



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem



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Section 1



Notes

1. The permission of the Government has been obtained for the use in this Bulletin of certain material compiled by the Central Statistics Office and Government Departments. The Bulletin also contains material which has been made available by the courtesy of licensed banks and other financial institutions.
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-12 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.

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Forecast Summary Table

	2017	2018	2019f	2020f
Real Economic Activity				
(% change)				
Personal consumer expenditure	3.0	3.4	2.6	2.4
Public consumption	3.9	4.4	5.7	3.1
Gross fixed capital formation	-6.8	-21.1	7.0	5.9
Exports of goods and services	9.2	10.4	5.9	4.5
Imports of goods and services	1.1	-2.9	6.1	4.4
Gross Domestic Product (GDP)¹	8.1	8.2	4.9	4.1
Gross National Product (GNP)	5.1	6.5	2.7	2.6
Modified Gross National Income (Nominal)	4.7	7.3		
External Trade and Payments				
Balance-of-Payments Current Account (€ million)	1,455	34,290	31,211	29,295
Current Account (% of GDP)	0.5	10.6	9.0	8.0
Prices, Costs and Competitiveness				
(% change)				
Harmonised Index of Consumer Prices (HICP)	0.3	0.7	1.0	1.2
<i>of which: Goods</i>	-2.1	-0.3	-0.9	-1.1
Services	2.5	1.7	2.8	3.3
HICP excluding energy	-0.1	0.1	1.1	1.4
Consumer Price Index (CPI)	0.3	0.5	1.0	1.1
Compensation per Employee	2.7	2.7	3.6	4.1
Labour Market				
(% change year-on-year)				
Total employment	2.9	3.1	2.4	1.7
Labour force	1.1	1.9	1.5	1.4
Unemployment rate (ILO)	6.7	5.6	4.7	4.5
Technical Assumptions²				
EUR/USD exchange rate	1.13	1.18	1.12	1.12
EUR/GBP exchange rate	0.88	0.88	0.90	0.90
Oil price (\$ per barrel)	54.40	65.3	62.0	60.3

¹ GNI* and adjusted presentations of the BOP/IIP provide more reliable estimates of the resources available to domestic residents.

² The technical assumption made is that exchange rates remain unchanged over the forecast horizon. Oil prices and interest rates are assumed to move in line with the futures market.

Comment

The Irish economy has continued to grow at a strong pace, supported by the buoyancy of domestic economic activity and strong growth in exports, despite the rise in uncertainty about economic prospects and increasing external headwinds. On the domestic side, the strong growth momentum has been underpinned by continued robust and broad-based growth in employment and increasing earnings, while also being supported by continuing favourable financial conditions and further improvement in the financial situation of households and businesses. As a result, consumer spending, even though held back a little by uncertainty, has grown strongly, while the rebound in some key components of domestic investment, such as building and construction, has continued to gather pace. On the external side, despite a less favourable international economic environment, export growth has surprised on the upside, although it is notable that growth has been concentrated in a small number of sectors, dominated by multinational firms.

Looking ahead, the outlook remains positive but subject to heightened levels of risk and uncertainty. The Central Bank's central forecast, prepared on the basis that a disorderly, no-deal Brexit can be avoided, is that underlying economic activity will grow at a relatively solid pace in coming years, though some moderation in growth is in prospect in 2019 and 2020. The projected moderation in growth reflects both the dampening influence of the less favourable global growth outlook and the gradually limiting impact of emerging domestic capacity constraints.

In the central forecast, the main impetus to growth in 2019 and 2020 is expected to come from the continued expansion in underlying domestic demand, reflected in solid growth in consumer spending and underlying investment (which excludes the volatile categories of investment in intangibles and aircraft). The expansion in underlying activity over the forecast horizon is projected to be driven by continuing gains in

employment and incomes, though a moderation in employment growth from its recent very strong growth rate is projected over the forecast horizon. Nevertheless, and reflecting the impact of the stronger recent data, this implies annual employment growth 0.3 per cent higher for this year than in the projections published in the last Bulletin. On the external side, export growth is forecast to grow more in line with moderating demand in Ireland's main trading partners, though net exports are projected to continue to contribute positively to growth over the forecast horizon.

Reflecting the resilience of both domestic demand and export growth in the first half of 2019 and the recent strength for employment growth, the central forecasts for 2019 and 2020 have been revised upwards compared to those published in the last Bulletin. Largely as a result of higher forecasts for consumer spending in 2019 and 2020, underlying domestic demand is now projected to grow by 4.4 per cent this year and 3.3 per cent in 2020, upward revisions of 0.4 per cent and 0.1 per cent, respectively. Allied to some increase to the export growth forecasts, to take account of strong recent data, GDP is now projected to grow by 4.9 per cent in 2019 and 4.1 per cent in 2020, which is 0.7 per cent and 0.5 per cent higher, respectively.

However, there are material domestic and external risks to this forecast. On the external side, Brexit remains the most salient risk. In the January 2019 Quarterly Bulletin, the Bank set out its estimate of a disorderly, no deal Brexit on the Irish economy. While uncertainty necessarily attaches to an exercise of this type, the estimates suggest that such an outcome would reduce output growth by 4 percentage points in the first year, with output lower by 6 per cent after 10 years, compared to a no-Brexit scenario. These estimates remain unchanged and Box B (page 23) in this Bulletin applies this analysis to look at the possible implications for the central forecasts of a disorderly, no-deal UK exit from the EU on 31 October 2019. The results imply that GDP growth for 2019 would be reduced from 4.9 to 4.5 per cent, while in 2020 growth would fall from 4.1 to 0.7 per cent. With regard to other impacts, the estimates suggest that, by the end of 2020, there would be around 34,000 fewer jobs in the economy compared to the level of employment projected in the central forecast, while the General Government Balance-to-GDP ratio would be around 0.75 per cent worse.

On the external side, in addition to Brexit, risks in relation to international trade and taxation persist and, given the important role of multinational firms within the economy and the growing concentration of export growth, it is important to build the resilience of the economy to possible shocks to the sector (see Box E, page 52).

On the domestic side, the recent strength of growth in output and employment have further elevated the cyclical position of the economy, eroding already limited domestic spare capacity³. In the event that a disorderly, no deal Brexit can be avoided, underlying economic activity is expected to perform strongly in 2019 and 2020. Given the already cyclically advanced stage of the economy, there is a material risk that continued strong expansion could give rise to overheating and generate sustained upward wage pressures. An article published in this Bulletin, 'Modelling Overheating Risks in the Irish Economy', examines this issue. It shows that rising wages in an upturn could lead to boom-bust dynamics, in the form of a subsequent loss of competitiveness and a fall in output, if wages are not flexible downwards when buoyant economic conditions dissipate. While an increase in inward migration can help to mitigate overheating dynamics in the labour market, at the same time, it can create higher demand and generate additional pressures in other parts of the economy. Appropriate macroeconomic management can help navigate these challenges and fiscal policy can play an important role in containing excess demand and avoid placing excessive strain on an economy operating close to capacity.

The current constellation of risks and uncertainties facing the economy increases both the challenge and importance of charting the appropriate fiscal policy path. If a disorderly Brexit can be avoided, the underlying outlook and, in particular, the risk of overheating, emphasises the importance of a more ambitious improvement in the fiscal position. With output at or close to potential, a tighter fiscal policy would help to manage demand pressures. The uncertain environment also highlights the necessity of reducing the dependence on potentially transitory revenues to fund lasting spending commitments. It would be more prudent to save rather than spend windfalls to mitigate pro-cyclical dynamics and build buffers to facilitate a stabilising countercyclical fiscal expansion in the event of a future downturn. Failure to run sufficient surpluses during phases of good economic performance may limit the room for manoeuvre in the future. The current strong economic performance is to be welcomed but, to ensure that the economy remains on a sustainable growth path, it is important that fiscal policy be pro-active in mitigating pro-cyclical dynamics.

If a disorderly Brexit were to occur, on the other hand, there would be a material deterioration in the fiscal position and the fiscal environment would be significantly more challenging. In addition to allowing the regular automatic stabilisers to operate fully, there may also be the need to provide temporary and targeted support to the sectors most affected. In the case of

³ See Byrne, S. and T McIndoe Calder (2019): 'Employment growth: Where do we go from here?', Central Bank of Ireland Quarterly Bulletin, July 2019.

a wider, more severe economic impact, it may be appropriate to provide a broader fiscal support package. It is important that any fiscal response is consistent with long-run debt sustainability and does not undo the hard work in re-establishing Ireland's fiscal credibility and risk the emergence of unsustainable debt dynamics.

An Timpeallacht Gheilleagrach

Leanann geilleagar na hÉireann de bheith ag fás ar luas láidir agus tá buacacht na gníomhaíochta eacnamaíche intíre agus fás láidir ar onnmhairí ag tacú leis an bhfás sin, cé go bhfuil fás ar éiginnteacht maidir le hionchais eacnamaíocha agus constaicí seachtracha. Ar an taobh intíre, bhí an fás láidir leathan ar fhostaíocht, mar aon le tuilleamh méadaithe, arna chothú ag dálaí fabhracha airgeadais agus ag tuilleadh feabhais ar dhálaí airgeadais teaghlaigh agus gnólachtaí, mar bhonn agus mar thaca faoin móiminteam fáis seo. Mar thoradh air sin, tá fás láidir ar chaiteachas tomhaltóirí, cé gur srianadh é beagán de bharr éiginnteachta, fad is a bhí luas faoi athbhorradh i bpríomhghnéithe den infheistíocht intíre, amhail tógáil agus foirgníocht. Ar an taobh seachtrach, in ainneoin timpeallacht gheilleagrach idirnáisiúnta níos lú fabhraí, tá ionadh faoi fhás onnmhairí ar an taobh thuas, cé go dtugtar faoi deara gur cruinníodh fás i líon beag earnálacha, agus go bhfuil forlámhas ag gnólachtaí ilnáisiúnta.

Ag féachaint chun tosaigh, tá an réamhaisnéis fós dearfach ach tá sí faoi réir leibhéil ardaithe riosca agus éiginnteachta. Is é réamhaisnéis lárnach an Bhainc Ceannais, a bunaíodh ar an tuiscint gur féidir Brexit mí-ordúil, gan chomhaontú, a sheachaint, go dtiocfaidh fás ar luas sách seasmhach ar an mbunghníomhaíocht eacnamaíoch sna blianta atá romhainn, cé go bhfuil ionchas ann go dtiocfaidh maolú áirithe ar an bhfás sin in 2019 agus in 2020. Is léiriú é an maolú tuartha ar fhás ar thionchar maolaithe an ionchais fáis dhomhanda níos lú fabhraí agus an tionchar atá ag constaicí acmhainne intíre teorantach atá ag teacht chun cinn.

Sa réamhaisnéis lárnach, meastar gur ó neart an leathnaithe ar bhunéileamh intíre a thiocfaidh an príomhspreagadh don fhás sna blianta atá romhainn, rud a léirítear san fhás láidir ar chaiteachas tomhaltóirí agus ar bhuninfheistíocht (lena n-eisiatar na gnéithe luaineacha den infheistíocht i sócmhainní doláimhsithe agus in aerárthaí). Maidir leis an leathnú i mbunghníomhaíocht le linn thréimhse intomhaiste na réamhaisnéise,

tuairtear go spreagfar é le tuilleadh méaduithe ar fhostaíocht agus ar ioncaim, cé go dtuairtear go beidh modhnú i bhfás fostaíochta óna ráta fáis láidir le linn thréimhse intomhaiste na réamhaisnéise. Mar sin féin, agus mar léiriú ar thionchar na sonraí láidre is déanaí, tugann sé sin le tuiscint go mbeidh fás fostaíochta bliantúil thart ar 0.3 faoin gcéad níos airde don bhliain seo ná na réamhaisnéisí a foilsíodh san Fhaisnéis dheireanach. Ar an taobh seachtrach, tuairtear go bhfásfaidh fás onnmhairí i gcomhréir níos mó le héileamh maolaithe i bpríomhpháirtithe trádála na hÉireann, cé go meastar go leanfaidh glan-onnmhairí de chur go dearfach le fás le linn thréimhse intomhaiste na réamhaisnéise.

Mar léiriú ar athléimneacht an éilimh intíre agus an fháis onnmhairí sa chéad leath de 2019 agus ar láidreacht an fháis fostaíochta, leasaíodh na réamhaisnéisí lárnaacha do 2019 agus do 2020 a foilsíodh san Fhaisnéis dheireanach chun bisigh. De bharr réamhaisnéis níos airde ar chaiteachas tomhaltóirí in 2019 agus in 2020 den chuid is mó, tuairtear go dtiocfaidh fás 4.4 ar bhunéileamh intíre i mbliana agus fás 3.3 faoin gcéad air in 2020, arb athbhreithnithe aníos iad sin de 0.4 faoin gcéad agus de 0.1 faoin gcéad faoi seach. I gcomhréir le hardú áirithe ar na réamhaisnéisí fáis onnmhairí, chun sonraí láidre le deireanas a chur san áireamh, tuairtear anois go dtiocfaidh fás 4.9 ar OTI in 2019 agus fás 4.1 air in 2020, arb ardú 0.7 agus ardú 0.5 iad sin faoi seach.

Dá ainneoin sin, gabhann rioscaí ábhartha intíre agus seachtracha leis an réamhaisnéis seo. Ar an taobh seachtrach, is é Brexit an riosca is suntasaí. I bhFaisnéis Ráithiúil Eanáir 2019, leag an Banc Ceannais amach a mheastacháin ar an tionchar a bheadh ag Brexit mí-ordúil, gan chomhaontú, ar gheilleagar na hÉireann. Cé go bhfuil éiginnteacht i gceist le cleachtadh den saghas seo, tugann na meastacháin le tuiscint go laghdódh an toradh sin fás aschuir 4 phointe faoin gcéad sa chéad bhliain agus go mbeadh aschur 6 phointe faoin gcéad níos lú tar éis 10 mbliana, i gcomparáid le cás gan Brexit. Tá na meastacháin sin gan athrú agus i mBosca B (leathanach 16) den Fhaisnéis seo, cuirtear an anailís sin i bhfeidhm le féachaint ar na himpleachtaí féideartha a bheadh ag Brexit mí-ordúil, gan chomhaontú ag imeacht RA ó AE ar an 31 Deireadh Fómhair 2019 ar na meastacháin lárnaacha. Tugann na torthaí le tuiscint go laghdófaí fás OTI ó 4.9 faoin gcéad go 4.5 faoin gcéad do 2019, agus go dtitfeadh fás in 2020 ó 4.1 go 0.7. Ó thaobh impleachtaí eile de, tugann na meastacháin le tuiscint go mbeadh 34,000 níos lú post ann sa gheilleagar faoi dheireadh 2020 i gcomparáid leis an leibhéal fostaíochta a thuarar sa mheastachán lárnaach, fad is a bheadh an cóimheas larmhéid Ginearálta Rialtais go OTI thart ar 0.75 faoin gcéad ní ba mheasa.

Ar an taobh seachtrach, sa bhreis ar Brexit, tá rioscaí a bhaineann le trádáil idirnáisiúnta agus cáin fós ann, agus i bhfianaise ról tábhachtach na

ngnólachtaí ilnáisiúnta laistigh den gheilleagar agus an comhchruinniú i bhfás onnmhairí, tá sé tábhachtach athléimneacht an gheilleagair a thógáil in aghaidh turraingí féideartha don earnáil (féach Bosca E, leathanach 41).

Ar an taobh intíre, de bharr láidreachta le déanaí in aschur agus i bhfostaíocht, tá ardú tuilleadh ar staid thimthriallach an gheilleagair, agus tá acmhainn intíre bhreise, atá teoranta cheana féin, á creimeadh⁴. Sa chás gur féidir Brexit mí-ordúil, gan chomhaontú, a sheachaint, meastar go mbeidh feidhmíocht láidir ann sa bhunghníomhaíocht gheilleagrach in 2019 agus in 2020. I bhfianaise staid thimthriallach fhorbartha an gheilleagair, tá riosca ábhartha ann go dtiocfadh róbhorrach agus brú pá aníos as leathnú láidir leantach. Scrúdaítear an cheist sin in alt san Fhaisnéis seo dar teideal ‘Modelling Overheating Risks in the Irish Economy’. Léirítear ann go bhféadfadh dinimic borradh-agus-cliseadh teacht as pá atá ag ardú, i bhfoirm cailliúint iomaíochta agus titim in aschur, mura bhfuil pá solúbtha anuas i gcás ina maolaítear ar dhea-dhálaí eacnamaíoch. Cé gur féidir méadú ar inimirce cuidiú le dinimic róbhorrach sa mhargadh saothair a mhaolú, ag an am céanna, féadfaidh sé éileamh níos mó a chruthú agus brú breise a ghiniúint i gcodanna eile den gheilleagar. Cuidíonn bainistíocht mhaicreacnamaíoch chuí déileáil eis na dúshláin, agus féadfaidh ról tábhachtach a bheith ag beartas fioscach chun éileamh iomarcach a theorannú agus strus iomarcach a sheachaint ar gheilleagar atá ag feidhmiú gar d’acmhainn iomlán.

De bharr phátrún na rioscaí agus na n-éiginnteachtaí atá roimh an ngeilleagar faoi láthair, tá dúshlán agus tábhacht níos mó ag baint leis an gconair beartais fiosaigh cuí a leagan amach. Más féidir Brexit mí-ordúil a sheachaint, cuirtear béim ar leith leis an mbun-réamhaisnéis agus, go háirithe, leis an riosca róbhorrach, ar an tábhacht a bheadh le feabhas ní b’uailmhianaí ar an staid fhioscach. Agus aschur ag an acmhainneacht, nó gar dí, chuideodh beartas fioscach ní ba dhaingne le brú éilimh a bhainistiú. De bharr na timpeallachta éiginnte, tarraingítear aird ar an ngá le spleáchas a laghdú ar ioncaim, a d’fhéadfadh a bheith sealadach, chun gealltanais caiteachais mharthanacha a mhaoiniú. Ba stuamaí amhantair a choigilt seachas iad a chaitheamh, chun dinimic chomhthimthriallach a mhaolú agus chun leathnú fioscach fritimthriallach a éascú lena ndéanfaí cobhsaíochtú i gcás cor chun donais amach anseo. Má bhíonn mainneachtain ann barrachas leordhóthanacha a fháil le linn tréimhsí dea-fheidhmíochta geilleagraí, d’fhéadfadh sé sin scóip ghníomhaíochta a theorannú amach anseo. Is maith ann don fheidhmíocht gheilleagrach láidir atá ann faoi láthair, ach ionas gur féidir a chinntiú go bhfanann an geilleagar ar chonair

⁴ Féach Byrne, S. agus T McIndoe Calder (2019): ‘Employment growth: Where do we go from here?’, Faisnéis Ráithiúil Bhanc Ceannais na hÉireann, Iúil 2019.

fáis inmharthana, tá sé tábhachtach go bhfuil beartas fioscach réamhghníomhach ann chun dinimic chomhthimthriallach a mhaolú.

Ar an taobh eile, dá mbeadh Brexit mí-ordúil ann, rachadh an staid fhioscach in olcas go hábhartha agus bheadh an timpeallacht fhioscach i bhfad ní ba dhúshlánaí. Féadfaidh go mbeadh gá tacaíocht shealadach agus dhírithé a chur ar fáil do na hearnálacha ba mhó a n-imreofaí tionchar orthu, sa bhreis ar oibriú na ngnáthchobhsaitheoirí uathoibríocha a cheadú. I gcás tionchar eacnamaíoch ní ba leithne agus ní ba ghéire, d'fhéadfadh sé a bheith cuí tacaíocht fhioscach ní ba leithne a chur ar fáil. Tá sé tábhachtach go mbeidh aon fhreagairt fhioscach i gcomhréir le hinmharthanacht fiachais fadtéarmach agus nach gcuirfear an obair chrua ar ceal a rinneadh chun creidiúnacht fhioscach na hÉireann a athbhunú agus nach mbeidh an riosca ann go dtiocfadh dinimic fiachais do-mharthana chun cinn.

The Irish Economy

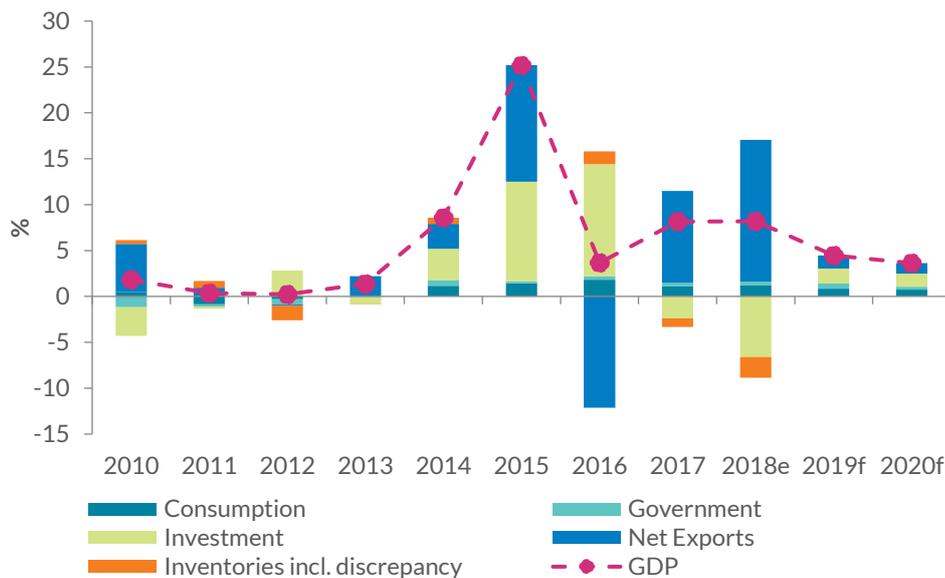
Overview

- Following a strong performance last year, the outlook for the economy remains positive but subject to heightened levels of risk and uncertainty. Reflecting both the slowdown in global economic activity and emerging capacity constraints in the domestic economy, our central projection continues to point to a slowdown in growth compared to the robust performance of recent years. However, taking account of the upward revision to both the level and the pace of growth in the economy last year and the evident resilience of both domestic demand and export growth in the first half of the year, we have revised upwards our forecasts for growth for 2019 and 2020.
- Underlying domestic demand is projected to grow by 4.4 per cent this year and by 3.3 per cent in 2020. This represents upward revisions of 0.4 per cent and 0.1 per cent for 2019 and 2020, respectively, when compared to the previous Bulletin. Export growth has also been revised upwards taking account of a strong performance in recent data despite considerable external headwinds. Taken together with the revised outlook for domestic demand, this has resulted in an upward revision to GDP growth to 4.9 per cent for this year and 4.1 per cent in 2020, upward revisions of 0.7 per cent and 0.5 per cent, respectively.
- Following strong growth in 2018, the pace of growth in domestic demand is projected to moderate over the remainder of this year and in 2020 reflecting the advanced stage of the business cycle and increasing headwinds from rising uncertainty and weaker business and consumer confidence. Consumption growth in 2018 was revised upwards in the recent National Accounts release by 0.4 of a percentage point to 3.4 per cent with a more significant revision from 1.6 per cent to 3 per cent to 2017 consumption growth. This brought the trend in consumption more into line with the improving trend in household incomes. Consumer spending, supported by strong labour market data, proved resilient to deteriorating consumer confidence in the first quarter of this year with growth of 2.9 per cent, year-on-year. High frequency indicators such as retail sales and car sales point to a slowdown in consumption growth for the remainder of the year, reflecting weaker consumer sentiment about future prospects and a positive but moderating trend in household income growth. For 2019 as a whole, the volume of

consumer spending is forecast to increase by 2.6 per cent, moderating to 2.4 per cent in 2020.

