $d_t = \frac{1+r_t}{1+g_t}(d_{t-1}) - pb_t$, where d_t is the debt ratio, d_{t-1} is the previous period's debt ratio, r_t is the effective interest rate, and g_t is growth in GNI*.

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and upper tails. The results of the baseline stochastic DSA are shown in the first panel of Figure 24.

Figure 24: Stochastic DSA fan chart of debt to GNI* under two scenarios

Chart: Baseline

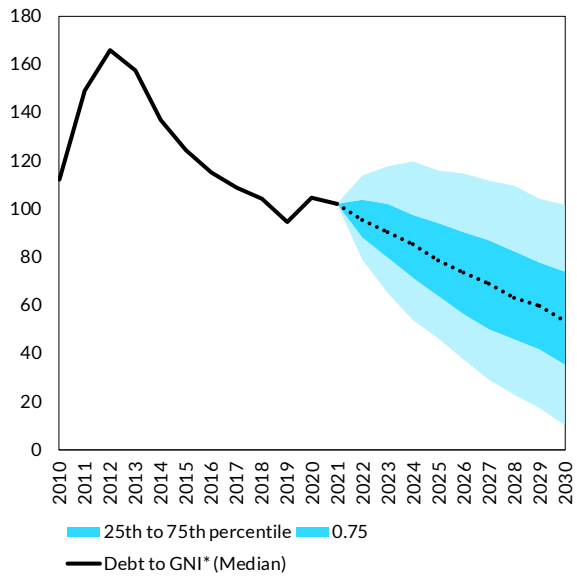
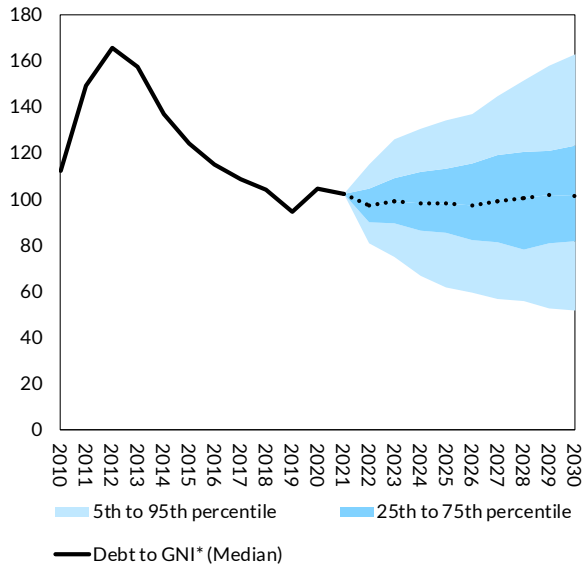


Chart: "Combined shock" scenario from Section 3.4



Source: CSO, ECB, Central Bank of Ireland calculations

The baseline results suggest that while the most likely path for the debt ratio sees a decline to around 60 per cent of GNI* by 2030, there is a greater than 5 per cent chance that the ratio does not improve from current levels and remains above 100 per cent of GNI*. This outcome would occur if simultaneous adverse shocks to interest rates, growth, and the deficit were to occur over the projection period. The second panel in Figure 24 shows the path for the debt-to-GNI* ratio if the combination of adverse shocks described in the scenarios in section 3.3 were to materialise. Applying the DSA to this significantly higher debt path implies that the risks to the debt ratio would increase considerably - in the 95th percentile scenario, debt rises above 160 per cent of GNI* by 2030. Of course, this outcome represents the upper tail of a distribution based on an already negative scenario so a somewhat extreme result should be expected. Taken as a whole, the stochastic DSA implies a favourable outlook for the Irish debt ratio – the vast majority of scenarios surrounding our baseline projection do not indicate an increase in the debt ratio by 2030.

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It must be noted that these figures do not take into account how policymakers will respond to shocks in real time. For example, in adverse scenarios Government may choose to take corrective action to minimise the borrowing requirement and limit the increase in debt, for example by increasing taxes or reducing planned expenditure.

Conclusions

Strong growth in tax revenue as the economy recovered from the pandemic is likely to bring the government's finances close to balance in 2022, having recorded a deficit of almost 9 per cent of national income in 2020. Despite this significant progress, important risks to the public finances remain. While the ending of certain pandemic-related and other temporary expenditure measures should see the rate of growth in public expenditure moderate over the coming years, our analysis points to particular challenges in managing expenditure. Permanent increases in current spending over and above existing plans would slow down the improvement in the public finances. Moreover, the analysis indicates that the additional demand stimulated by this higher spending would add to inflationary pressures given the supply-side constraints currently facing the economy. These risks would be heightened if expenditure was increased in the absence of offsetting revenue-raising measures. This points to the need to ensure that any additional current expenditure, such as to address cost of living pressures, should be carefully targeted and temporary.[140]

Compared to projections at the time of the publication of the NDP in 2021, inflation forecasts have been revised upwards out to the middle of the decade. Given supply-side pressures and the higher inflationary outlook, careful management and prioritisation of overall expenditure plans will be required to ensure the benefits of increases in public spending are maximised and to reduce the risk of fiscal policy adding to existing capacity constraints and price pressures.

The exceptional growth in corporation tax revenues observed from 2014 continued during the pandemic, bringing the share of tax from

[140] See Barrett, Farrell and Roantree (2022). "Energy Poverty and Deprivation in Ireland." Available at: https://www.esri.ie/system/files/publications/RS144.pdf

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this source to over one-fifth of revenue. The sustainability of these receipts over the long term is highly uncertain. Furthermore, any decision to potentially increase expenditure from unexpected revenue gains would need to consider the implications for the sustainability of overall economic growth. Achieving the effective delivery of existing capital expenditure plans in an environment of high inflation and supply-side constraints will be challenging. Further adding to demand with additional permanent current expenditure could create imbalances in the economy, undermining the sustainability of economic activity. Instead, saving a portion of current corporation tax revenue, either by commencing payments into the rainy day fund or by other means, would help to reduce the exposure of the public finances in the event of a loss of CT revenue in the future and would lessen the risk of the overall fiscal stance adding excessively to demand in the economy.

In relation to interest rates, the favourable maturity profile of Ireland's debt provides some insulation from rising rates. Nevertheless, further increases in interest rates, should this be needed in order to protect price stability, would dampen economic activity in Ireland and abroad and would lead to a less favourable outlook for the deficit and debt over the medium term. The public finances have benefited from significant savings on interest costs since 2015 but with rates now rising, the scope for additional gains in the coming years are likely to be limited.

This analysis has focussed on challenges facing the public finances in the more immediate future. Over the medium to longer-term, Ireland will face pressing budgetary pressures arising from the need to increase expenditure due to population ageing and to achieve the country's climate change objectives.[141] These considerations emphasise the need to the rebuild the resilience of the public finances to ensure that these priorities can be sustainably addressed and so that there is scope for a counter-cyclical fiscal response to future crises, as benefitted the economy since 2020.

[141] See Department of Finance (2022a). "Annual Report on Public Debt in Ireland 2021." https://www.gov.ie/en/publication/c9954-annual-report-on-public-debt-in-ireland-2021/

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