- While revised National Accounts point to a decline in headline investment of 21.1 per cent last year, this reflected a sharp fall in intangibles investment by multinational firms which masked robust growth of 13 per cent in underlying investment. Increasing uncertainty relating to Brexit together with the slowdown in global economic activity is generating increasing headwinds to investment demand this year and in 2020. This is likely to be most evident in investment in machinery and equipment, with building and construction underpinned by the public capital programme and the continuing recovery in housing building. First quarter National Accounts data show early indications of these divergent trends, with growth in underlying machinery and equipment investment slowing to 1.2 per cent, year on year while new dwelling investment increased by 23.5 per cent and non-residential investment increased by 5.6 per cent. Housing output is projected to increase to 23,000 and 27,000 units in 2019 and 2020, respectively. For the year as a whole, underlying investment is forecast to increase by 8.8 per cent this year, slowing to 6.2 per cent growth in 2020.
- Following growth of 10.4 per cent last year, total exports increased by 13.8 percent year-on-year in the first quarter of 2019. Exports have increased strongly despite the less favourable external environment, although, it was notable that growth was highly concentrated in a small number of sectors. Growth in merchandise goods exports was mainly accounted for by pharmaceuticals and machinery and transport equipment, while computer services was the dominant factor in headline services export growth.
- Notwithstanding the robust growth of key exporting sectors such as pharmaceuticals and computer services, the forecast assumes that the slowdown in external demand will be the main determinant of exports. Consequently, a gradual deceleration in export growth, driven by the decline in demand for imports from Ireland's main trading partners, is projected. Export growth is expected to slow to 5.9 percent in 2019, and 4.5 in 2020. This represents an upward revision compared to the last Bulletin reflecting the very strong headline figures in the first quarter of the year. The gradual moderation in export growth over the forecast horizon, combined with the projected slowdown in domestic demand, will contribute to a commensurate easing in demand for imports. Import growth is forecast to decline to 6.1 per cent in 2019, and 4.4 per cent in 2020.

- Following growth averaging 3 per cent last year, growth in employment picked up to 3.7 per cent, year-on year in the first quarter of this year. The increase in employment of over 81,000 was the largest annual increase since 2007. Some moderation in employment growth is in prospect for the remainder of the year reflecting the outlook for aggregate demand and the limited spare capacity in the labour market which is close to full employment. For the year as a whole, employment is forecast to grow by 2.4 per cent, and by a further 1.7 per cent growth in 2020. The unemployment rate is projected to average 4.7 per cent this year and 4.5 per cent in 2020.
- Inflation remains subdued despite the strength of domestic demand and the increasing tightness of labour market conditions. Following average headline HICP inflation of 0.7 per cent in 2018, a gradual pick-up in inflation is forecast for this year and in 2020. This reflects a gradual increase in services inflation in line with prospects for domestic demand and continued weakness in goods prices, which are largely determined by international trends. Headline HICP inflation is projected to average 1 per cent this year, rising to 1.2 per cent in 2020.
- While prospects for growth in the economy have improved, there has also been an increase in the already heightened risks to this outlook. In particular, while the central projection is predicated on the avoidance of a disorderly Brexit, recent developments suggest that the perceived risk of such an outcome has increased. While extension of the departure date to the end of October would limit the impact on the 2019 growth rate, the full impact of a disorderly Brexit would be felt in 2020, with growth likely to be limited and below 1 per cent (see Box B). In addition to the immediate and substantial risk of a disruptive Brexit, Ireland's small and exceptionally open economy is particularly vulnerable to external geopolitical risks from rising protectionism and from a more pronounced slowdown in global growth. In the absence of such external risks materialising, the pace of growth in the economy, though moderating, gives rise, paradoxically, to the prospect of overheating as the economy approaches full capacity. In the absence of a disorderly Brexit, in the light of significant upward revisions to both the level and rate of increase in output last year and the evidence of resilient growth in employment and output in the first half of this year, this risk has increased.

Figure 1: Contributions to GDP Growth

Source: CSO and Central Bank of Ireland.

Box A: The International Economic Outlook

By Monetary Policy Division

Global economic activity has continued to slow during recent months. Over the past year, trade and investment have moderated sharply, business and consumer confidence have declined, while global trade tensions persist and policy uncertainty remains high. At the same time, financing conditions have eased somewhat, as the US Federal Reserve signalled a more accommodative monetary policy stance looking forward. The IMF revised down its projections in July, forecasting global GDP to grow by 3.2 per cent in 2019 and 3.5 per cent in 2020, 0.1 percentage point lower than in the April projections for both years.

In the euro area, real GDP increased by 0.4 per cent on a quarterly basis and by 1.2 per cent on a yearly basis during the first quarter of 2019, exceeding expectations but largely reflecting temporary factors. A number of persistent adverse factors, mainly related to weak confidence, rising protectionism, and Brexit uncertainties, continue to weigh on the growth outlook. On the other hand, unemployment continued to decrease and reached 7.5 per cent in May, down from 7.6 per cent in April. This is the lowest rate seen since July 2008. Monetary policy remains accommodative, thereby stimulating domestic demand and supporting favourable financing conditions. This, coupled with rising

wages, is expected to support consumption and economic activity over the medium term.

The Eurosystem staff macroeconomic projections released in June are broadly in line with those released in March. Euro area GDP is projected to increase by 1.2 per cent in 2019 (slightly revised up compared with the March 2019 projections) and by 1.4 per cent in 2020 and in 2021 (revised down both for 2020 and 2021). The balance of risks is still tilted to the downside, mainly reflecting external geopolitical factors, as well as uncertainties stemming from the risk of rising protectionism and vulnerabilities in emerging markets.

Turning to sentiment indicators, the Markit Eurozone composite PMI was 52.2 in June (up from 51.8 in May). The headline index masked notable divergences in sector performance, with services enjoying a solid rise in activity (at the highest reading in eight months) but manufacturing continued to slow. The European Commission's indicators of business climate, consumer confidence and economic sentiment decreased in June (by 0.13 points to +0.17, by 0.7 points to -7.2 and by 1.9 points to 103.3, respectively).

Euro area annual HICP was 1.3 per cent in June, up 0.1 percentage points compared to May. While the services component picked up somewhat over recent months, prices of non-energy industrial goods have remained at very low levels. Looking forward, energy inflation is expected to decline over the forecast horizon, partly offset by a gradual rise in underlying inflation. The March projections forecast annual HICP inflation at 1.3 per cent in 2019 (revised slightly up compared to the March 2019 projections), 1.4 per cent in 2020 (revised slightly down) and 1.6 per cent in 2021 (unchanged).

At its July meeting, the Governing Council (GC) of the ECB enhanced its forward guidance on interest rates. The key ECB interest rates are now expected to remain at their present levels or lower levels at least through the first half of 2020 and in any case for as long as necessary to ensure the continued sustained convergence of inflation to its aim over the medium term. It confirmed the full reinvestment of the principal payments from maturing securities purchased under the asset purchase programme for an extended period of time past the date when the key ECB interest rates will start rising, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation. In June, the GC also communicated the modalities of the new series of quarterly targeted longer-term refinancing operations (TLTRO-III), announced in March and starting in September 2019. The interest rate will be set at 10 basis points above

the average MRO rate over the life of each operation and, for counterparties exceeding their lending benchmark a lower interest rate will apply, which can be as low as the average deposit facility rate plus 10 basis points.

Turning to the United States, the labour market remains robust, with strong job gains and low unemployment, and GDP growth displayed a solid 0.8 per cent increase on a quarterly basis during the first quarter of 2019. However, sentiment indicators have signalled a loss of momentum in business activity since February; the composite PMI reached a three-year low of 50.9 in May, before slightly increasing to 51.5 in June. Headline and underlying inflation are running below 2 per cent; market-based measures of inflation expectations have declined.

The US Federal Open Market Committee (FOMC) maintained the target range for the federal funds rate unchanged at 2.25 to 2.5 per cent. at its June meeting; but looking forward, it signalled a more accommodative monetary policy stance than previously expected. According to the dot plot, eight FOMC participants expect at least one rate cut this year, while nine FOMC participants, a slight majority, expect at least one rate cut by end 2020. In March, no FOMC participant was expecting a rate cut to happen over the forecast horizon.

In the United Kingdom, data have been volatile recently, mainly due to Brexit-related effects on financial markets and business, as, for instance, companies build stocks ahead of recent Brexit deadlines. GDP growth exceeded expectations in the first quarter of 2019, rising by 0.5 per cent on a quarterly basis, but is expected to be flat in the second quarter. The underlying pattern of relatively strong household consumption growth but weak business investment has persisted. Headline inflation is running at levels around the 2 per cent target, but is expected to decline later this year reflecting falling energy prices.

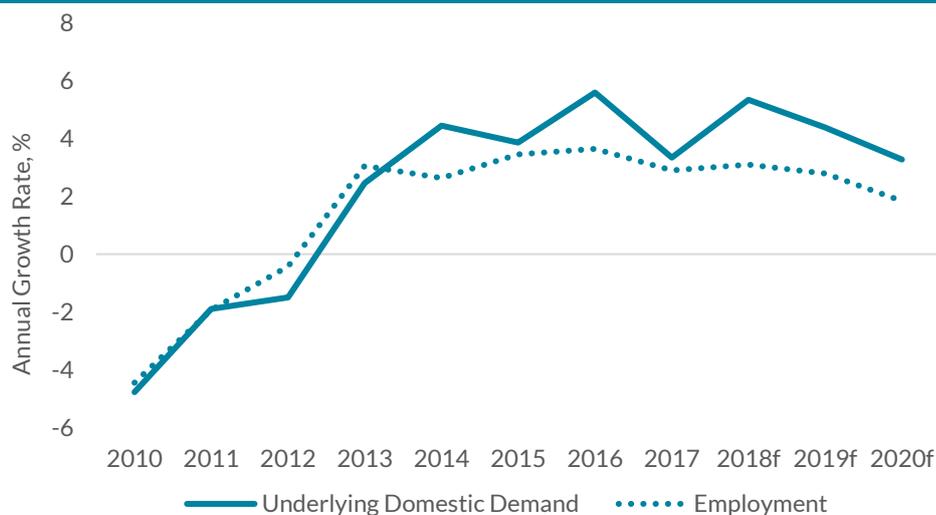
The Bank of England's Monetary Policy Committee (MPC) maintained the Bank Rate and the stock of bond purchases unchanged in June, at 0.75 per cent and at 445 billion GBP respectively. Looking forward, the economic outlook continues to depend significantly on the nature and the timing of the United Kingdom withdrawal from the European Union. The MPC confirmed that it is committed to achieve the 2 per cent inflation target, and that the monetary policy response to Brexit will not be automatic and could be in either direction.

Demand

Domestic Demand Overview

Underlying domestic demand is forecast to grow by 4.4 per cent this year and by 3.3 per cent in 2020, a moderate upward revision to the outlook from the time of the last Bulletin. The projected moderation in the pace of growth in the domestic economy over this year and next reflects both the advanced stage of the business cycle and the negative impact of heightened uncertainty on consumer and business sentiment.

Figure 2: Underlying Domestic Demand and Employment

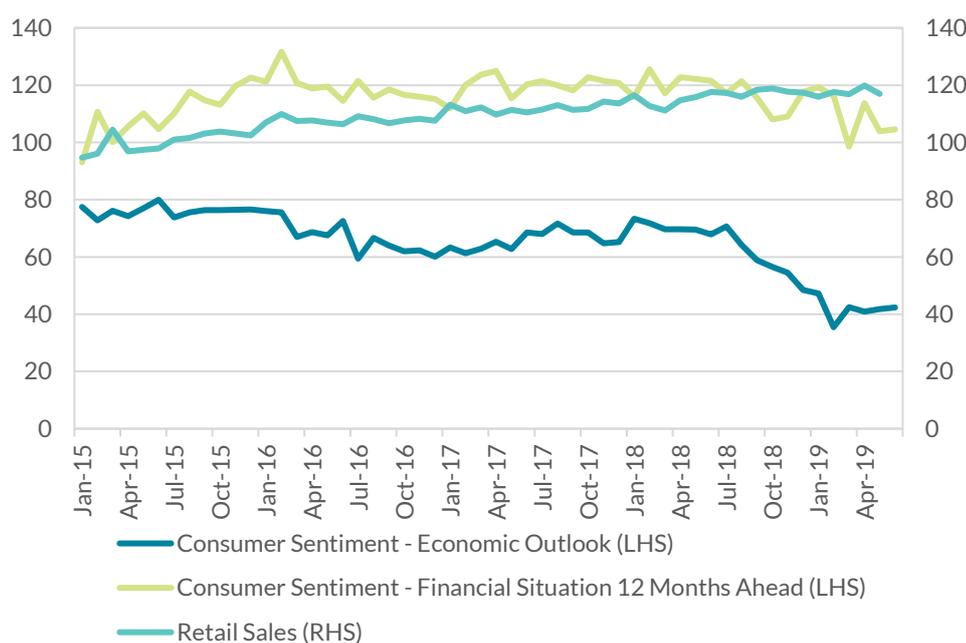


Source: CSO and Central Bank of Ireland.

Consumption

Developments in private consumption continue to be supported by the strong growth in employment and real incomes, as well as continued improvements in household balance sheets. Consumption grew by 2.9 per cent year-on-year in the first quarter, and recently revised data show that it grew by 3.4 per cent in 2018 as a whole.

Early indications suggest that consumption has continued to grow strongly during the second quarter – with retail sales volumes increasing by 2.8 per cent year-on-year on average in April and May. It is clear that the increase in the volume of house purchases is leading growth in the consumption of consumer durables, with retail sales of household equipment and electrical goods growing strongly in the first half of the year.

Figure 3: Consumer Sentiment and Retail Sales

Note: Consumer Sentiment Indices are based to 1994=100. Retail Sales are based to 2015=100). The last observation for retail sales is May 2019. The last observation for the sentiment indices is June 2019.

The robust growth in consumption in the first quarter was despite notable dips in consumer sentiment during the period. One possible explanation is that consumers' views on the general economic outlook has worsened more than their view on their personal financial situation (see figure 3). It is likely that continued economic policy uncertainty in the second and third quarters leading up to the next Brexit deadline will continue to weigh on sentiment in coming months.

Looking ahead, a number of factors will drive consumption dynamics over the projection horizon. Firstly, the strong outlook for employment and real incomes will continue to support consumption. Secondly, the pickup in house purchases is likely to support increased growth in spending on durables. Thirdly, net lending to households for consumption has grown expanded in the first half of the year – a trend which is likely to continue during this year and next, as household balance sheets improve and the level of repayments declines (see Box E). Lastly, heightened uncertainty about the potential for an adverse Brexit outcome is likely to remain a drag on consumption until the situation is resolved (see Box C). Heightened uncertainty is particularly likely to affect durables consumption.⁵

⁵ Bertola, G., Guiso, L. and Pistaferri, L., 2005. Uncertainty and consumer durables adjustment. *The Review of Economic Studies*, 72(4), pp.973-1007.

Combining all of these factors, personal consumption expenditure is projected to grow by 2.6 per cent in 2019 and 2.4 per cent in 2020.

Box B: Possible Implications of a Disorderly Brexit for the Short-Term Forecasts

By Thomas Conefrey and Graeme Walsh

The forecasts in this Quarterly Bulletin for 2019 and 2020 are based on the assumption that the UK leaves the EU with an agreement before 31 October 2019. If this transpires, a two-year transition period would come into effect during which time the UK would remain a member of the EU customs union and single market. This would represent the most favourable outcome for the Irish economy but the risk of a disorderly Brexit remains and uncertainty has increased since the publication of our April Bulletin. In this Box, we outline the possible implications of a disorderly Brexit on 31 October 2019 for the performance of the Irish economy in 2019 and 2020. The estimates we present are subject to significant uncertainty due to the unprecedented nature of this potential economic shock.

The Central Bank published its estimates of the macroeconomic implications of a disorderly Brexit in the first Quarterly Bulletin of 2019 on 25 January 2019. In that analysis, we discussed the key channels through which a disorderly Brexit would affect the Irish economy. There would be heightened stress in financial markets and a potentially large depreciation of sterling. The deterioration in economic conditions and a more adverse outlook would cause firms and households to cut spending. It is likely that there would be disruption at ports and airports as border infrastructure is unable to cope with the new customs requirements, at least for an initial period. Imports would be affected with implications for firms through disruption to their production processes, and for households through the price and availability of consumer goods. Exports would fall due to an immediate and large reduction in demand from the UK and the fall in sterling.

Table 1: Impact of Disorderly Brexit on 2019 and 2020 Growth Rates

	QB 3 July 2019		Disorderly Brexit	
	2019	2020	2019	2020
Real GDP	4.9	4.1	4.5	0.7
Employment	2.4	1.7	2.3	0.4

Our estimates published in January suggest that a no deal Brexit would reduce output growth by 4 percentage points in the first year. After 10 years the level of output in the Irish economy would be 6 per cent lower compared to a no-Brexit scenario. These estimates remain unchanged. Given that the possible date of the UK's exit from the EU is now October 31 of this year, most of the impact of a disorderly Brexit would occur in 2020. Applying this shock to the Central Bank's latest forecasts contained in this Bulletin would imply that the growth forecast for 2019 would be reduced from 4.9 to 4.5 per cent, while in 2020 growth would fall from 4.1 to 0.7 per cent (Table 1). The rate of growth in employment in a disorderly Brexit would also be substantially lower than the forecast in this Bulletin. As a result, by the end of 2020 our estimates suggest that there would be around 34,000 fewer jobs in the economy compared to the level of employment that could be realised in a no-Brexit scenario. Given that changes in employment typically lag falls in output, the labour market impact of a disorderly Brexit would continue to be felt in a significant way beyond the forecast horizon of this Bulletin.

The fall in output and increase in unemployment in a disorderly Brexit would put pressure on the public finances. Lower output and employment would reduce government tax revenue from a range of sources while higher unemployment would lead to a rise in expenditure. Putting these effects together, our simulation results indicate that a disorderly Brexit would lead to a deterioration in the General Government Balance of around $\frac{3}{4}$ of a per cent of output in 2020. This would likely imply a return to a General Government deficit next year.

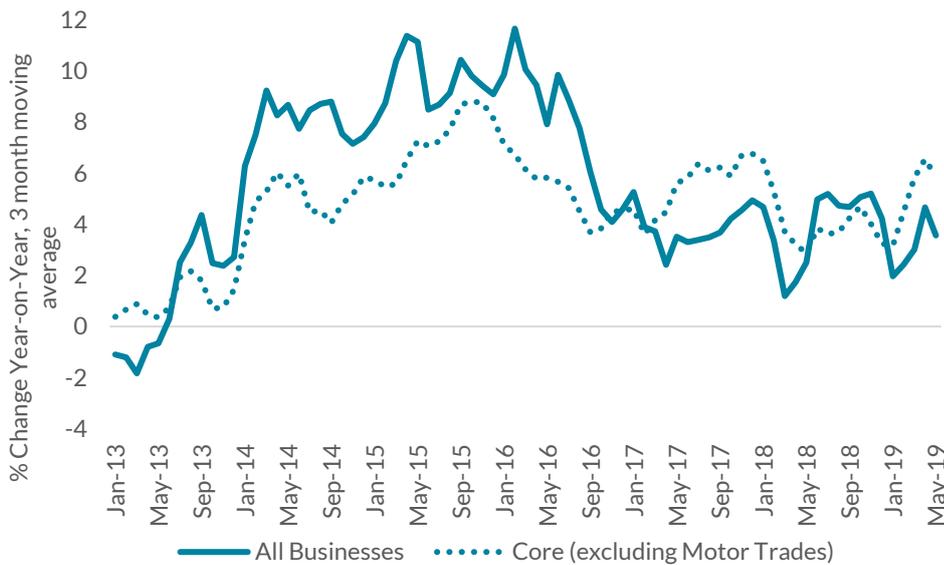
It is important to emphasise that the degree of uncertainty around these estimates is larger than typically associated with modelling exercises of this kind. This is due to the lack of comparable historical precedent of countries leaving the EU or any other major trading bloc. There is substantial uncertainty around how the economy would adjust in a no-deal Brexit: by how much and how quickly would trade flows be affected by the imposition of WTO tariffs, what would be the scale of logistical and supply-chain disruption, how would financial markets and exchange rates react? For our analysis, we have made assumptions on these key transmission channels based on the best available evidence from academic research and other published studies. At the same time, there is an unavoidably high degree of uncertainty around the magnitude, and even the direction, of some of these effects. As a consequence, the estimates in Table 1 should be treated with caution – the impact on the

Irish economy could turn out to be more or less severe than reported here.

The Central Bank's estimates of the short-run impact of a disorderly Brexit are more severe than in a similar study by the Department of Finance and ESRI. The main reason for this is that the Central Bank's analysis assumes that a disorderly Brexit would be accompanied by heightened uncertainty and a fall in consumer and business sentiment, and that this in turn would negatively affect spending by firms and households. The Department of Finance/ESRI study places less emphasis on these effects but focusses more on the impact of a disorderly Brexit through the trade channel. The long-run impact of a disorderly Brexit is similar in both studies with an estimated long-run fall in output of around 6 per cent. Whatever the precise magnitude of the economic impact, a disorderly Brexit would present enormous challenges for the Irish economy – especially in the near term – and would result in a loss of output and employment compared to a scenario where the UK remained in the EU.

Table 1: Expenditure on Gross National Product 2018 to 2020f

	2018	% change in		2019f	% change in		2020f
	€millions	vol	price	€millions	vol	price	€millions
Personal Consumption Expenditure	106,977	2.6	1.5	111,405	2.4	1.6	115,904
Public Net Current Expenditure	32,110	5.7	2.1	34,655	3.1	2.3	36,561
Gross Domestic Fixed Capital Formation	75,856	7.0	2.6	83,321	5.9	2.4	90,329
<i>Building and Construction</i>	24,202	10.0	5.7	28,127	6.6	4.2	31,239
<i>Machinery and Equipment</i>	24,542	5.2	0.3	25,881	5.0	0.8	27,396
<i>Intangibles</i>	27,112	6.0	2.0	29,313	6.0	2.0	31,694
Value of Physical Changes in Stocks	1,187			1,187			1,187
TOTAL DOMESTIC DEMAND	216,130	4.6	2.0	230,567	3.8	2.0	243,981
<i>of which: Underlying Domestic Demand</i>	172,460	4.4	2.1	183,766	3.3	2.1	193,813
Exports of Goods & Services	396,383	5.9	1.5	426,028	4.5	1.1	450,291
FINAL DEMAND	612,513	5.4	1.7	656,595	4.2	1.4	694,271
Imports of Goods & Services	-288,993	6.1	1.2	-310,340	4.4	1.3	-328,286
<i>Statistical Discrepancy</i>	519			519			519
GROSS DOMESTIC PRODUCT	324,039	4.9	2.0	346,774	4.1	1.5	366,504
Net Factor Income from Rest of the World	-70,988	12.6	1.5	-81,112	8.9	1.1	-89,346
GROSS NATIONAL PRODUCT	253,051	2.7	2.2	265,661	2.6	1.7	277,158
EU subsidies less taxes	1,133			1,189			1,241
GROSS NATIONAL INCOME	254,184	2.7	2.2	266,851	2.6	1.7	278,399

Figure 4: Index of Volume of Retail Sales

Source: CSO and Central Bank of Ireland.

Investment

Revised National Accounts data for the full year 2018 point to a decline in headline investment of 21.1 per cent. As noted in previous *Bulletins*, this figure includes some of the activities of the multinational sector, namely aircraft and intangible investment, which have limited impact on domestic economic activity and employment. Underlying investment, which excludes these activities, increased by 13 per cent in 2018. With this, housing investment increased by 24.7 per cent and non-residential building and construction investment increased 6.9 per cent. Machinery and equipment investment (excluding aircraft investment) increased by 14.4 per cent. Intangible investment, which was largely accountable for the fall in the headline figure, which declined by 52.6 per cent in 2018 after a particularly large spike in intellectual patent related investment in Q2 of 2017.

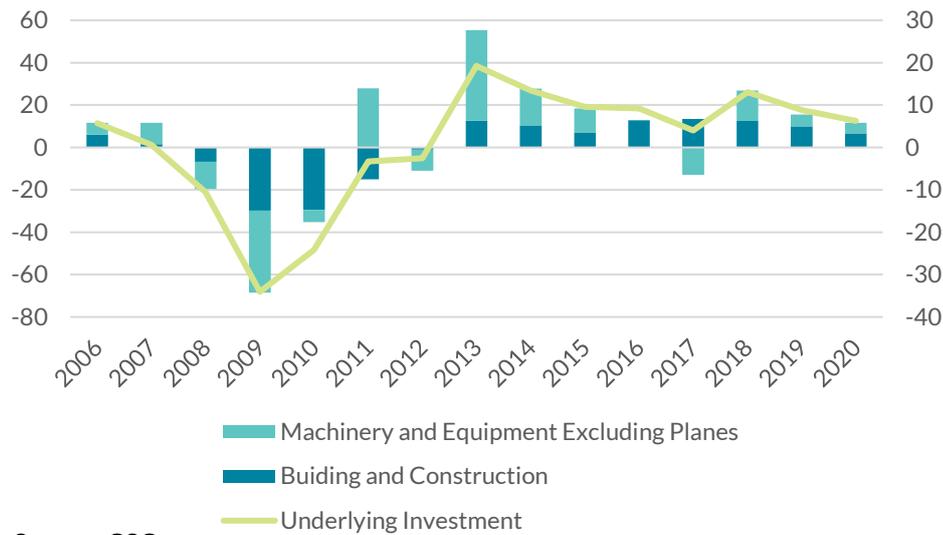
For the first quarter of 2019 provisional figures indicate that investment spending slowed as businesses likely awaited more clarity on Brexit negotiations. Headline investment increased by 4.9 per cent year on year, while underlying investment increased by 5.7 per cent compared to the same period in 2018. Housing investment increased by 13.3 per cent but the slowdown in growth here was largely attributable to a moderation in the rate of growth of home improvements. New dwellings investment increased by 23.5 per cent year-on-year in Q1 2019. Non-residential investment, mainly commercial and civil building and construction, increased by 5.6 per cent. Machinery and equipment (excluding aircraft) investment increased by just 1.2 per cent, suggesting that Brexit

uncertainty is having a material impact on economic growth. Intangible investment increased by 17.6 per cent in Q1 2019 year-on-year.

Looking ahead, available indicators point to a continued increase in housing investment. Following the completion of slightly over 18,000 new units in 2018, forward looking indicators suggest that new house completions will rise to approximately 23,000 and 27,000 units in 2019 and 2020 respectively. Coupled with forecasts for home improvements residential investment is expected to increase by 14.9 and 8.7 per cent in 2019 and 2020, respectively. For the non-residential sector, activity is forecast to increase by 8 and 6 per cent in 2019 and 2020, respectively. These forecasts are contingent on a benign Brexit outcome. An adverse Brexit scenario may result in a more generalised slowdown in construction investment. The slight moderation in the pace of expansion in the construction sector is corroborated by survey data from the Ulster Bank Construction PMI in June 2019, with the overall index and the indices for new orders and expectations pointing to continued expansion. Overall, building and construction investment is forecast to increase by 10 and 6.6 per cent in 2019 and 2020.

With regard to other components of investment, our forecast for underlying spending on machinery and equipment (excluding aircraft) has been revised up slightly since the previous *Bulletin* on the back of more recent data indicating a marginally more favourable outturn than anticipated. Underlying machinery and equipment spending is forecast to increase by 5 per cent both this year and next. This component of investment is particularly volatile under normal economic conditions, so given the uncertainties around external economic developments, these forecasts are subject to greater uncertainty than usual.

Given the outlook for its various components, underlying investment is forecast to increase by 8.8 and 6.2 per cent in 2019 and 2020, respectively.

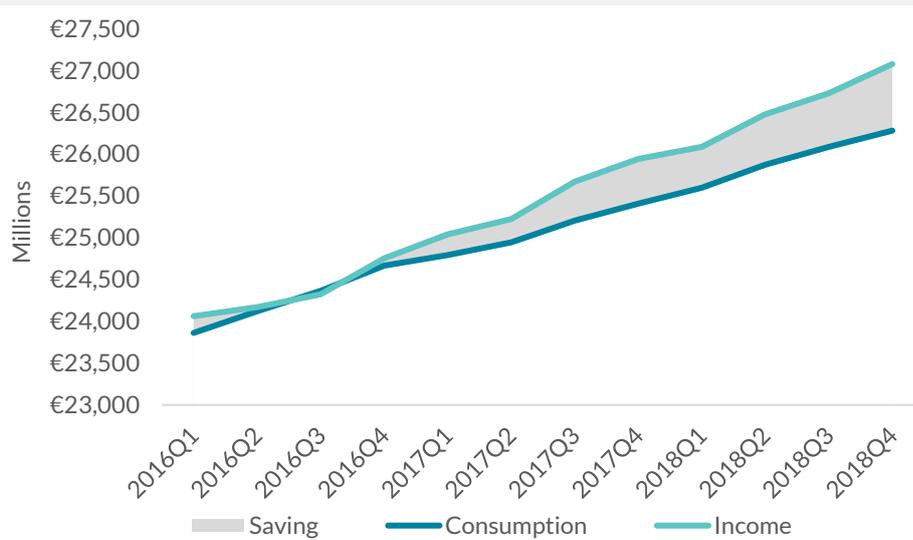
Figure 5: Growth in Underlying Investment

Box C: Consumption and Income Growth in the Current Expansion

By David Staunton, David Horan, and Reamonn Lydon

After falling during the recession, income and consumption have now grown for six consecutive years. The gap between income and consumer spending has widened, with consumers spending a smaller proportion of their disposable income since 2016. The latest Personal Credit and Deposits data⁶ show that household deposits rose by €1.8 billion over Q1 2019, the largest increase since Q4 2008. The purpose of this box is to investigate the gap between consumption and income that has emerged since Q1 2016, and to dig deeper on households' income and saving during this period. This is done by decomposing the growth in household disposable income, before investigating plausible reasons for increased saving.

⁶ Trends in Personal Credit and Deposits – Q1 2019, Central Bank of Ireland

Figure 1: Consumption and Income

Source: CSO; 4QMA.

Income

Since household disposable income returned to sustained growth in 2014, most of the contribution has been from labour income in line with the improving labour market (Figure 2). Figure 3 uses data from the Earnings and Labour costs survey to decompose the labour income growth seen in the institutional sector accounts. As recently as mid-2015, hourly earnings contributed negatively to labour income to the household sector, with virtually all the gains coming from rising employment levels. Since 2017, the relative contribution from employment, while still the largest driver, has been declining, with hourly earnings growth becoming increasingly important as wages rise. A continuation of this trend is consistent with the labour market and income forecast in this Quarterly Bulletin. Of primary interest in this box is that recent income growth has not coincided with a similar increase in consumption.

Figure 2: Growth in HDI

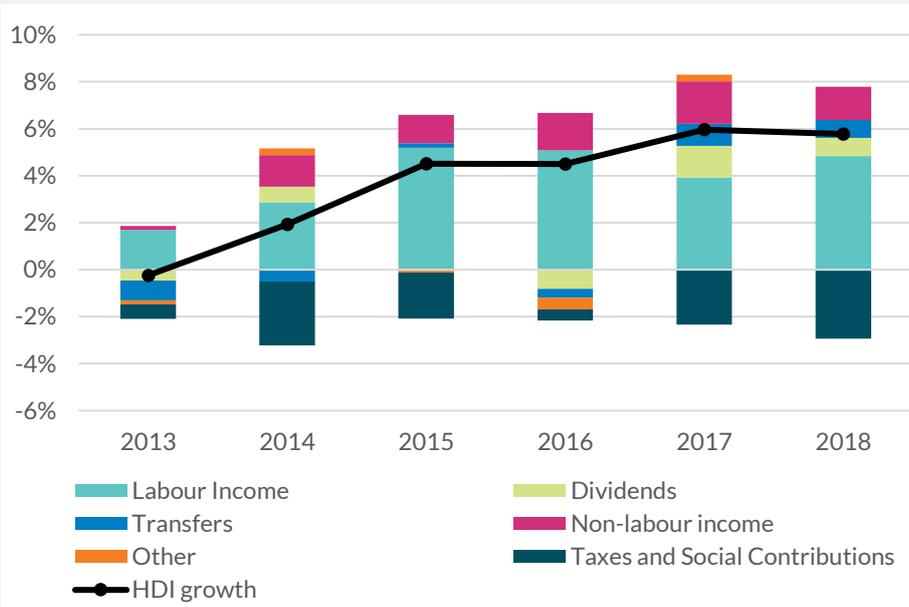
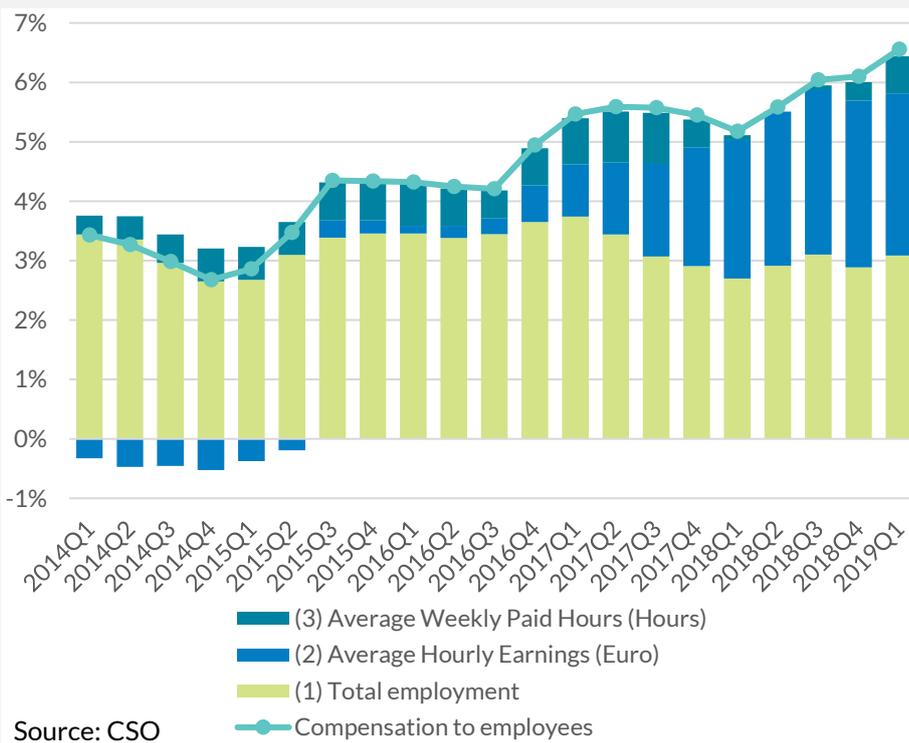


Figure 3: Growth in Labour Income



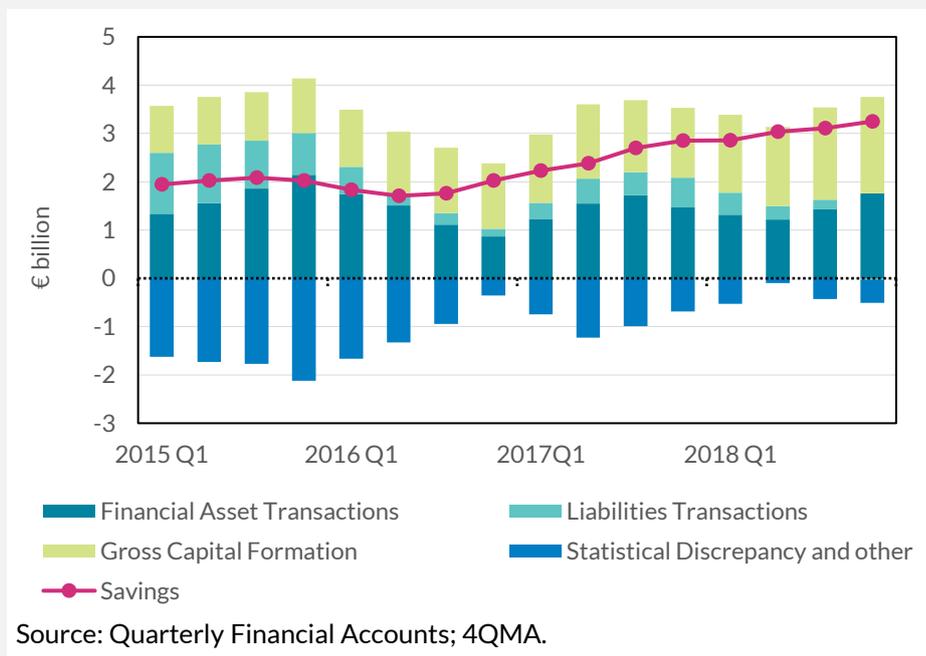
Source: CSO

Saving and Deleveraging

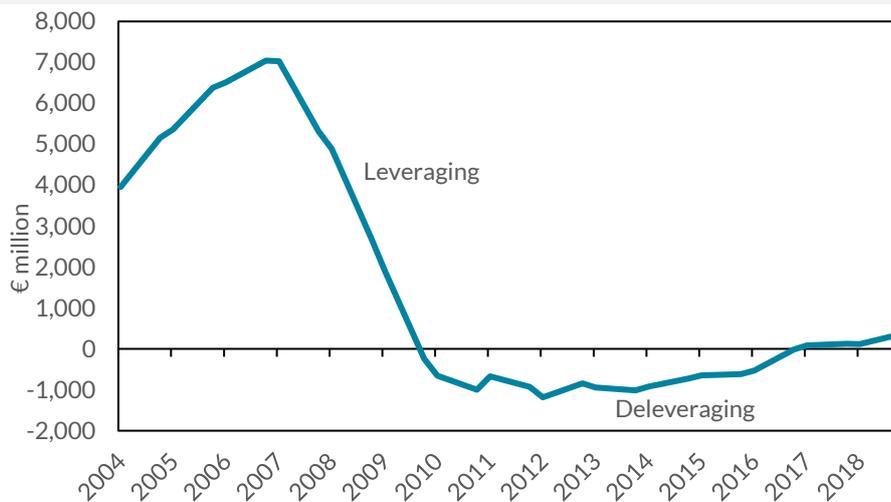
The unspent portion of household income can be used in a number of ways; investment in financial assets, deleveraging (paying down debt), and investment in fixed capital, e.g. housing. McCarthy and McQuinn

(2015)⁷ highlight the effect that deleveraging can have on Irish consumption and, since the crisis, deleveraging has indeed been an important factor. As Figure 4 shows however, its role has diminished in recent quarters, to the extent that deleveraging flows are virtually absent from Households' Quarterly Financial Accounts in Q4 2018. The growth in savings is thus concentrated in two categories - Financial Assets (bank deposits, savings accounts etc.) and Gross Capital Formation (primarily new house purchases). Figure 5 shows that after years of post-crisis deleveraging, the household sector is now drawing down marginally more debt than it is paying off, although the debt to disposable income ratio is still declining.

Figure 4: Household Savings by Use Transactions



⁷ McCarthy, Y. and McQuinn, K. (2015) [Deleveraging in a Highly Indebted Property Market: Who does it and are there Implications for Household Consumption?](#), *The Review of Income and Wealth*, 2015

Figure 5: Household Credit

Source: Quarterly Financial Accounts; Lending for house purchase and other personal loans; 4QMA.

Saving for house purchase

Many Irish households need to build up deposits to purchase a home, and survey data show that 30 per cent of private renters say they are saving to buy a home. Given that 30 per cent of households are renters, that would mean that, at a minimum, 10 per cent of Irish households are saving for a house (approximately 170,000 households). This number would be made greater by those non-renters who are also saving to buy or move house. While it is not possible to estimate how much savings can be attributed to these various cohorts, given the scale of the increase in deposits, amounting to an increase of €1.8 billion in the fourth quarter of 2018, saving for a house purchase is likely to explain only some portion of this increase and be one of a number of factors driving the rise in savings.

Income Uncertainty

In addition to the above factors, uncertainty can be another driver of household saving. The life-cycle model (or permanent income hypothesis) suggests that people “smooth” consumption – using saving and borrowing to maintain a consistent level of consumption throughout their lives.⁸ This implies that people will save if they expect their future earnings to decline. The contract status of workers could affect expectations of future income – if an elevated proportion of the workforce is on temporary contracts, increased savings may result. In the aftermath of the recession, the labour markets of the most affected countries such as Spain, Portugal, and Greece, became increasingly

⁸ Meghir, C. and Pistaferri, L. (2010) [Earnings, Consumption, and Life-cycle Choices](#) NBER Working Paper 15914

characterised by short-term and contingent employment. Ireland has a lower level of short-term employment than the EU average, and the proportion of new hires in Ireland signing temporary contracts actually fell to pre-crisis levels in 2016.⁹

If income growth is coming from irregular earnings like overtime and bonuses rather than from salary, households may deem their higher income to be transitory. This less certain portion of income is now marginally higher than its peak in 2008, providing a potential source of uncertainty. However, given the small size of the change (up 2 percentage points over 10 years) and the fact that earnings growth excluding irregular earnings is still very strong, this is unlikely to be an important driver of increased saving.

Consumer sentiment

The KBC Consumer Sentiment Index (CSI) is based on consumers' perception of their future financial situation, their economic outlook for the country as a whole and employment expectations¹⁰. There is a large literature that uses consumer sentiment as a proxy for future expected income which in turn may serve as a leading indicator for forecasting consumption developments¹¹. In the past, the level of consumer sentiment has also tended to reflect current and near-term income developments¹². However, in recent quarters, the decline in sentiment cannot be attributed to a slowdown in income growth. In fact, Figure 6 shows that despite strong gains in income growth – on average, household disposable income rose by 4% per annum between Q1 2016 and Q4 2018 – consumer sentiment has been underperforming over the same period, with the index declining over the past year.

The fall in consumer sentiment reflects a more pessimistic view on the part of consumers of the general economic outlook, in part, reflecting concern about the potential impact of Brexit on future employment and incomes. This was evident from the sharp fall in the CSI in Q1 2019, as the UK approached the original deadline for leaving the EU without having accepted the proposed withdrawal agreement. Depending on the progress made in the negotiations through the rest of 2019, increasing or decreasing uncertainty in relation to Brexit could have an impact on the

⁹ McGuinness, S., Bergin, A., Keane, C., and Delaney, J. (2018) [Measuring Contingent Employment in Ireland](#) ESRI Research Series Number 74, August 2018.

¹⁰ For full details on how the Consumer Sentiment Index is compiled see notes section on page 3: <https://www.esri.ie/system/files/publications/CSI2019Mar.pdf>

¹¹ Esaw J.Z., Garratt, D., and Heradi M.H (2005) '[Does consumer sentiment accurately forecast UK household consumption? Are there any comparisons to be made with the US?](#)', Journal of Macroeconomics, Vol. 23, No. 3.

¹² See: McIntyre, K.H (2007) '[Reconciling Consumer Confidence and Permanent Income Consumption](#)', Eastern Economic Journal, Vol. 33, No. 2, available:

evolution of consumption. Of course, other factors will also continue to affect consumer sentiment and consumption over the medium term.

Figure 6: Consumer sentiment index/household income



Source: KBC, CSO.

Government Consumption

Reflecting measures announced in Budget 2019, government consumption is projected to grow by 5.5 percent this year, moderating to growth of 2.9 percent in 2020 contributing 0.5 and 0.3 percentage points to GDP in 2019 and 2020, respectively. This follows estimated growth of 6.4 per cent in 2018.

Box D: UK Economic Performance since the EU Referendum and Implications for Ireland

By Thomas Conefrey and Graeme Walsh

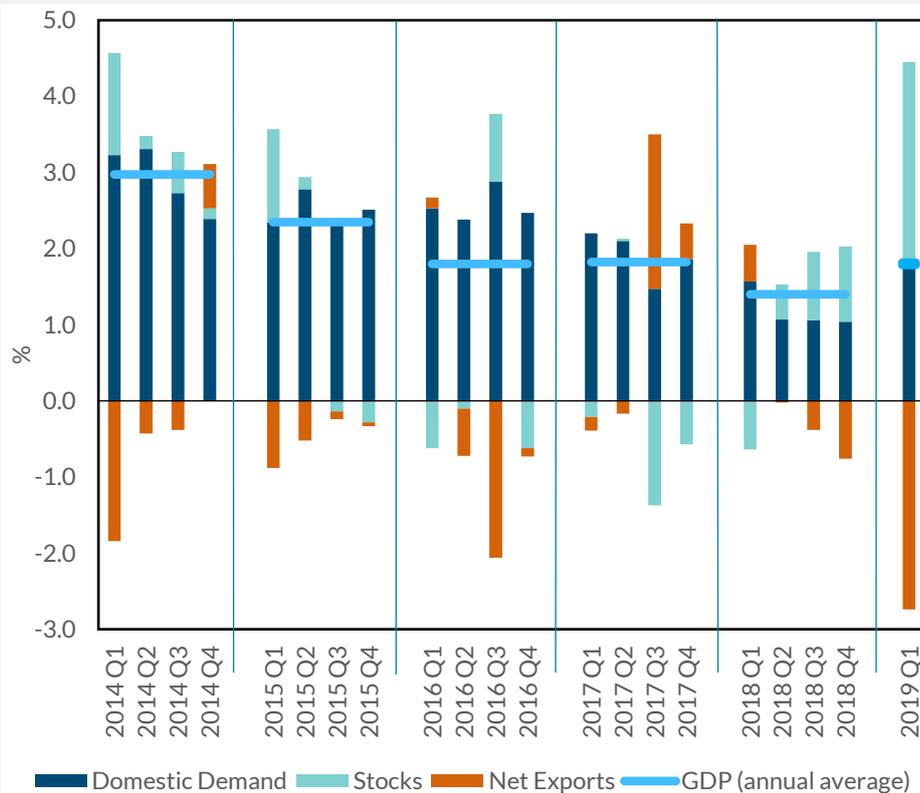
On 23 June 2016, the UK voted to leave the EU and on 29 March 2017 the UK Prime Minister triggered Article 50 – the formal process for countries to officially exit the EU. This two-year period – due to expire on 30 March 2019 – was extended until 31 October 2019 as the UK was unable to ratify the EU-UK Withdrawal Agreement before the March deadline. During the period from the referendum in June 2016 until 31 October 2019, the UK remains a member of the EU with full access to the EU customs union and single market. Despite this, some evidence has

already emerged of Brexit-related effects on key UK economic indicators. In this Box, we focus – not on the future potential implication of Brexit for Ireland (which is covered in existing research by the Central Bank and others) – but rather on the performance of the UK economy since the referendum on EU membership in 2016.¹³ Close monitoring of current UK economic developments is important given the extensive ties between the two countries and the potential for changes in the UK economy to transmit directly to Ireland. Moreover, examining how Brexit-related weakness in the UK has already affected the Irish economy can provide insights as to how future Brexit shocks are likely to affect Ireland.

Figure 1 shows the year-on-year growth in UK GDP along with the contributions to growth from the main expenditure components. Looking at overall GDP growth (blue line), it is noticeable that the pace of growth has slowed since the 2016 referendum. Net exports (orange columns) provided a boost to growth in the second half of 2017; however, this waned in 2018. The contribution to overall GDP growth from domestic demand (consumer spending, investment and government spending) has also weakened over time.

¹³ See Conefrey, Thomas, Gerard O'Reilly and Graeme Walsh (2019), "The Macroeconomic Implications of a Disorderly Brexit," Central Bank of Ireland Quarterly Bulletin No. 1 2019. Available at: <https://www.centralbank.ie/docs/default-source/publications/quarterly-bulletins/qb-archive/2019/quarterly-bulletin---q1-2019.pdf#page=23> and Bergin, Adele, Philip Economides, Abian Garcia-Rodriguez and Gavin Murphy (2019), "Ireland and Brexit: modelling the impact of deal and no-deal scenarios," ESRI Special Article. Available at: https://www.esri.ie/system/files/publications/QEC2019SPR_SA_Bergin.pdf

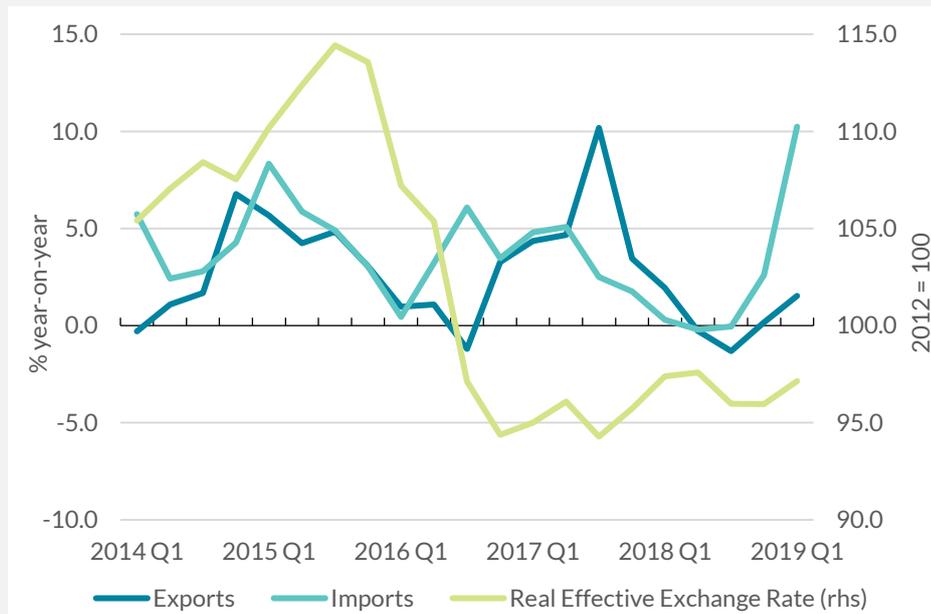
Figure 1: UK GDP Growth Contributions



Source: ONS

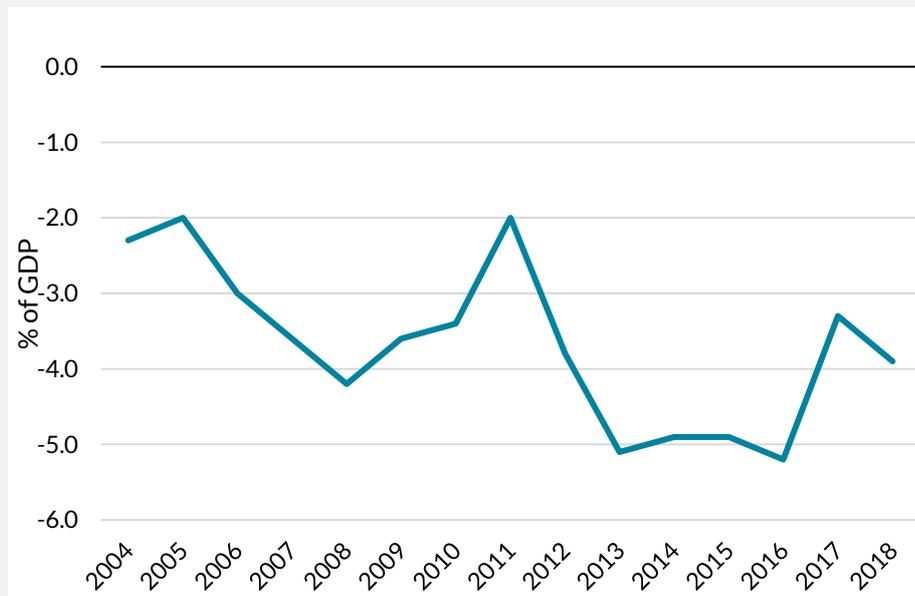
As illustrated in Figure 1, there were a number of unusual developments in the most recent UK National Accounts data which are for Q1 2019 (far right hand-side column). Firstly, the contribution of stockbuilding (green columns) to overall UK growth, which has been increasing from mid 2018, spiked in Q1 2019. In the quarter, stocks contributed 2.6 percentage points to annual UK GDP growth. The substantial boost to growth from stockbuilding is likely to be temporary as it reflected precautionary activity by firms to accumulate stocks in advance of the initial 31 March 2019 deadline for the UK to exit the EU. Secondly, the contribution to growth from net exports (orange column) declined sharply in the first quarter while the domestic demand contribution increased (dark blue column). The decline in net exports was mainly driven by stronger imports (linked to the rise in stocks) along with an increase in imports of non-monetary gold. The latter has a neutral effect on overall GDP because the rise in imports (which reduces GDP) is offset by an increase in gross capital formation (which increases GDP).

Figure 2a: UK Trade and Exchange Rate Data



Source: ONS

Figure 2b: Balance of Payments, % of GDP



Source: ONS.

Looking in more detail at the performance of the external side of the UK economy, the sharp slowdown in UK exports (orange line) from mid 2017 is evident in Figure 2a. With import growth still positive this means that net exports are no longer making a positive contribution to overall growth. The dwindling contribution of UK exports to GDP growth is consistent with recent evidence from the literature which shows that UK firms have already started to pull back from EU-orientated export

strategies, in anticipation of future trade barriers.¹⁴ The relatively weak performance of net exports partly explains the widening of the deficit on the current account of the Balance of Payments in 2018. A large current account deficit leaves the UK economy exposed in the event of a deterioration in international financial markets, a risk highlighted by the Bank of England and the IMF in recent years (Figure 2b).¹⁵

UK domestic demand and its main components are shown in Figure 3a. A slowdown in overall UK domestic demand is clearly evident from late 2017 and has become more pronounced over recent quarters. As illustrated in the chart, the weakness in domestic demand is being driven by a sharp decline in business investment. In contrast, consumer spending has been more resilient, supported by a combination of strong employment growth, a pick-up in wages and low UK inflation. Another development that has helped to sustain UK consumer spending has been credit growth and a fall in the household savings rate. This has declined sharply since the 2016 referendum from 9.4 per cent in 2015 to 4.2 per cent in 2018. While the fall in the savings rate has helped to sustain consumer spending since 2016, the current very low level of household savings diminishes the resilience of consumers to shocks and could result in a decline in consumption in future quarters.

Regarding the fall in business investment, there is evidence that uncertainty over the outcome of the Brexit negotiations is weighing on UK firms' investment spending. As noted by the Bank of England (2019a), the UK decision to leave the EU in 2016 created uncertainty across several dimensions: for example, around what the UK's eventual relationship with the EU will look like and how this will affect UK firms' access to the EU market, the availability of migrant labour and product regulation.¹⁶ There is also uncertainty around how the UK will transition

¹⁴ See Crowley, Meredith, Oliver Exton and Lu Han (2018), "Renegotiation of Trade Agreements and Firm Exporting Decisions: Evidence from the Impact of Brexit on UK Exports," CEPR Discussion Paper 13446 and Douch, Mustapha, Edwards T. Huw and Christian Soegaard (2018), "The Trade Effects of the Brexit Announcement Shock," The Warwick Economics Research Paper Series 1176.

¹⁵ See Bank of England (2018), "Financial Stability Report," November 2018. Available at: <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2018/november-2018.pdf?la=en&hash=A9AE16F96F1F4C01B9ECF1C2B4D902E9472085B3> and IMF (2018), "Article IV Consultation," Available at: <https://www.imf.org/en/Publications/CR/Issues/2018/11/14/United-Kingdom-2018-Article-IV-Consultation-Press-Release-Staff-Report-Staff-Statement-and-46353>

¹⁶ See Bloom, Nicholas, Philip Bunn, Scarlet Chen, Paul Mizen, Pawel Smietanka, Greg Thwaites and Garry Young (2019a), "Brexit and uncertainty: insights from the Decision Maker Panel," Bank of England Staff Working Paper No. 780. Available at: <https://www.bankofengland.co.uk/working-paper/2019/brexit-and-uncertainty-insights-from-the-decision-maker-panel>

to the future new arrangement with the EU and what this will mean for the prospects of individual businesses.

Figure 3a: UK Domestic Demand

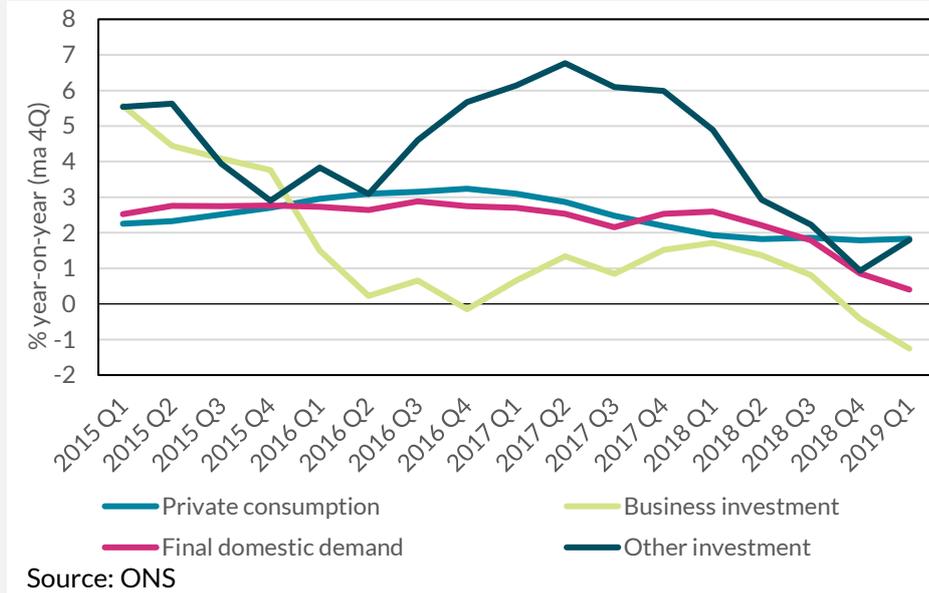
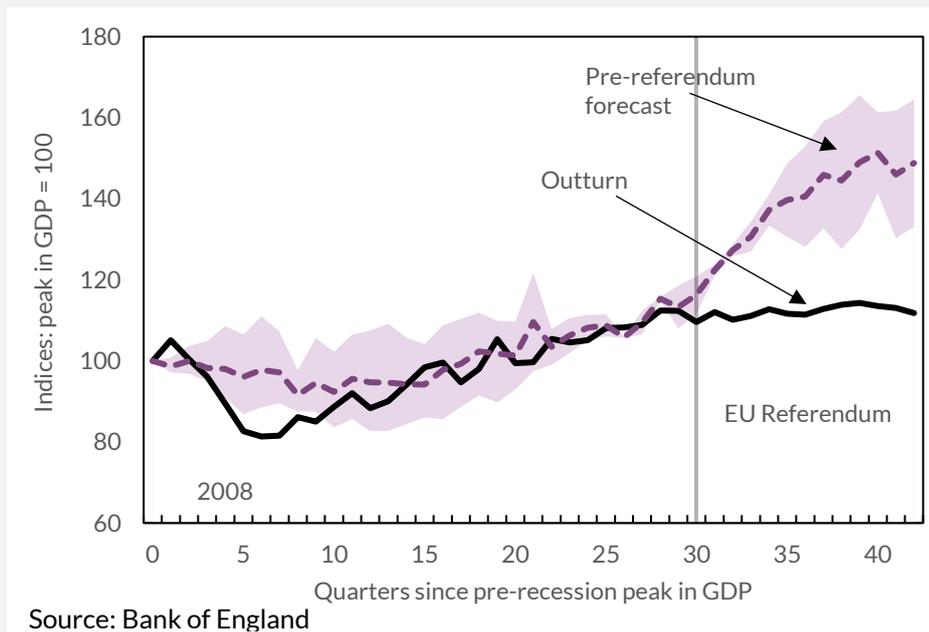


Figure 3b: UK Business Investment



To help better understand the uncertainties created by Brexit and how they have affected UK businesses, the Bank of England launched a new survey (the Decision Maker Panel) in 2016. The results of this survey show that Brexit has provided a major and persistent uncertainty shock for UK businesses. In the two years after the 2016 referendum, Brexit was reported to be one of the top three sources of uncertainty for 40 per cent of UK firms, and this proportion increased further in Autumn 2018.

There is clear evidence that the more uncertain economic environment created by Brexit has contributed to weak business investment. The Bank of England (2019b) has compared the actual performance of UK business investment to the predicted performance prior to the Brexit referendum. The results of this exercise show that UK business investment at the end of 2018 was a cumulative 18 per cent lower than the final forecast prior to the referendum (Figure 3b).¹⁷

Implications for the Irish Economy

Taken together, the range of indicators discussed above provide evidence of a slowdown in UK economic activity since the EU referendum in 2016. In the case of business investment, there is clear-cut evidence that the decline is linked to Brexit-related uncertainty. There is also plausible evidence that some of the deterioration in the UK's trade performance is linked to adverse Brexit-related effects on firms' export strategies. It is difficult to quantify with precision how much lower UK growth has been relative to the outturn that would have been achieved had the UK not voted to leave the EU in 2016. This is because of the multitude of factors that affect the performance of an economy over time. Despite this, a number of studies have attempted to estimate the scale of the loss in UK GDP since the referendum result. Combining the different effects on net exports and domestic demand, one estimate from Centre for European Reform shows that by the end of 2018 the UK economy was 2½ per cent smaller than it would have been had the UK voted to remain in the EU.¹⁸

What can we conclude about the possible implications of these developments for the Irish economy? With 14 per cent of all Irish exports sold to the UK, it is at least possible to say that the more sluggish UK growth will have transmitted to Ireland via lower growth in Irish economic activity, because of reduced UK demand. Although the economy has grown strongly since 2016, it follows that the rate of growth would have been higher had the UK economy not experienced the slowdown evident after the 2016 referendum.

With the available data, it is difficult to identify with certainty particular sectors or areas of economic activity where this negative effect has clearly manifested. Nevertheless, there is suggestive evidence in some

¹⁷ See Bank of England Inflation Report, February 2019. Available at:

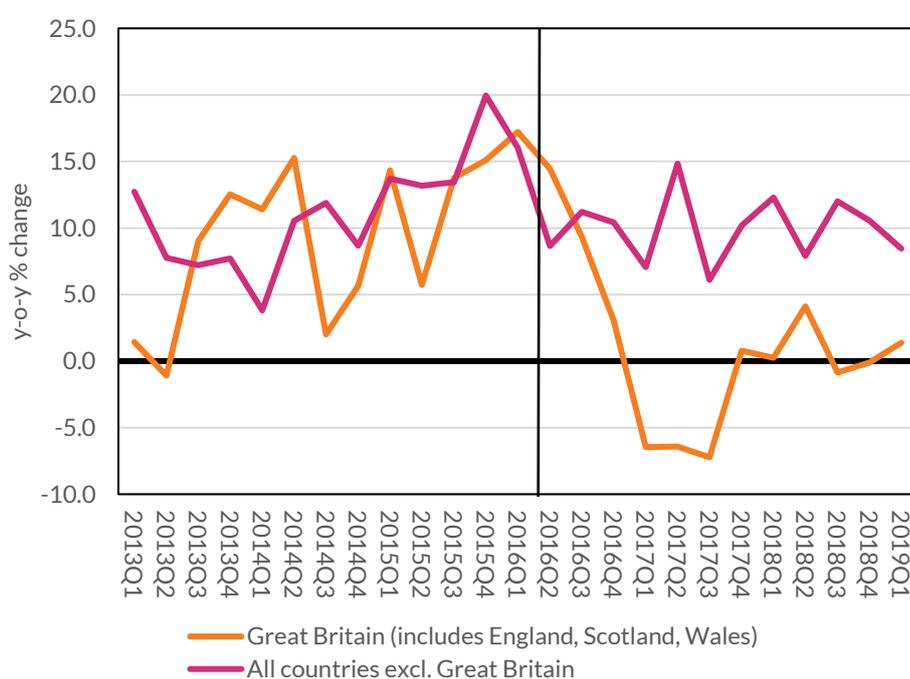
<https://www.bankofengland.co.uk/-/media/boe/files/inflation-report/2019/february/inflation-report-february-2019.pdf?la=en&hash=8487F69ED26692F4697D363A4E47111D1B0503D3>

¹⁸ See Centre for European Reform (2019), "The Cost of Brexit to December 2018: Towards Relative Decline?," Available at:

https://www.cer.eu/sites/default/files/insight_JS_29.3.19.pdf

areas of Brexit-related effects. For instance, looking at the composition of trade, 14 per cent of all Irish goods exports are in the category “machinery and transport equipment”. The total value of these exports in 2018 amounted to €19.9 billion, of which €2.2 billion or 11 per cent went to the UK. The commodities exported in this category include investment goods such as general industrial machinery, office machines and electrical machinery. The sharp slowdown in UK investment since the 2016 referendum is likely to have reduced Irish exports in these sectors. The data provide preliminary evidence consistent with such a development. From 2011-2015, the value of Irish exports of machinery and equipment to the UK grew at an annual average rate of just over 13 per cent; the equivalent figure from 2016-2018 was -6.5 per cent per year. These data on sectoral trade flows with the UK are in value terms and therefore include the impact of exchange rate movements. Eurostat provide some data on Irish trade volumes (by weight) with the UK. These data also point to weaker growth in exports of machinery and equipment since 2016 than observed from 2011 up to the EU referendum.

Figure 4: Overseas Visitors to Ireland from Great Britain and Rest of the World, annual % change



Source: CSO

Another sector where Brexit effects appear to have already materialised is tourism and travel. Great Britain (GB) is a key tourist market for Ireland, accounting for two out of every five visitors to Ireland in 2018. There has been a sharp slowdown in the number of overseas visitors from Great Britain to Ireland since mid 2016. From Q1 2013 until Q2

2016, the number of visits to Ireland by UK residents increased at an annual average rate of just under 10 per cent; the equivalent figure for the period Q3 2016 up to Q1 2019 was -0.2 per cent. The pronounced slowdown in visitor numbers from GB residents from mid 2016 is not evident in the data for other markets. As shown in Figure 4, the total number of trips to Ireland from rest of the world residents (excluding GB) has grown at an annual average rate of just over 10 per cent since Q2 2016, in contrast to the -0.2 per cent figure for visits of UK residents. It is likely that the depreciation of sterling which reduces the purchasing power of UK households has contributed to the weaker growth in UK visitor numbers since 2016.

The agri-food sector is frequently cited as one of the parts of the economy most exposed to Brexit due to the high share of the sector's exports that go to the UK. Looking at the CSO data on exports of Irish agri-food products to the UK since 2016 provides mixed evidence as to the extent of Brexit-related effects. There was a noticeable drop in the value of overall agri-food exports to the UK in 2016 of 6.3 per cent. In the same year, the value of exports to the rest of the world excluding the UK increased by 9.4 per cent. The depreciation of Sterling in the lead up to and following the Brexit referendum is likely to have been a contributory factor.¹⁹ In 2017 and 2018, the value of agri-food exports to the UK increased by 9.2 and 3.1 per cent respectively, pointing to some recovery in trade following the poor performance in 2016.

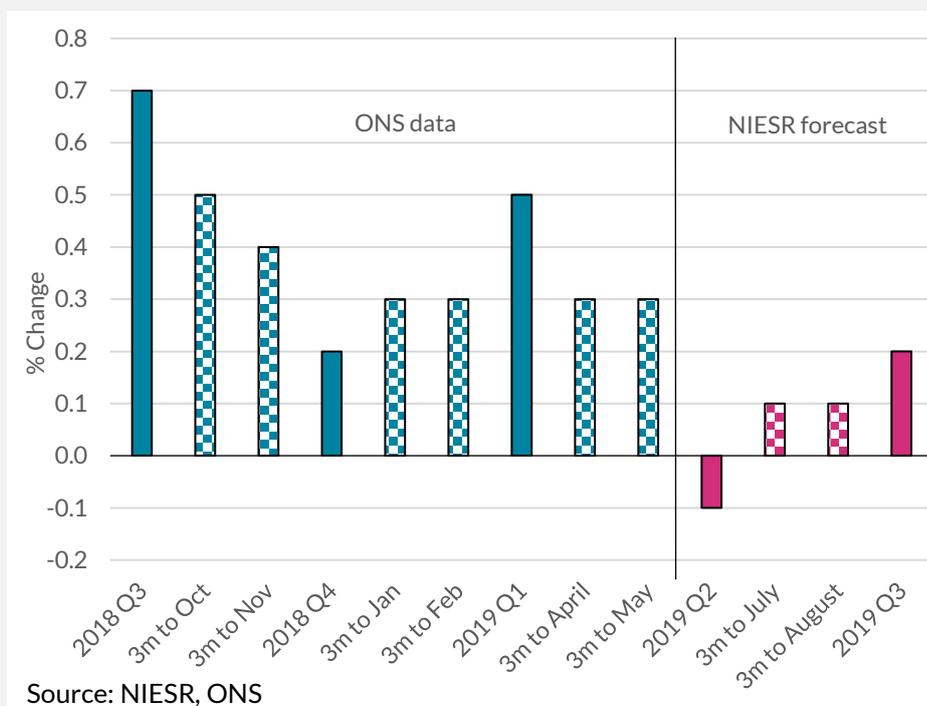
There is also some evidence of Brexit effects in soft data releases for Ireland. Consumer sentiment has weakened since September 2018 and in April 2019 was 16.3 per cent lower than the level a year earlier. Irish consumers' more pessimistic views of both current economic conditions and the outlook may in part reflect concern over the effect of Brexit on their future employment and income prospects. The AIB Purchasing Managers Index (PMI) provides a monthly gauge of activity in the manufacturing and services sectors. The most recent PMI release for June 2019 points to a slowdown in both sectors, continuing a downward trend in evidence since autumn 2018. Within the manufacturing sector, the data on new orders have been particularly weak. Firms who responded to the survey attributed the decline in new business to a deterioration in demand and ongoing Brexit uncertainty. The soft data on sentiment and the PMI releases are sometimes useful leading indicators of consumer spending, investment and export volumes. As a result, it is possible that the subdued trends evident in these measures will be

¹⁹ See Conefrey, T. and Graeme Walsh (2018), "The Macroeconomic Implications of Sterling Depreciation," Quarterly Bulletin No. 2 2018, Box B.

reflected in more sluggish economic growth in the coming quarters, especially if there is an increase in uncertainty in the lead up to the 31 October Brexit deadline.

Looking more broadly, the rate of change in UK imports is an important determinant of the level of demand for Irish exports. The annual average growth in UK imports from Q1 2012 to Q4 2015 was 3.9 per cent; the figure for the period Q1 2016 up to Q3 2018 was almost 1½ percentage points lower at 2.5 per cent. The reduction in UK import growth will have directly reduced the demand for Irish exports across many sectors. Although the declining trend in imports was reversed in Q1 2019, this is likely to have been a temporary surge, linked to the increase in stock building.

Figure 5: UK GDP Growth, 3 month-on-3 month % Change



Lastly, recent economic data for the UK have been particularly weak and point to a pronounced slowdown in activity since the end of the first quarter. The UK ONS publish estimates of monthly GDP. According to the latest data, UK GDP was flat in March and contracted in April by 0.4 per cent. It is likely that the weak outturn reflects a combination of developments, with ongoing Brexit-related uncertainty and global trade tensions acting as a drag on investment spending and growth.

Figure 5 shows the realised outturn for UK GDP growth up to Q1 2019, as well as forecasts for Q2 compiled by the National Institute in the UK based on these data. The latest NIESR estimate indicates that the UK economy is on course to contract by 0.1 per cent in the second quarter of

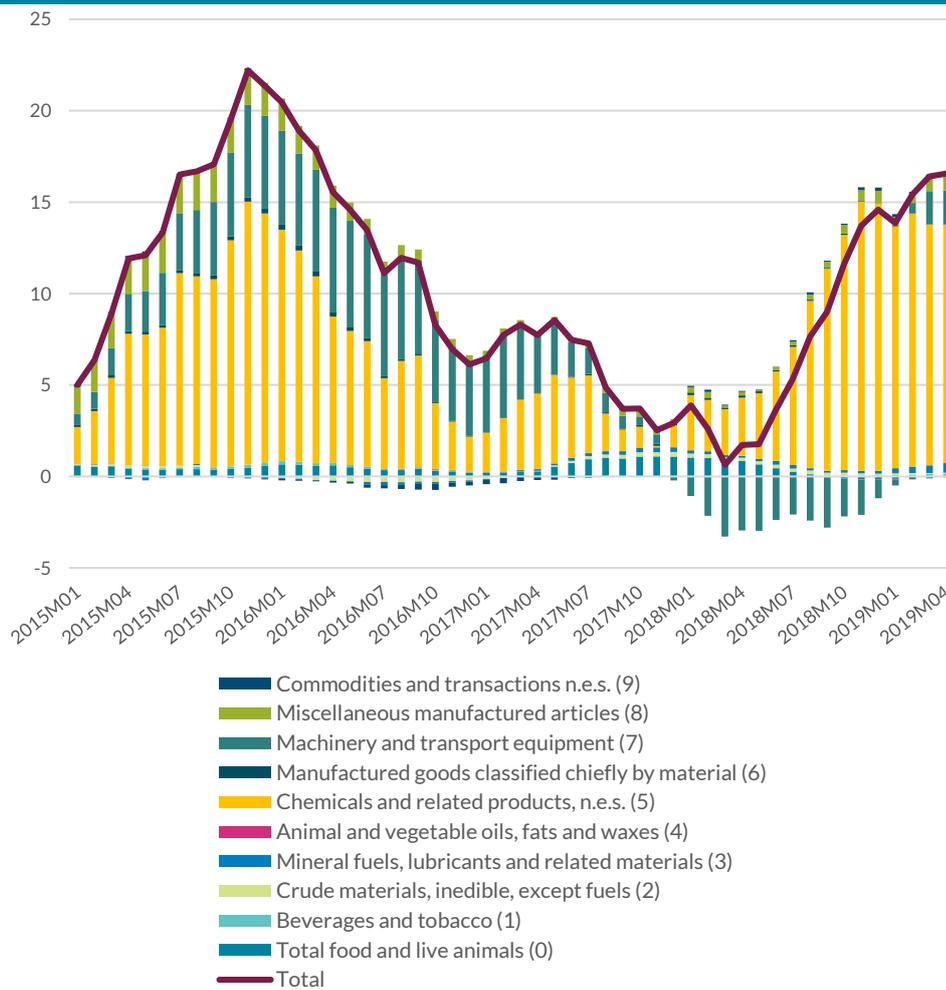
2019, a marked slowdown from the first quarter when growth was boosted by temporary stockbuilding. Although growth is expected to recover somewhat in Q3 2019, at 0.2 per cent, the projected rate of expansion is feeble and well below the rate of growth in recent previous quarters. If the weakness in the UK economy in Q2 materialises and persists into Q3, this would represent a significant deterioration in the external environment and could result in a downgrading in the outlook for the Irish economy in 2019 compared to the projections in the Bulletin.

In conclusion, the research published by the Central Bank and others shows that all versions of Brexit will result in the Irish economy being smaller than it would have been had the UK remained an EU member, with a disorderly no-deal Brexit resulting in the largest loss of output. The analysis presented here indicates that even before Brexit has taken place, the UK decision to leave the EU has had a negative effect on the Irish economy.

Exports and Imports

Examining headline figures, net export performance has been very strong over the last year, despite considerable external headwinds. Total exports increased on an annual basis by 13.8 per cent in the first quarter of 2019, while imports grew by 16.9 per cent over the same period. As a consequence, net exports contributed of 4.0 percentage points to annual GDP growth in the first quarter.

Figure 6: Merchandise Export Growth by Product Category



Source: Unit is annual change in percent. CSO Merchandise Trade Statistics

Note: Contribution to growth in total merchandise exports over a rolling 4-quarter period.

Yet these strong headline growth figures are largely due to exports that are highly concentrated in a limited number of sectors. The surplus on merchandise trade stood at €54 billion in the 12 months to April 2019, compared to €44 billion in the same period in the previous year. While merchandise exports increased by 22 percent in the 12 months to April 2019, this was again heavily dominated by pharmaceuticals (Figure 6)²⁰. The remaining growth in merchandise exports was attributable to the machinery and transport equipment sector, while the contribution other export categories were generally negligible. Contract manufacturing²¹

²⁰ See Quarterly Bulletin 1 2019 Box C: Strong Pharmaceutical Exports Boost Overall Export Growth.

²¹ Contract manufacturing refers to a situation where goods are produced on behalf of a foreign entity, which retains ownership of the inputs to the production until the product is finally sold to the final customer. Due to the concept of economic ownership which prevails

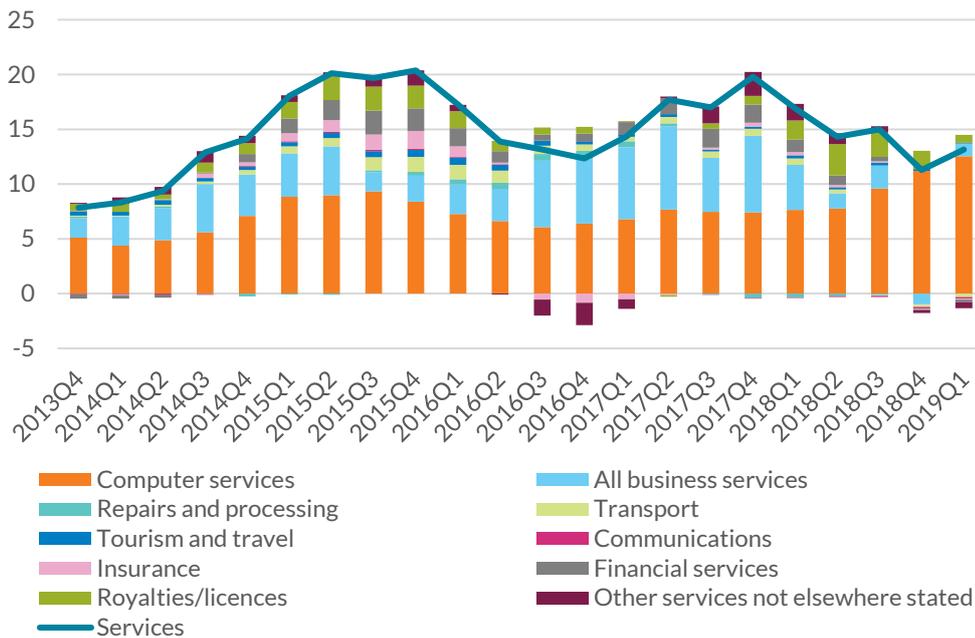
continues to account for a substantial but stable share of total goods exports, representing approximately one-third of total goods exports in the first quarter of 2019.

Looking across Ireland's major trade partners, merchandise exports to the United Kingdom increased by 3.1 percent in the year to the first quarter of 2019. A decline in pharmaceuticals exports was offset by an increase in exports of petroleum products and substantial increase in exports of electrical current relating to the establishment of the Integrated Single Electricity Market in October 2018. While stockbuilding appears to have had a considerable effect on UK imports (see Box D), there is little evidence of an increase in the share of the UK in aggregate Irish export categories. Moreover, any stimulative effect on specific export subsectors is likely to have been temporary, while the risk of substantial durable damage to indigenous Irish firms from a hard Brexit is substantial. Despite signs of an economic slowdown, merchandise exports to the euro area continued to grow strongly, although much of this is attributable to chemicals and pharmaceuticals exports to Belgium, along with the US. Relatedly, merchandise exports to the US also grew by over €7 billion in the 12 months to April 2019. It follows that the increasing share of pharmaceuticals categories is also associated with an increase in the exposure of Irish exports to the US, a destination that accounted for almost 29 percent of the total merchandise exports in 2018.

Merchandise imports continued to grow strongly, by over 13 percent in the 12 months to April 2019, albeit not as rapidly as exports. Much of this was due to imports in the machinery and transport equipment and other transport equipment categories, which increased by over €7 billion and which typically reflect the sizeable aircraft leasing sector located in Ireland. There has also been a decline of €1.5 billion in imports of medicinal and pharmaceutical products in the first four months of 2019 compared to the same period of 2018.

in international standards for National Accounts this can lead to the inclusion of a significant amount of trade in National Accounts which are not included in trade data.

Figure 7: Annual Growth Contributions to Total Services Exports

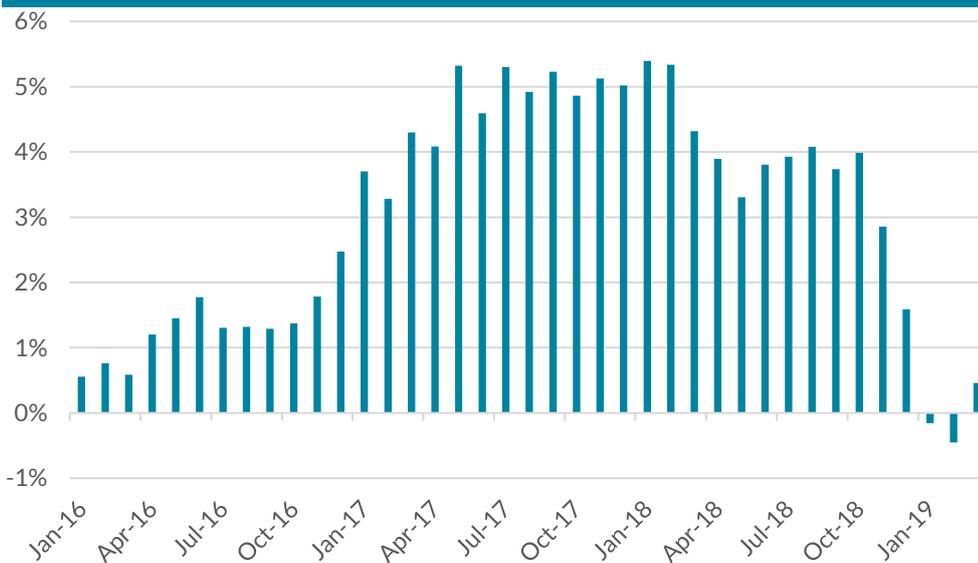


Source: CSO Balance of Payments Statistics

Note: Unit is annual change in percent. Contribution to growth in total services exports over a rolling 4-quarter period.

The growth in total exports was not restricted to merchandise, as services exports also grew by 13.4 percent year-on-year in the first quarter of 2019. Computer services growth has also been strong, increasing by approximately €18 billion in 2018 compared to 2017. Consequently, this category now accounts for approximately half of Ireland's services exports. Business services exports also returned to growth in the second half of 2018 having declined sharply in the first half of 2018.

Annual growth in services imports fell by 5.8 percent in the year to the first quarter of 2019, but this largely reflects the €42 billion surge in imports of *research and development services* observable in revised data for the second quarter of 2017. More recently, services import growth has been supported by increases in research and development and in other business services imports. Imports of research and development services have been closely associated with increased investment, while royalties and licenses imports by the ICT sector remain strong, suggesting that there is potential for further export growth in computer services.

Figure 8: Growth in Global Trade

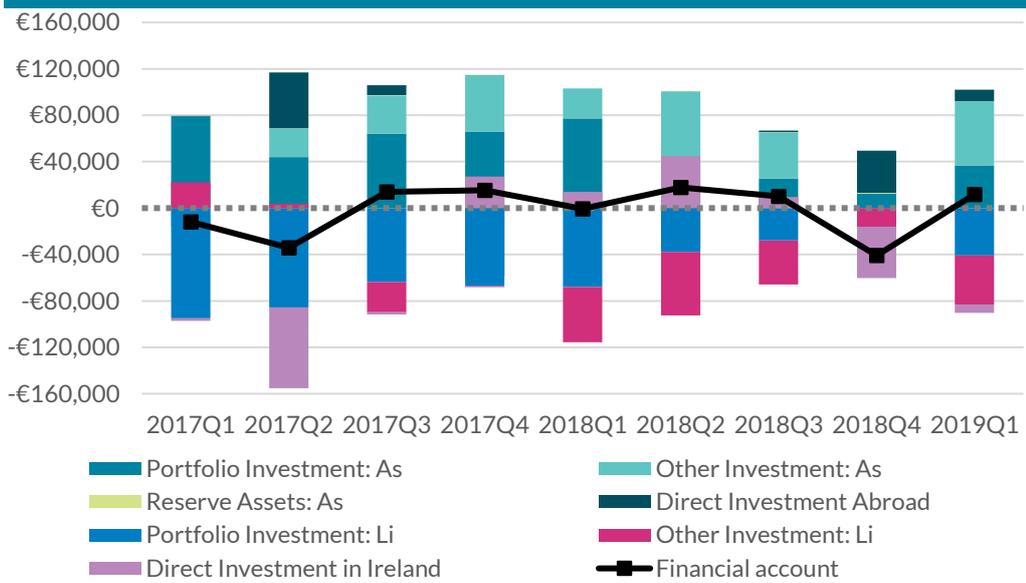
Source: Datastream and CBol calculations.

Note: Yoy growth in 3 month moving average of CPB World Trade Balance Index.

As the very strong headline trade figures observed in the first quarter of 2019 exceeded the previous projections, the forecast for both exports and imports have been revised up. Export growth is now expected to slow compared to the 10.4 percent growth rate observed in 2018, to 5.9 percent in 2019, and 4.5 in 2020. As both export growth and domestic demand are expected to slow, the growth in imports is also expected to decelerate compared to the rapid quarterly growth rates of over 14 percent observed in since the third quarter of 2018. Import growth is forecast to moderate to 6.1 per cent in 2019, and 4.4 per cent in 2020.

Furthermore, these figures need to be considered in the context of the continued deterioration of the external environment, as the global growth outlook is being hampered by considerable trade policy uncertainty, which is already reflected in stalling global trade growth (see Chart Z). Although Ireland's key pharmaceuticals and computer services export categories have exhibited a relatively low sensitivity to global demand to date, the forecast entails a tapering off of recent high growth rates in headline exports as these largely reflect isolated developments limited to a small number of sectors. As such, the forecast figures are based on the assumption that future export growth will decelerate to growth rates more in line with demand for imports from Ireland's main trading partners.

Figure 9: Financial Account of the Balance of Payments



Source: CSO

There are considerable downside risks to this forecast. The figures outlined above assume that a No-Deal Brexit will be avoided and that there will be a transition period until the end of 2020, such that current trading arrangements between the United Kingdom and the European Union will continue to apply. A more adverse Brexit scenario would see the imposition of trade barriers between the EU/Ireland and the UK, which would directly hinder trade between these economies, including goods transiting through the UK on their route between Ireland and the EU. Moreover, the adverse shock to the UK economy from a No-Deal Brexit could result in reduced demand for products exported by Ireland. Neither do the above figures take account of any potential escalation in trade tensions between the US, and either China or the EU. Ireland could be particularly vulnerable to such disruptions to global trade because it is a highly open economy, is deeply embedded in global value chains due to the presence of number US MNEs, and maintains significant direct trade links to the US.

Table 2: Goods and Services Trade

	2017	% change in		2018e	% change in		2019f	% change in		2020f
	€millions	vol	price	€millions	vol	price	€millions	vol	price	€millions
Exports	359,655	10.4	-0.2	396,383	5.9	1.5	426,028	4.5	1.1	450,291
Goods	197,824	13.6	-3.8	216,307	5.9	0.9	231,131	4.5	0.0	241,532
Services	161,831	6.4	4.6	180,077	5.9	2.2	194,897	4.5	2.5	208,759
Imports	294,028	-2.9	1.2	288,993	6.1	1.2	310,340	4.4	1.3	328,286
Goods	88,705	13.7	2.5	103,346	5.9	1.7	111,275	4.4	1.0	117,337
Services	205,323	-10.0	0.5	185,647	6.2	1.0	199,065	4.4	1.5	210,949

Net Trade, Factor Incomes and International Transfers

Ireland maintained a substantial surplus on the current account balance, standing at almost €11 billion in the first quarter of 2019, or over 13 per cent of GDP. This was driven by the trade balance, which measures exports minus imports which was €31 billion in the first quarter of 2019. This was composed of a goods surplus of €32 billion (including contract manufacturing) and a services deficit of €1.2 billion.

The sizeable presence of highly profitable MNEs in Ireland (see Box E) helps to account for the substantial deficit in net income of almost €20 billion in the first quarter of 2019. Investment income payable to foreign investors stood at €44 billion in the first quarter, compared to €24 billion payable to Irish resident investors.

There was a surplus on the financial account balance of almost €12 billion in the first quarter of 2019, following a deficit of €40 billion in fourth quarter of 2018 (Figure 9). The latter was driven by a restoration of gross direct investment inflows into Ireland, following a number of quarters when foreign investors retrenched from their existing direct investment positions in Ireland, likely associated with changes made to US tax legislation in 2018 (see Quarterly Bulletin Q2, Box C). There has also been an increase in other investment liabilities of €42 billion in the first quarter of 2019, an asset category typically dominated by banks.

While the headline external balance figures appear benign, it is important to note that they are likely to considerably overstate the external balance of the underlying domestic economy, as they reflect a number of distortions associated with the highly globalised nature of the economy. The CSO has released the latest iteration of its modified current account balance, which aims to address these issues. While the conventional current account balance recorded a surplus of €34 billion in 2018, the surplus on the

modified current account balance was much less pronounced, standing at approximately €13 billion.

The forecast for 2019 is for the headline current account surplus to decline from 10.5 per cent of GDP recorded in 2018, to 9 per cent of GDP in 2019, and 8 per cent of GDP in 2020. The headline trade balance is expected to be approximately 34 percent of GDP in 2019 and 2020.

Table 3: Balance of Payments 2017 to 2020f

	2017	2018	2019f	2020f
Trade Balance	65,627	107,391	115,689	122,006
<i>Goods</i>	109,119	112,961	120,166	124,069
<i>Services</i>	-43,492	-5,570	-4,478	-2,065
Net Factor Income from the Rest of The World	-61,066	-69,736	-81,112	-89,346
Current International Transfers	-3,106	-3,365	-3,365	-3,365
Balance on Current Account	1,455	34,290	31,211	29,295
(% of GDP)	0.5	10.6	9.0	8.0

Box E: MNEs and Ireland: A Firm Level Analysis

By Lorenz Emter, Peter McQuade & Caroline Mehigan

Foreign-owned multi-national enterprises (MNEs) make a valuable contribution to the Irish economy, supporting economic growth and living standards.²² Almost one quarter of the Irish business workforce are employed by MNEs, well above the EU average of 15%. They account for over half of value added in the business sector, where the comparable EU number is just under a quarter for 2014 (Figure 1).²³ Moreover, these firms also make substantial payments to the exchequer, with 77% of corporate tax receipts coming from this sector and their employees account for 40% of USC and income tax in 2018.²⁴ The value added of the pharma and computer and electronic sectors in manufacturing is almost entirely driven by MNEs. This is also true for corporate tax receipts,

²² For brevity, throughout this note we use MNEs to refer to foreign-owned multinational enterprises.

²³ The business economy includes manufacturing, construction, retail, wholesale, hotels, restaurants, transport, information and communication (ICT), real estate, professional services and leasing services. It does not include agriculture, financial/insurance services or public sectors like health and education.

²⁴ Source: Corporation Tax Payments & Returns 2018, Revenue May 2019.

where MNEs account for the bulk of the ICT and manufacturing sectors. Similarly, the top 20 exporting firms are dominated by firms in the Tech and pharma sectors, as they accounted for 83% of the exports of the top 20 group in 2015 (Figure 2).²⁵ In addition, these firms employ highly skilled people, reflected in the relatively high wages paid by US owned MNEs in Ireland compared to the wages paid by domestic firms (Figure 3).

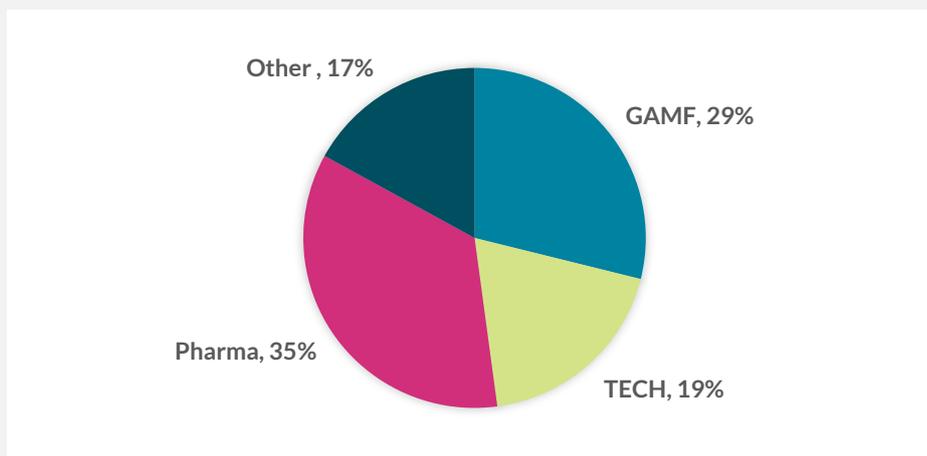
Figure 1: MNE Share of Business Sector Activity



Source: Eurostat, latest available year 2014

Note: Percent of total.

Figure 2: Pharma and Tech Firms Dominate the Top 20 Exporters



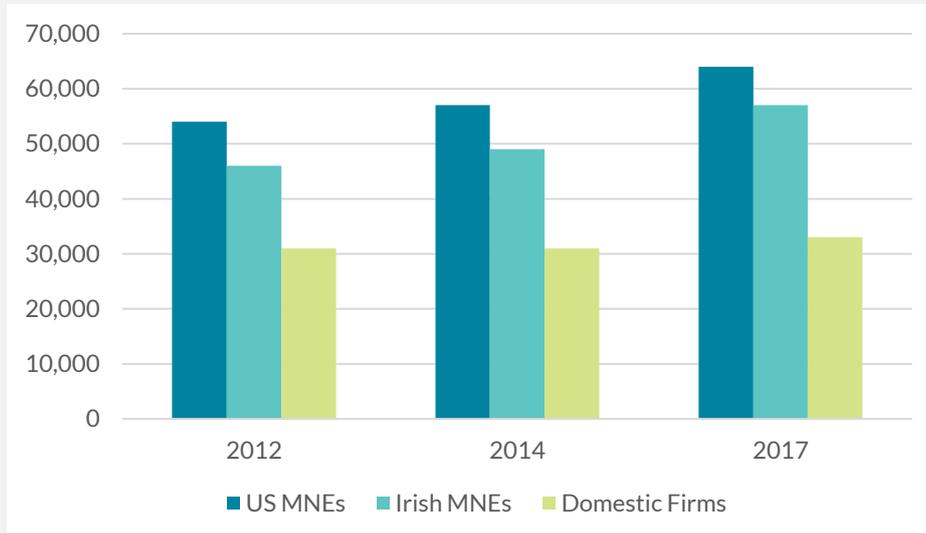
Source: The Irish Exporters Association (2015) “Top 250 Exporters in Ireland and Northern Ireland 2015”.

Note: The firms are: Microsoft Ireland, Google Ireland, Apple Ireland, Facebook Ireland, Dell Products, Oracle EMEA, Intel Ireland, Kingston Technology International, Sandisk International, Medtronic Ireland, Johnson & Johnson in

²⁵ “Top 250 Exporters in Ireland and Northern Ireland 2015”, The Irish Exporters Association (2015).

Ireland, Actavis, Pfizer Global, Boston, Scientific Group, Perrigo Co, MSD Ireland, Ingersoll Rand, Smurfit Kappa Group, Kerry Group, Total Produce.

Figure 3: Average Wages Paid to Irish Employees by US MNEs and Domestic Firms



Source: Foreign Direct Investment in Ireland 2017, CSO.

Note: Average annual wages in euro.

In addition to national and sectoral level data, this box examines firm level indicators to increase understanding of the individual MNEs. MNE level information provides insight into the opportunities and challenges the firms face and a deeper understanding of the sectors in which they operate. In turn, this will help monitor areas of vulnerability and opportunities for the Irish economy more broadly. Monitoring this sector is important given the amount of jobs, tax revenue and value added it creates in Ireland.

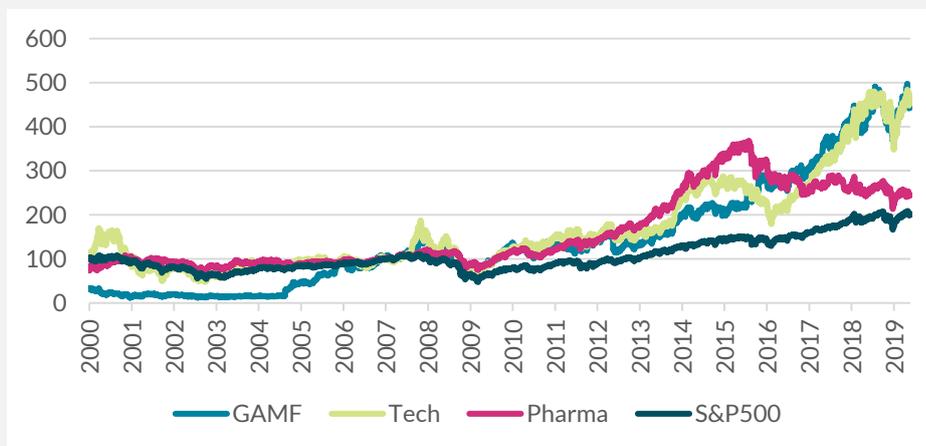
This box takes a closer look at the top MNEs in Ireland, as defined by their exports. We examine what sectors they are in, how their equity and profits have performed, and some characteristics that explain their performance. We divide these exporters as three groups, GAMF (Google, Apple, Microsoft and Facebook), Tech and Pharma. The GAMF group consists of what are often denoted as “superstar firms” that have substantial operations located in Ireland.²⁶ Tech refers to the largest remaining ICT firms operating in Ireland; we make this distinction to highlight the different types of firms engaging in the ICT sector. The tech sector includes some particularly large employers in Ireland, who have

²⁶ The inclusion of Microsoft in the group is consistent with existing research. See: Ayyagari, Meghana, Demircuc-Kunt, Asli, and Maksimovic, Vojislav (2018). “Who are America’s star firms?”, World Bank Policy Research Working Paper WPS8534.

had a longstanding relationship with the country. Pharma refers to those firms engaged in pharmaceutical and life sciences activities, which now accounts for the majority of Ireland's merchandise exports.

First, we consider the equity and profitability of the MNEs. The equity prices of the firms included in each of the three groups has consistently outperformed the S&P 500 over the past decade (Figure 4). The GAMF group in particular has experienced very strong profitability growth over the last decade (Figure 5). For Pharma, there is evidence of a slowdown in profitability and some decline in equity market valuations. When thinking of the resilience of the economy, it is important to consider the future prospects of these MNEs. In this way, in addition to equity prices, growth in forecast earnings for these companies can also be informative. The tech and GAMF groups have a positive outlook for the next 12 months, albeit weakening somewhat in recent months, while the forecast for the Pharma sector is somewhat less positive (Figure 6). The latter may be related to the fact that the Pharma sector also has higher operating expenses compared to the tech sector generally, and particularly the GAMF group (Figure 7).

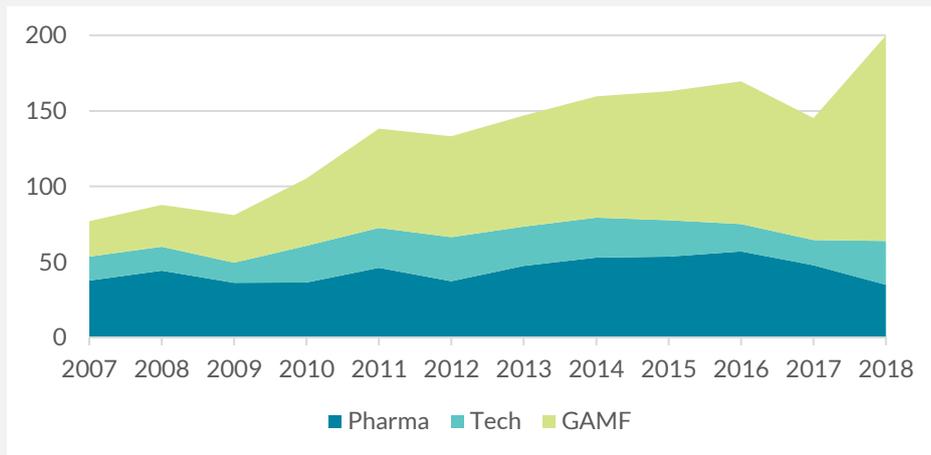
Figure 4: Equity Performance vs S&P 500



Source: Bloomberg

Note: 2007=100, average within group. Based on 24 large MNEs operating in Ireland. GAMF refers to Google, Apple, Microsoft and Facebook. Tech consists of 6 companies: Adobe, Dell, Intel, Oracle, VMware, WesternDigital. Pharma includes 14 companies, namely: AbbottLab, Alexion, Allergan, Baxter, BostonScientific, Gilead, Johnson & Johnson, Mallinckrodt, Medtronic, McKesson, Merck, Perrigo, Pfizer, and Takeda.

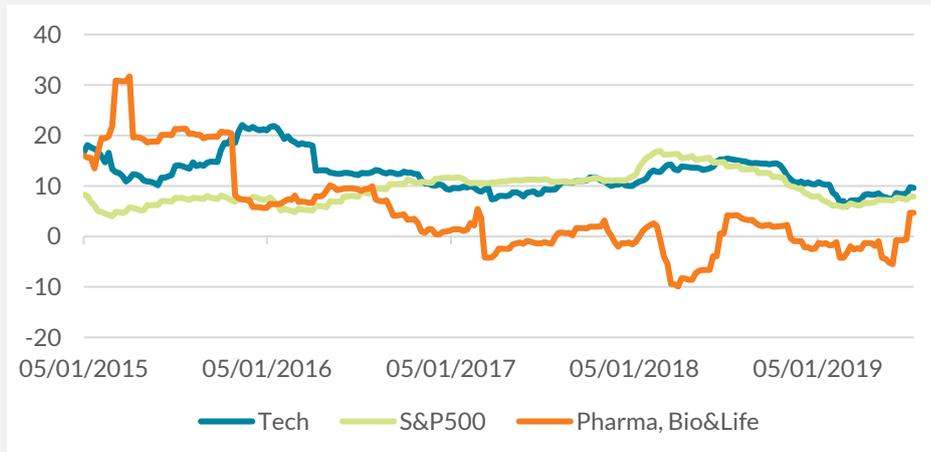
Figure 5: MNE Profits



Source: Bloomberg

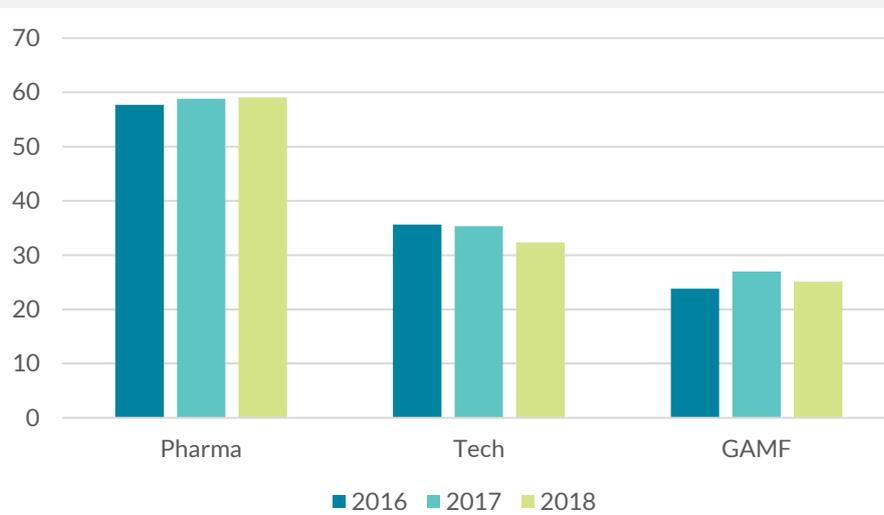
Note: Billions of USD, based on 24 large MNEs operating in Ireland. GAMF refers to Google, Apple, Microsoft and Facebook. Tech consists of 6 companies: Adobe, Dell, Intel, Oracle, VMware, WesternDigital. Pharma includes 14 companies, namely: AbbottLab, Alexion, Allergan, Baxter, BostonScientific, Gilead, Johnson & Johnson, Mallinckrodt, Medtronic, McKesson, Merck, Perrigo, Pfizer, and Takeda.

Figure 6: Forecast Earnings Per Share



Source: Thomson Reuters I/B/E/S

Note: year-on-year growth in 12 months forecast of earnings per share in per cent. Forecasts are subject to uncertainty. Sectoral groups are those defined by I/B/E/S and may include firms other than those referred to in other charts.

Figure 7: Operating Expenses Revenue Ratio

Source: Bloomberg

Note: Based on 24 large MNEs operating in Ireland. GAMF refers to Google, Apple, Microsoft and Facebook. Tech consists of 6 companies: Adobe, Dell, Intel, Oracle, VMware, WesternDigital. Pharma includes 14 companies, namely: AbbottLab, Alexion, Allergan, Baxter, BostonScientific, Gilead, Johnson & Johnson, Mallinckrodt, Medtronic, McKesson, Merck, Perrigo, Pfizer, and Takeda.

While it has performed strongly relative to the S&P 500, the Pharma sector has faced a number of challenges in recent years. According to Deloitte (2018), the return on R&D in the pharma sector has declined from just over 10% in 2010, to barely 2% in 2018, while the cost of bringing an individual product to market has increased from USD 1.2 billion to USD 2.2 billion over the same period.²⁷ This may be because, in order to introduce new drugs, Pharma companies must undertake increasingly complex and expensive R&D activities, as much of the ‘low hanging fruit’ has already been discovered. At the same time, new products are subject to intense regulatory scrutiny. While the aim of the regulations is to ensure the safety and efficacy of medicines, they also increase the cost of introducing new products, reducing firm’s return on investment. At the same time, current revenue streams are threatened by the expiry of existing patents, which exposes highly profitable products to competition from generic drugs and biosimilars.²⁸ Despite

²⁷ Deloitte (2018) “Unlocking R&D productivity: Measuring the return from pharmaceutical innovation 2018.” Deloitte Centre for Healthcare Solutions.

²⁸ The ending of pharmaceutical patents were seen to have had a noticeable impact on Irish national accounts in 2012 and 2013, when a number of blockbuster drugs manufactured in Ireland went off patent. See: Fitzgerald, John (2013) “The Effect on Major National Accounting Aggregates of the Ending of Pharmaceuticals Patents.” ESRI Research Note, Economic and Social Research Institute.

this, industry analysis suggests that the prospects for the sector remain promising, as global healthcare expenditure is expected to rise, with smaller firms and the life sciences expected to outperform some of the large established firms (Deloitte 2019).²⁹

Although the Tech sector in general has performed very well, the performance of the GAMF group has been exceptional. The success of the Tech sector generally can be attributed to its new products and innovations. What separates the GAMF group is the additional network externalities associated with the widespread use of their products. Some research suggests that this has endowed these firms with considerable market-power, such that they can charge higher mark-ups and generate greater profitability than other, smaller firms.³⁰ For the Tech sector generally, the rapid pace of technological innovation constantly creates opportunities for new entrants to disrupt the existing business models of incumbent firms. However, the enormous market valuation and cash holdings of the GAMF companies often gives them the ability to purchase potential new entrants before they become a threat.³¹ Taken together, these factors not only help profitability in the short run, but may also increase their ability to maintain dominant market positions and high profitability into the future. One risk for large firms is that their market power has raised anti-trust concerns which could constrain their ambitions. Concerns around data ownership and data privacy also present a challenge to these firms.

While global capital investment by the MNEs is substantial in absolute terms, their capital expenditure to assets ratio is relatively low. Many of the firms operating in Ireland have a lower (global) tangible capital investment to assets ratio than other S&P 500 firms (Figure 8).³² At the same time, intangible capital is becoming increasingly important for many firms. Since 2014, the book value of the S&P 500 has increased, but this increase has been entirely due to intangible capital as the book value of their tangible capital has actually declined (Figure 9). It is also notable that the intangible share of income is particularly high in the pharma and tech sectors (Figure 10).

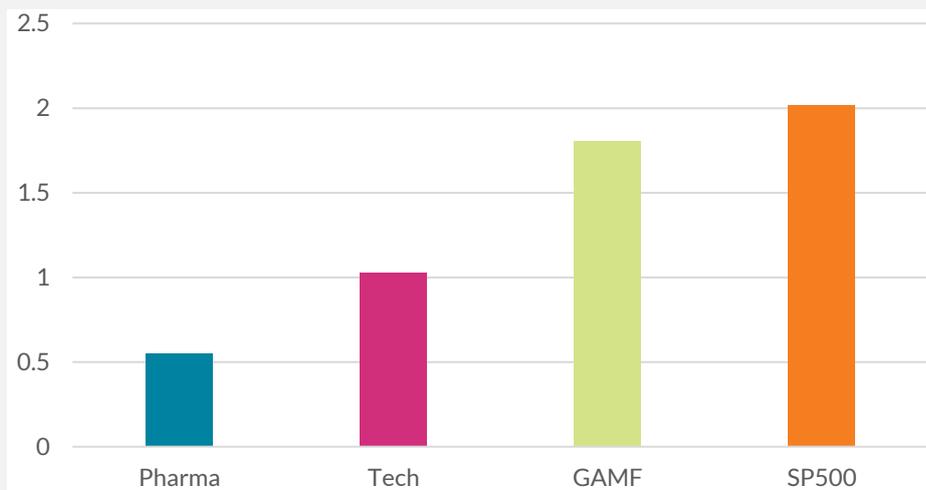
²⁹ Deloitte (2019) "2019 Global life sciences outlook: Focus and transform – Accelerating changes in life sciences." Deloitte.

³⁰ Autor, David H. and Dorn, David and Katz, Lawrence F. and Patterson, Christina and Van Reenen, John, (2017). "The Fall of the Labor Share and the Rise of Superstar Firms". CEPR Discussion Paper, No. DP. 12041.

³¹ See for example, the purchase by Facebook of Instagram in 2012, and Whatsapp in 2014.

³² The low number for Pharma partly reflects the large value of assets held by firms in this sector.

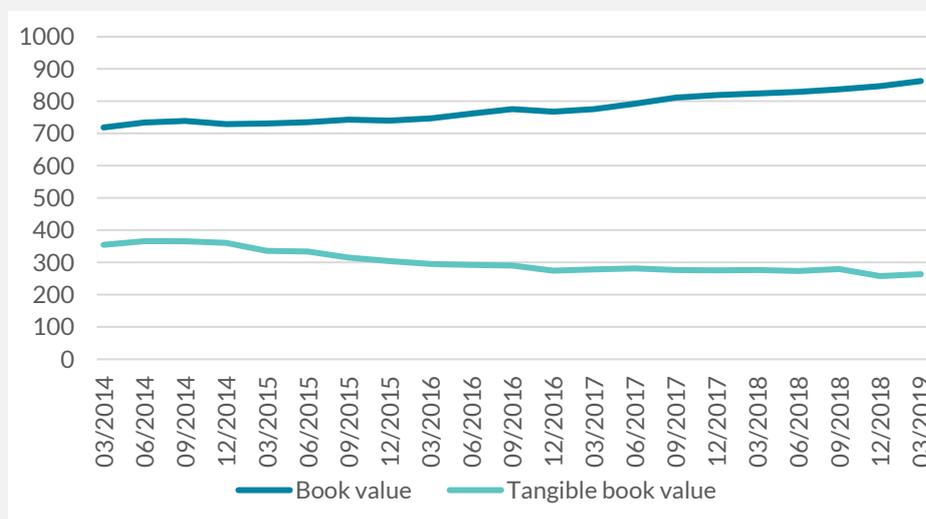
Figure 8: Capital Expenditure to Assets Ratio (Q4 2018)



Source: Bloomberg

Note: Based on 24 large MNEs operating in Ireland. GAMF refers to Google, Apple, Microsoft and Facebook. Tech consists of 6 companies: Adobe, Dell, Intel, Oracle, VMware, WesternDigital. Pharma includes 14 companies, namely: AbbottLab, Alexion, Allergan, Baxter, BostonScientific, Gilead, Johnson & Johnson, Mallinckrodt, Medtronic, McKesson, Merck, Perrido, Pfizer and Takeda.

Figure 9: Book Value and Tangible Book Value Per Share



Source: Bloomberg

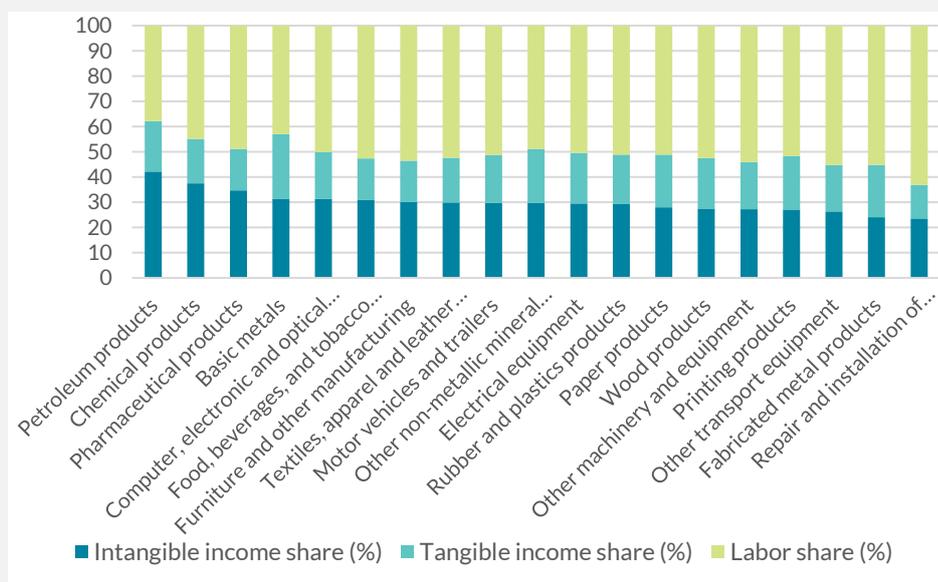
Note: Book value and tangible book value per share of firms on the S&P 500.

The increasing role of intangibles is particularly important for US controlled MNEs in Ireland. Although considerable in absolute terms, US firms have not invested in tangible capital assets in Ireland in proportion to the share of profits and value added reported here. This also reflects the type of value added created in Ireland, with services playing an

increasingly prominent role relative to manufacturing. Similarly, as Ireland has moved up the value chain, MNEs increasingly require highly skilled employees. This is reflected in the relatively high wages paid to employees in US owned MNEs in Ireland compared to those in domestic firms. In addition, foreign MNEs are increasingly taking advantage of tax supports aimed at R&D activity in Ireland, thereby increasing the investment in intangibles generated here.³³

It follows that the highly profitable firms located in Ireland are often more reliant on intellectual property assets than physical capital. However, the more mobile nature of these assets means that their location, and the location of the associated profitability in Ireland, may be especially sensitive to pull factors such as low taxation, a supportive business environment or the availability of skilled workers.

Figure 10: Income Share as a Percentage of Total, by Sector (2014)



Source: Chen et al. (2017)

Note: Percent of Total.

MNEs make a valuable contribution to the Irish economy and hosting these firms creates both opportunities and vulnerabilities for Ireland. These firms have consistently outperformed the S&P 500 and the short-term outlook is positive, particularly for tech firms. Intangible capital is a central driver of profitability, as these firms have relatively low operating expenses and tangible capital expenditure. Although it would be difficult to create the necessary conditions, the presence of these high-tech MNEs could provide Ireland with an opportunity to become established as a global R&D hub. Capturing new R&D activity allows Ireland to

³³ Revenue Commissioners, R+D Tax Credit Statistics.

establish itself higher up the global value chain. This provides scope for further spillovers and trickle-down effects to the domestic economy. However, the importance of mobile intangible assets also implies a vulnerability for Ireland. With less tangible investment anchoring some of these firms, these activities may be less anchored than more physical capital intensive MNEs. Given the relative size of the MNE sector, it is important to build the resilience of the Irish economy to possible shocks to the sector.³⁴

Supply

Quarterly National Accounts for Q1 2019 show that GDP in the quarter was up 6.3 per cent compared with Q1 2018. Ten of the eleven reported sectors expanded, with *Arts, Entertainment, and other Services* showing the only decline (-1.1%). By far the largest growth was in the *Information and Communication* sector, where output rose by 32.3 per cent compared to Q1 last year. *Construction* (9.4%) and *Agriculture, Forestry, and Fishing* (9.1%) also grew strongly. This is particularly significant for the Agricultural sector, as adverse weather had contributed to output declining on a yearly basis in every quarter of 2018.

Total output in the industrial sector of the economy grew by 4.5 per cent in the first five months of 2019 when compared to the same period last year. As this data is affected by a number of large multinational exporters, it is useful to compare some different aggregates within the industrial sector. Production in the modern sector, which contains pharmaceuticals and electronics, is 3.8 per cent higher than in the first five months of 2018, while output in the traditional sector grew by 9.1 per cent. This is a reversal of the trend seen in recent Quarterly Bulletins, where the modern sector had been growing faster.

Turning to forward looking indicators, the manufacturing PMI index fell to 49.8 in June. This is the first time a value below 50 (signalling contraction) has been recorded since mid-2013. The decline in the index was largely driven by the fall in new orders, which fell by 1.2 index points in the month to 47.4. This could be related to businesses expecting that the stockpiling in Q1 will lead to weaker sales in the remainder of the year.

³⁴ Financial Stability Review, Central Bank of Ireland, 2019:1.

Figure 10: Volume of Industrial Production

Source: CSO

The Labour Market

The most recent data from the Labour Force Survey (LFS) showed strong employment growth of 3.7 per cent in the year to the first quarter of 2019. The latest increase of 81,200 persons represents the largest annual rise observed since 2007. On a sectoral basis, annual growth occurred in twelve of the fourteen sectors, with the largest increases evident in transportation and storage (11.5 per cent) and administrative and support services activities (10.5 per cent). Agriculture continued to decline for the fourth consecutive quarter with employment down by 8.4 per cent annually. While the number of individuals in part-time employment has risen by 4.1 per cent over the year, those who work part-time but consider themselves underemployed has declined by 6 per cent annually suggesting an increased level of transition within this cohort to full-time employment. Given the relatively large employment expansion in the first quarter of the year and recent reductions in potential labour market slack as observed in the Non-Employment Index, employment growth for 2019 as a whole is projected to slow to 2.6 per cent, with further moderation to 1.7 per cent in 2020.

The labour force grew by 2.7 per cent year-on-year in the first quarter, marking the largest growth rate observed in the previous ten years. In keeping with recent trends, labour force continues to be heavily influenced by strong demographic contributions, as the flow of inactive persons into employment has increased noticeably in recent quarters. The pool of domestic labour slack is declining and the economy is considered to be close to full employment with further increases in employment likely to depend on increased levels of net inward migration (See Byrne and McIndoe-Calder, 2019). The labour force is expected to grow by 1.5 per

cent in 2019, and a further 1.4 per cent the following year. The labour force participation rate increased by three percentage points to 62.3 over the year, but remains below pre-crisis levels. Developments in the female participation rate have been the dominant factor behind this increase as this cohort continues to move towards previous peak participation rates, with male participation remaining relatively stagnant since 2011.

The seasonally adjusted unemployment rate for the first quarter of 2019 was 5 per cent, down from 5.6 per cent in the previous quarter, largely due to downward revisions by the CSO as a result of methodological changes in the calculation of the monthly unemployment series. The monthly seasonally adjusted figure for June 2019 was 4.5 per cent, compared to 5.9 per cent a year previous. The most notable development in the underlying dynamics has been the decrease in youth unemployment from 14.3 per cent in June 2018 to 10.1 per cent in March 2019. The long-term unemployment rate (i.e. those unemployed for longer than one year) fell to 1.7 per cent in the first quarter of this year compared with 2.1 per cent a year earlier. In light of the above projections for both employment and labour force growth, the unemployment rate is anticipated to decline further over the projection horizon, albeit at a slower pace. Unemployment is estimated to average of 4.7 per cent for this year and 4.5 per cent into 2020.

While the outlook for the baseline scenario remains positive, it is subject to extensive risks relating to Brexit, as a no-deal scenario would result in varying negative effects across employment sectors and regions. The agri-food sector is particularly exposed to UK developments, due to the sizeable level of exports, with the sector also more sensitive to both tariff and non-tariff barriers.

The most recent earnings data from the CSO Earnings Hours and Employment Survey (EHECS) reported an increase in average hourly earnings of 2.3 per cent in the first quarter of 2019 compared with the same quarter in 2018. In terms of sectoral wage changes, the largest increases were recorded in the transportation and storage (7.8 per cent), arts, entertainment, recreation and other services (6.7 per cent), wholesale and retail (7.1 per cent), and administrative and support services (4.7 per cent) sectors. Wage growth was stronger in the private sector, with annual growth of 2.7 per cent compared to 1.3 per cent in public sector.

The overall job vacancy rate has remained flat at 1 per cent over the previous two years as relatively larger vacancy rates remain evident in the multi-national dominated sectors.

Compensation per employee is projected to grow by 3.7 per cent in 2019 and by 4.1 per cent in 2020. Declining labour market slack has the potential

to add to future wage pressures, which can affect Irish international competitiveness through increased labour costs as wages continue to grow at a faster rate than inflation. Despite a low inflation environment, wage pressures may emerge as firms compete in order to attract qualified staff from both domestic and international markets.

Table 4: Employment, Labour Force and Unemployment 2017 to 2020f

	2017	2018	2019f	2020f
Agriculture	110	107	106	105
Industry (including construction)	412	425	437	443
Services	1,672	1,730	1,773	1,806
	2,194	2,262	2,316	2,355
Total Employment	2.9	3.1	2.4	1.7
Employment Growth (%)	2,352	2,395	2,431	2,465
	1.1	1.9	1.5	1.4
Labour Force	158	133	115	110
Labour Force (%)	6.7	5.6	4.7	4.5
Unemployment	110	107	106	105
Unemployment Rate (%)	412	425	437	443

Inflation

Prices

Despite the strength in domestic demand, inflation remains relatively muted. HICP inflation registered an increase of 1.1 per cent in January to June 2019 period compared to the same period the previous year. Core inflation (excluding energy) registered an increase of 0.9 per cent over the same period. The negative trend in goods prices continued, with prices declining by 0.4 per cent. Food prices increased by 0.6 per cent and industrial goods prices continued to fall, declining by 2.6 per cent. More reflective of strong growth in domestic demand and significant increases in rents, services prices increased by 2.4 per cent.

Figure 11 provides some more granular detail for the year to date. On the back of increases in the price of oil, gas and electricity prices increased by 10.2 and 4.1 per cent for the January to June 2019 period compared to the same period in 2018. Prices in hotels and restaurants increased on the back of the increase in VAT for the sector in Budget 2019. The HICP rent index increased by 5.5 percent on average for the same period and is now almost 28 per cent higher point in the early 2000s. Prices for clothing and footwear, furnishings, transport and communications declined for the same

period although as mentioned in previous Bulletins, some of these declines may reflect the impact of quality adjustment mechanisms.³⁵

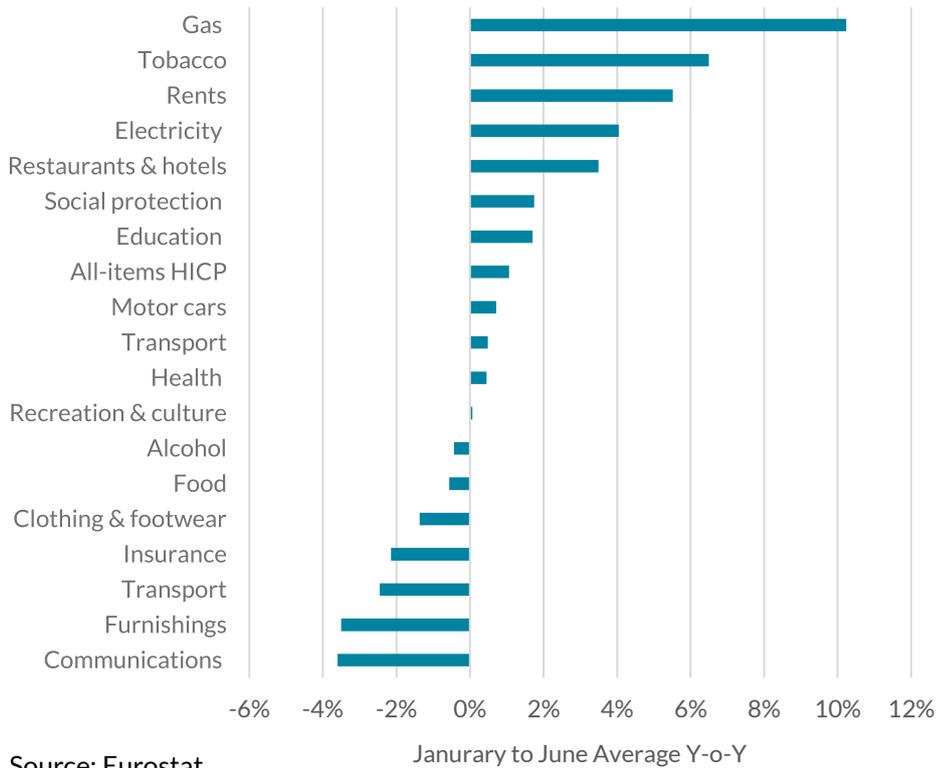
Lower import costs have been a major factor behind the weakness in goods prices, as the euro's strength against sterling weighed on the price of goods with a high import content (Figure 11). Recent strength in the euro against sterling is therefore likely to exert renewed downward pressure on consumer prices. An adverse Brexit scenario could result in significant sterling depreciation, with associated downward pressure on import prices on goods coming from the UK. However, any tariffs or increased transaction and administrative costs could result in some countervailing upward pressure on consumer prices. Euro weakness vis-à-vis the dollar likely exerted less upward pressure on consumer prices as less of our consumer goods are imported from the US, although some clothing, cosmetics and recreational products may be affected.

International oil prices are an important, volatile and often difficult to predict component of Irish inflation. Brent crude prices started the year at a low of approximately \$50 per barrel but increased steadily throughout the year before declining again in May and June 2019. This increase passed quickly through to electricity and gas prices in the first half of 2019. Energy prices for June declined by 0.7 per cent compared to the previous month reflecting the more recent declines in international oil prices. Financial market expectations of future prices are slightly lower than those in the last Bulletin albeit subject to a greater degree of uncertainty given recent geopolitical tensions. The pass-through to energy prices means our assumption for the energy price component is lower for 2020 compared to the previous Bulletin. Domestically generated inflation is also conditional on the pace of wage growth. With wage growth projected to pick up over the forecast horizon, it is expected that services inflation will continue to rise over the horizon.

Conditional on the market-implied path for oil prices, exchange rates as well as the Bank's own projections for growth in real activity, inflation is projected to remain relatively subdued this year and next. Current assumptions point to a forecast of 1 and 1.2 per cent for HICP inflation in 2019 and 2020. (see Table 5). Goods prices are projected to decline by -0.9 and -1.1 per cent in 2019 and 2020, respectively. Services prices, meanwhile, are projected to rise by 2.8 and 3.3 per cent over the same period; these are upward revisions compared with the projections contained in the previous Bulletin.

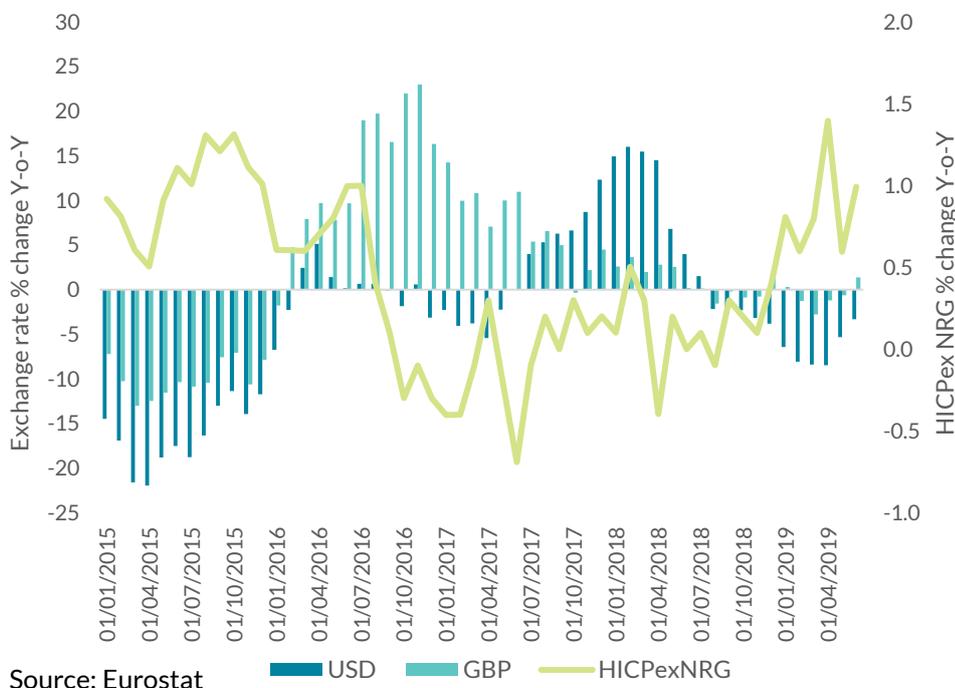
³⁵ See Box E *Why Are Prices For Some Consumer Goods Falling in Ireland*, QB 3 2018

Figure 11: Consumer Prices by Commodity



Source: Eurostat

Figure 12: Irish Inflation and Exchange Rate Changes



Source: Eurostat

Table 5: Inflation Measures – Annual Averages, 2017 to 2020f

Measure	HICP	HICP excluding Energy	Services ^a	Goods ^a	CPI
2017	0.3	-0.1	2.5	-2.1	0.3
2018	0.7	0.1	1.7	-0.3	0.5
2019 ^f	1.0	1.1	2.8	-0.9	1.0
2020 ^f	1.2	1.4	3.3	-1.1	1.1

Residential Property³⁶

Latest data from the CSO's Residential Property Price Index in May 2019 shows a national annual increase of 2.8 per cent, down significantly from 12.4 per cent in the 12 months to May 2018. The annual rate of price growth has been slowing every month since May 2018, and is currently at its lowest level in almost six years. The disparity in house price inflation between Dublin and non-Dublin regions remains evident, with the former growing at 0.6 per cent and the latter at 5.1 per cent. Indeed, growth in house prices outside of Dublin have outpaced growth rates in Dublin since February 2018. The Border region experienced the largest increase, with prices rising by 15.2 per cent in the 12 months to June 2019. Overall, the national index is 18.2 per cent lower than its 2007 peak, with property prices in Dublin and the rest of Ireland 21.9 per cent and 21.8 per cent, respectively below their 2007 peaks.

Turning to housing supply, latest data from the CSO show that new dwelling completions totalled 4,275 in Q1 2019, increasing by 23 per cent since Q1 2018. These figures are broadly in line with the total number of new residential property purchases recorded by the Residential Property Price Register – an annual increase of 18 per cent in 2018.

According to the Daft.ie rental report for Q1 2019, average annual rents increased by 8.3 per cent in Q1 2019, down from 11.5 per cent in Q1 2018. On an annual basis, rental prices in Dublin grew by 6.8 per cent in Q1 2018. This is lower than other major cities such as Cork, Galway, Limerick and Waterford where double digit growth rates were recorded, over the same period. Despite a modest moderation in rents, reduced availability of rented accommodation was recorded across all regions, with the largest reduction in stock registered in Munster – a 20 per cent year on year reduction in available properties. Taking a longer-term view, nationwide

³⁶ The Bank's [Financial Stability Review](#) for H1 2019 provides a more detailed review of residential and commercial property prices.

rents are now 84 per cent higher than their 2011 trough and some 33 per cent above their peak in 2008.

Commercial Property

The latest data from the MSCI/IPD database show that the pace of growth in commercial property values continued to moderate in Q1 2019 - overall commercial property values increased by 2.8 per cent year on year.

Industrial and office values grew by 5.5 and 3.2 per cent, respectively in Q1 2019. Over the same period, retail capital values rose by 0.4 per cent. While commercial property values recovered strongly with double digit growth figures through 2014 and 2015, the overall MSCI/IPD index remains 40% below its 2008 peak.

The Public Finances

Overview

The latest Government Finance Statistics reported a balanced general government position in 2018. This was an improvement from the 0.5 per cent of GNI* deficit recorded in 2017, and the first year not in deficit since 2007. Concerning the fiscal rules, the European Commission's assessment in June this year points to some deviation from the rules in 2018, as government spending exceeded the applicable expenditure benchmark and the structural balance deteriorated. The Commission's assessment for 2019, based on the Government's Stability Programme Update released in April, anticipates overall compliance with the fiscal rules for this year. In the case of public debt, the general government debt-to-GNI* ratio continued its improving trend last year, declining to 104 per cent from 109 per cent in 2017. As a percentage of GDP, the debt ratio declined to 64 per cent in 2018. The debt ratios, both as a percentage of GNI* and GDP, have declined rapidly in recent years, although it should be stressed that the GNI* ratio and nominal outstanding debt remains at an elevated level. Ireland is subject to the debt reduction benchmark this year, which will require sufficient annual progress to bring the debt ratio below 60 per cent of GDP.

Exchequer Returns

The Exchequer ran a smaller deficit in the first six months of the year compared to the same period last year. Excluding transactions that do not have an impact on the general government balance, the Exchequer ran a deficit of €2.6 billion in the year to June, compared to a deficit of €3.2 billion last year.³⁷ This outturn was more than €500 million better than expected mainly due to lower than anticipated government expenditure.

³⁷ The Government reports this figure – the Exchequer balance excluding transactions with no general government impact – in its Analytical Exchequer Statement, to provide a closer approximation to the general government balance (GGB). Given the importance of the

Total government revenue grew by 6.7 per cent in the first six months of the year and was some €80 million above the profile underpinning the Budget. This reflected positive developments in non-tax revenues that more than compensated for the slight underperformance in total tax revenues. Corporation tax, a key driver of revenue over-performance in recent years, was marginally below profile in the first half of this year, as were VAT and income taxes. However, all of the major tax heads were higher than in the same period last year, with excise duties in particular growing at a strong pace of 18.2 per cent year-on-year. The evolution of the other revenue components was broadly as expected, with the Central Bank surplus income coming in somewhat above profile.

Government expenditure, by comparison, was somewhat lower at the halfway point of the year than forecast. However, spending was 4.6 per cent higher in annual terms, with increases in both current and capital spending (up 4.9 per cent and 17.8 per cent respectively), led in nominal terms by developments in health, education and housing. On the other hand, interest payments decreased year-on-year by 4.1 per cent. Expenditure in all three broad categories was below expectations in the first half of this year. The overall Exchequer position at the mid-point of the year suggests the Government is on target to achieve the projections it made at Budget time.

Funding and Other Developments

The State's funding requirements for 2019 are broadly similar to last year, with €15 billion of bonds set to mature over the course of the year and an Exchequer deficit of just over €2.0 billion projected in June's Summer Economic Statement. Against this backdrop, the National Treasury Management Agency (NTMA) set an issuance target of €14 to €18 billion for 2019 and had already successfully issued more than €11.25 billion of benchmark bonds in the first seven months of the year. Recent months also saw a further €1.0 billion of floating rate treasury bonds cancelled. As a result, €15 billion of these long-dated bonds – issued in connection with the liquidation of Irish Bank Resolution Corporation – have now been cancelled, with €10 billion still outstanding.

general government measure from an international and fiscal governance perspective, the Figures in the remainder of this section are reported on this basis. In other words, they exclude transactions that do not affect the GGB.

Box F: Credit Developments in the Irish Economy

By Statistics Division

Deleveraging continues to slow, as on aggregate households are increasing their holdings of assets in deposit accounts rather than paying off liabilities. This increased investment of wealth by households is primarily manifesting itself through bank deposits, rather than with state savings accounts, a trend contrary to behaviour seen during the financial crisis. A similar trend exists for non-financial corporation (NFC) deposits, resulting in household and NFC bank deposits both now standing at all-time series highs.

The types of bank deposit accounts being favoured is also changing, with overnight accounts increasingly being chosen as the destination for deposits, instead of those with withdrawal restrictions or agreed maturities. Increased deposits could indicate a growing preference for liquid buffers. Also, against the backdrop of low interest rates, the move into overnight accounts is understandable given the lack of incentive to lock into longer-term account types. The observed deposit trends could also suggest households and NFCs are lacking options for generating positive returns on their holdings of wealth.

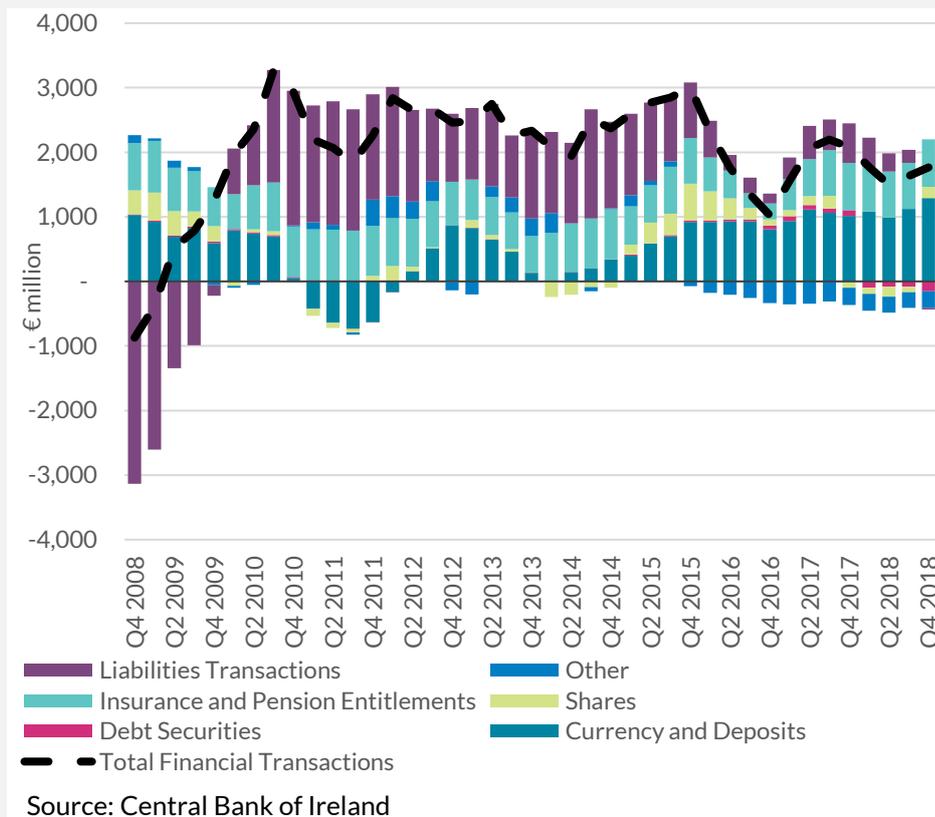
Net lending for house purchase remains subdued, but continues to move from a negative towards a balanced position, even when loans securitised and serviced by banks are considered. Consumer lending meanwhile continues to expand, with the 12-month rolling net lending figure now higher than it has been in almost two years. NFC lending has also seen growth, though this seems to be focused among larger enterprises as weakness in SME lending has become visible in recent quarters.

Lending and deposits

Active deleveraging by households has been a consistent feature of the Irish economy for the last nine years, but the latest data suggest that this process is ending (Figure 1). The Quarterly Financial Accounts³⁸ gives the most comprehensive overview of credit to the household sector, and shows that the incurrence of liabilities by households in Q4 2018 exceeded repayments for the first time since Q4 2009³⁹.

³⁸ <https://www.centralbank.ie/statistics/data-and-analysis/financial-accounts>

³⁹ Transactions are measured on the basis of a four-quarter moving average.

Figure 1: Household Transactions in Financial Assets

The reduction in deleveraging can also be seen in the bank lending data. Bank lending to households for house purchase, including their securitised and serviced mortgages, has been in constant decline in recent years, though this is reducing. For instance, net lending fell by €4.3 billion four years ago, but the decrease in the last 12 months was just €815 million. Increased house purchase lending would be likely to support consumption spending in the economy via the associated increase in the purchase of consumer durables, as discussed previously in this chapter. Consumption is also already being supported directly by increasing amounts of household consumption lending by banks. The €680 million net lending for consumption over the previous 12 months is the most seen in a 12-month period since 2017.

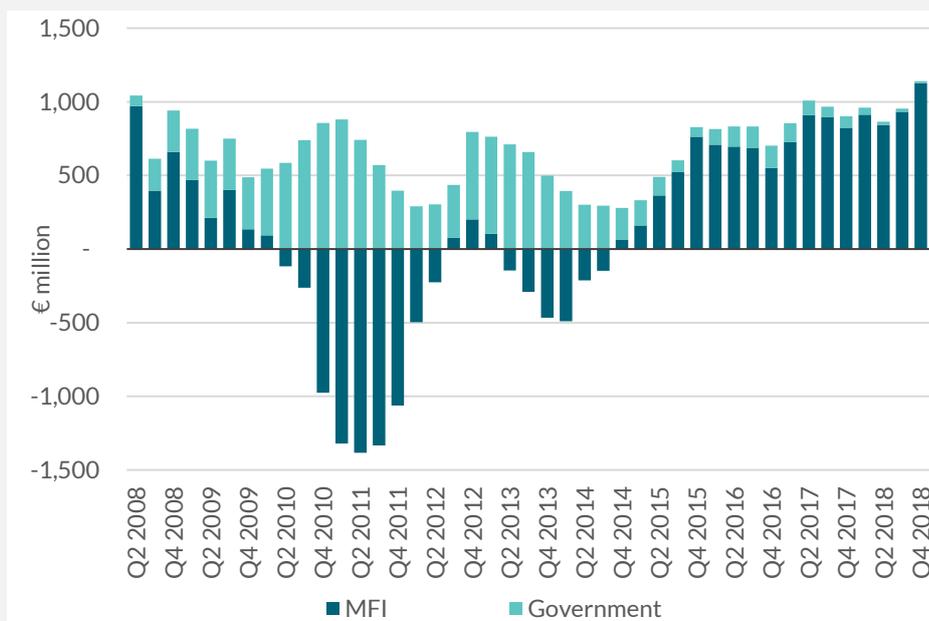
Active deleveraging has reduced the stock of household liabilities by an accumulated €36.6 billion since 2009, and has contributed to the decline in the ratio of household debt to disposable income from a high of 211 per cent in Q4 2009 to 123.5 per cent in Q4 2018. However, the rate at which households have been reducing their liabilities has been in decline since 2015. To an extent, deleveraging has been replaced by increased investment in financial assets, particularly the accumulation of deposits.

Since the beginning of 2015, households have added €14.8 billion in net deposit holdings.

The increase in deposit holdings has coincided with improving household sentiment towards saving, as recorded by the survey-based Bank of Ireland/ESRI Savings Index, particularly from 2017 onwards⁴⁰. This reflects both improved perceptions of the savings environment and respondents' own attitude towards savings.

It is also noteworthy that the destination of household deposits has changed markedly in the past five years. Whereas in the period between 2010 and 2014 a strong movement could be seen away from MFI deposits, and into state savings accounts, the recent large increase in deposits has been almost exclusively focused in bank deposit accounts (Figure 2).

Figure 2: Households Deposit Transactions with MFIs and Government

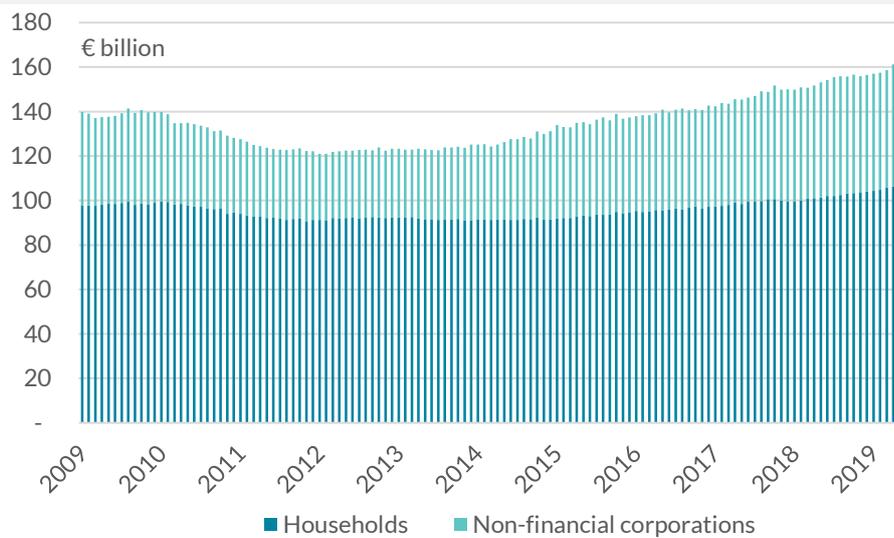


Source: Central Bank of Ireland

As well as the aforementioned investment by households, there has also been significant deposit inflows coming from Irish NFCs. Indeed, NFC bank deposit holdings have grown by over €17 billion since the beginning of 2016, with no sign of this growth abating in recent periods.

Outstanding levels of household and NFC bank deposits are now at all-time recorded highs (Figure 3).

⁴⁰ Source: The Bank of Ireland/ESRI Savings and Investment Index, April 2019

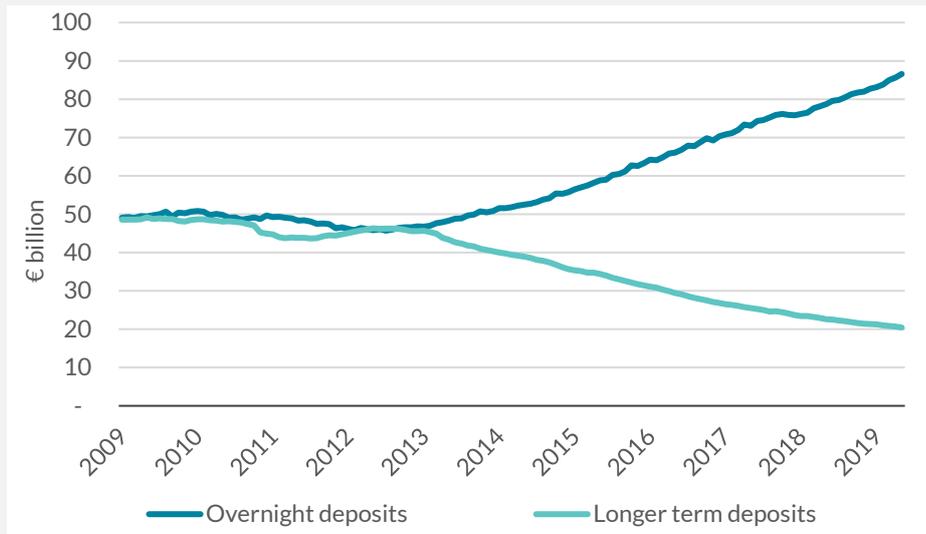
Figure 3: Outstanding Stock of Irish Household and NFC Bank Deposits

Source: Central Bank of Ireland

This comes at a time when bank lending to NFCs is beginning to strengthen, perhaps indicating that NFCs are not being required to turn to their deposits for working capital or investment funding. Despite the growth seen in NFC lending to Irish residents, SME lending has shown signs of weakness at the start of 2019. Net lending, though still negative, had been moving closer to zero in recent years, though this trend began to reverse in Q4 2018 and Q1 2019. Increases in gross new lending had been responsible for the strengthening of net lending, but this showed a decline in these last two quarters versus the previous year. This is the first two consecutive quarters of year on year decline since the beginning of 2014.

As well as there being a significant increase in bank deposit holdings, the composition of these deposits has also changed significantly. Whereas previously Irish households and NFCs tended to hold term and overnight deposits in roughly equal measure, the recent large increase in deposits has been entirely driven by movements into overnight deposits (Figures 4 & 5). In fact, as overall deposits have increased significantly, holdings of term deposits or deposits with restrictions or delays in accessing funds have actually fallen. The increase in funds moving into overnight deposits has more than compensated for this decline however.

Figure 4: Irish Resident Household Deposits



Source: Central Bank of Ireland

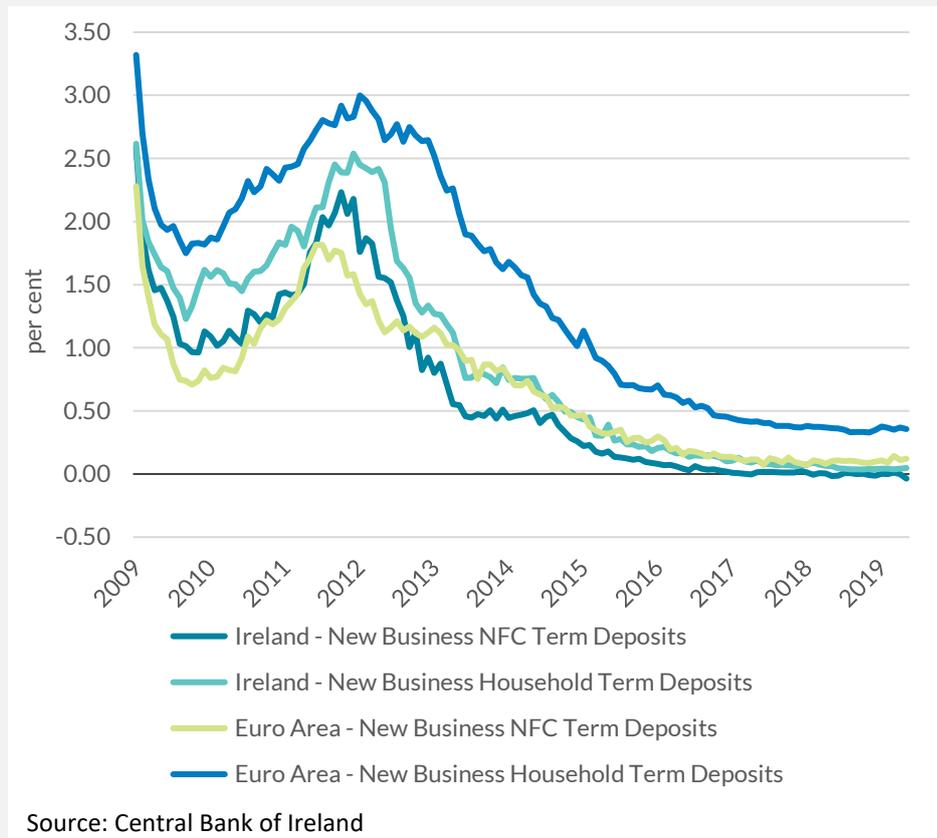
Figure 5: Irish Resident NFC Deposits



Source: Central Bank of Ireland

This could be interpreted as a preference being expressed for liquidity over earning a marginal return on holdings, or as an increased desire for precautionary savings. This is reasonable behaviour given the fact that returns on household and NFC term deposits have fallen to almost zero, with rates in Ireland for both business and household term deposits falling below euro area averages (Figure 6).

Figure 6: Interest Rates on Household & NFC Term Deposits



Overview of Financial Developments in the Irish Economy

The Overview of Financial Developments Chapter presents a summary of the latest financial trends in Ireland. The Financial Statistics Summary Table and accompanying graphs provide key insights for understanding important trends, utilising the latest data for the household sector, small and medium sized enterprises, the financial sector and the public finances. Links to the relevant source data are provided below each chart.



Financial Statistics Summary Table

	2016	2017	2018	2019
Lending - Outstanding, € billion				
Irish Households for House purchase	73.5	74.8	76.1	74.3**
	-1.3%	0.0%	1.40%	1.7%**
Irish Households for Consumer and Other credit	14.7	15.1	15.3	15.4**
	0.4%	2.1%	0.20%	3.4%**
Irish Non-Financial Corporates	42.3	41.3	40.9	40.9**
	-3.3%	-0.6%	1.70%	5.1%**
Irish resident Small and Medium Sized Enterprises	28.3	26.4	23.4	22.1*
	-8.2%	-4.0%	-3.80%	-4.1%*
Irish Private Sector ¹	147.5	148.4	150.0	148.2**
	-2.5%	0.7%	1.00%	2.3%**
Deposits - Outstanding, € billion				
Irish Households	97.1	99.5	104.0	107**
	2.3%	3.4%	4.5%	5.60%**
Irish Non-Financial Corporates	45.6	50.5	52.4	56.8**
	9.0%	9.8%	3.4%	9.4%**
Irish Resident Private-Sector Enterprises	89.3	93.2	95.7	97.5*
	0.7%	6.3%	2.1%	4.8%*
New Business Interest Rates, %				
Lending for House purchase ²	3.5	3.3	3	3.0**
Non-Financial Corporate Lending	2.6	2.6	2.3	2.3**
Irish Small and Medium Sized Enterprises Lending	4.1	4.0	4	4.1**
Household Term Deposits	0.2	0.1	0.3	0.3***
Households - € billion				
Household Debt to Disposable Income	144.7%	133.2%	123.50%	-
Household Net Worth	653.9	726.3	760.7	-
Financial Sector Assets - Outstanding, € billion				
Credit Institutions	590.3	552.1	599.8	635.2**
Investment Funds	1,938.4	2,241.8	2,327.8	2586.1*
Money Market Funds	485.2	500.6	502.1	502.67**
Special Purpose Entities	740.1	731.8	726.8	761.6*
Insurance Corporations ³	301.1	311.8	304.9	314*
Securities - € billion				
Securities Held by Irish Residents ⁴	2,496.6	2,768.2	2,850	-
Government Bond Debt	121.6	126.9	131.2	139.3**
Debt Securities Issued by Irish Residents ⁵	731.9	719.7	687.9	717.1***

¹ Includes lending to households, Non-Financial Corporates, Insurance Corporations and Pension Funds, and Other Financial Intermediaries

⁵Debt Securities: all currencies

*Ref. Q1 2019

²Ex. Renegotiations

**Ref. May 2019

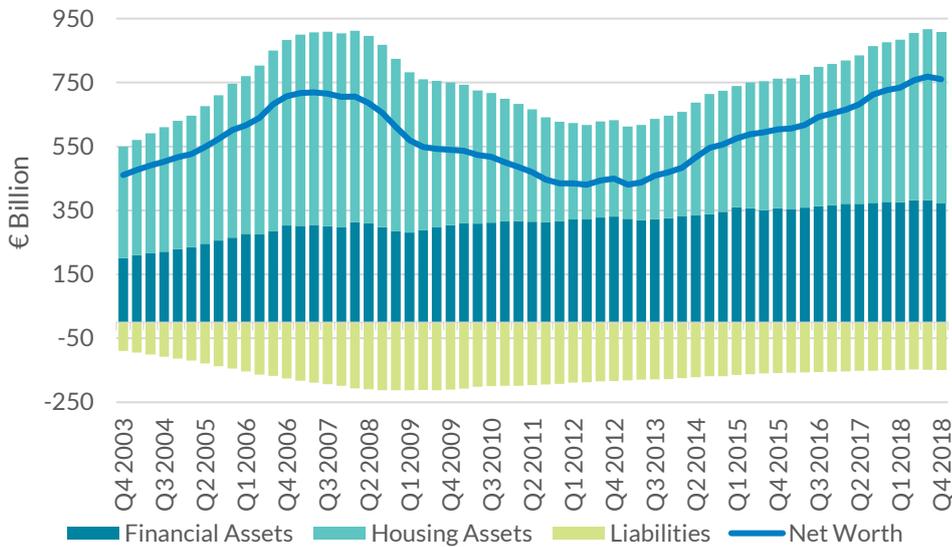
³First reporting commenced in 2016

⁴Direct Insurance Corporations Securities holdings not included in 2015

***Ref. April 2019

Household Sector

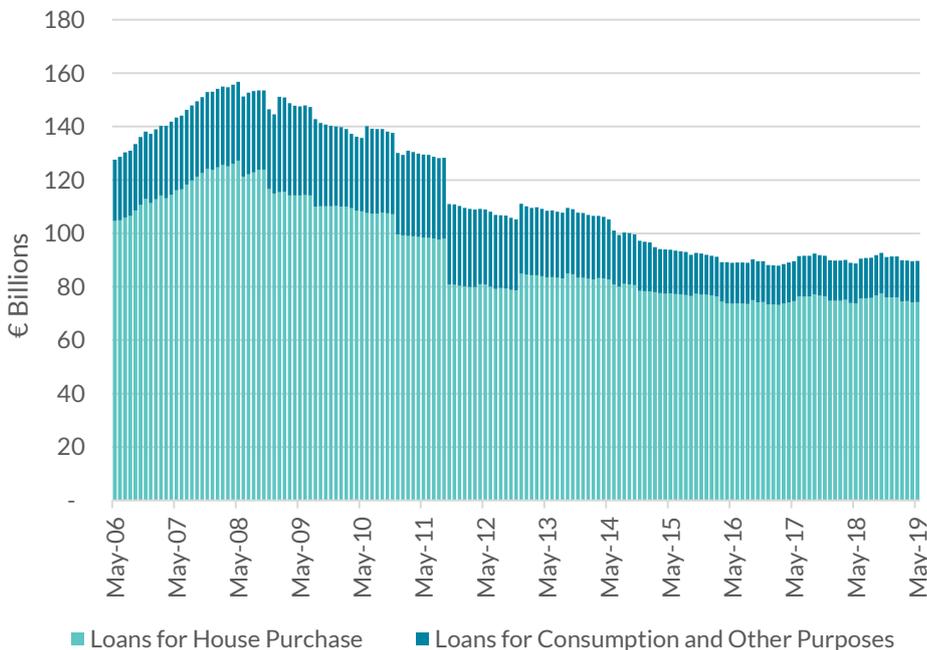
Chart 1: Household Net Worth



Household net worth fell slightly in Q4, reflecting decreases in the value of financial and housing assets.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

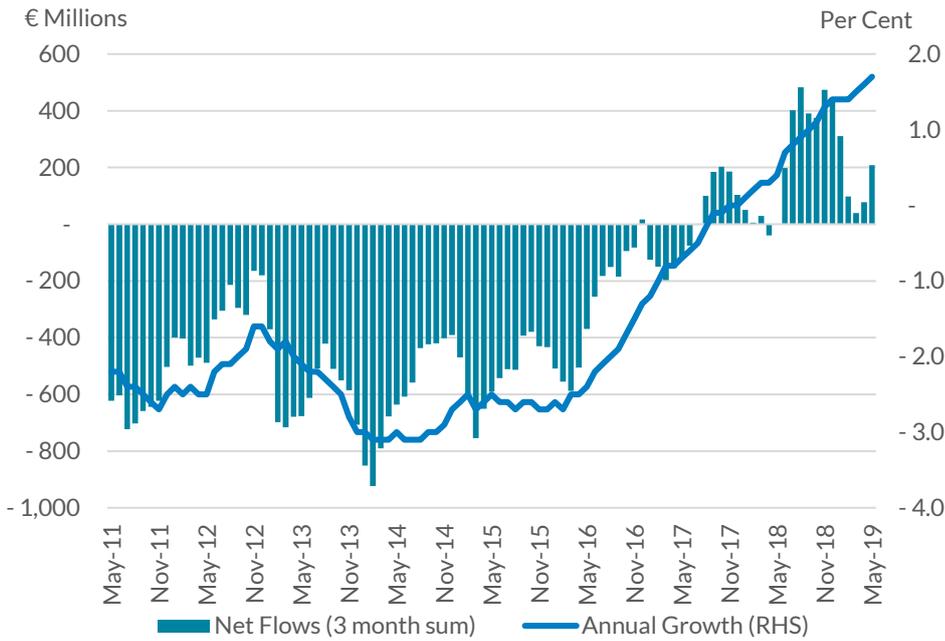
Chart 2: Outstanding Loans to Irish Households from Irish Banks



Outstanding amounts of Irish bank loans to households remains at a subdued level relative to its historical highs.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

Chart 3: Net flows for Loans for House Purchase

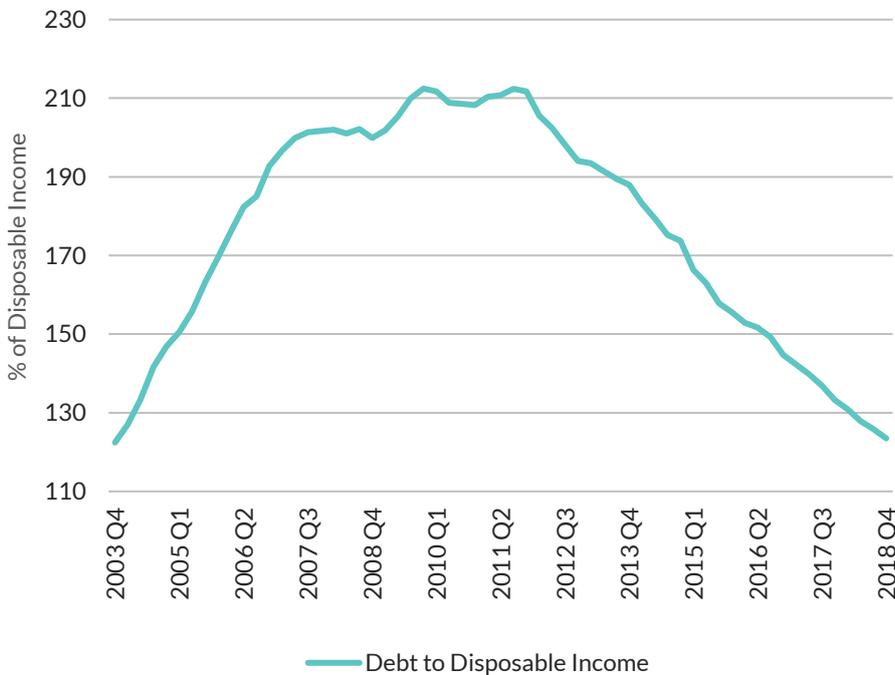


Loans for house purchase continue upward growth trend

Source: [Bank Balance Sheet Statistics](#), Central bank of Ireland

Note: Data encompass Irish resident bank on balance sheet net lending for the purpose of house purchase.

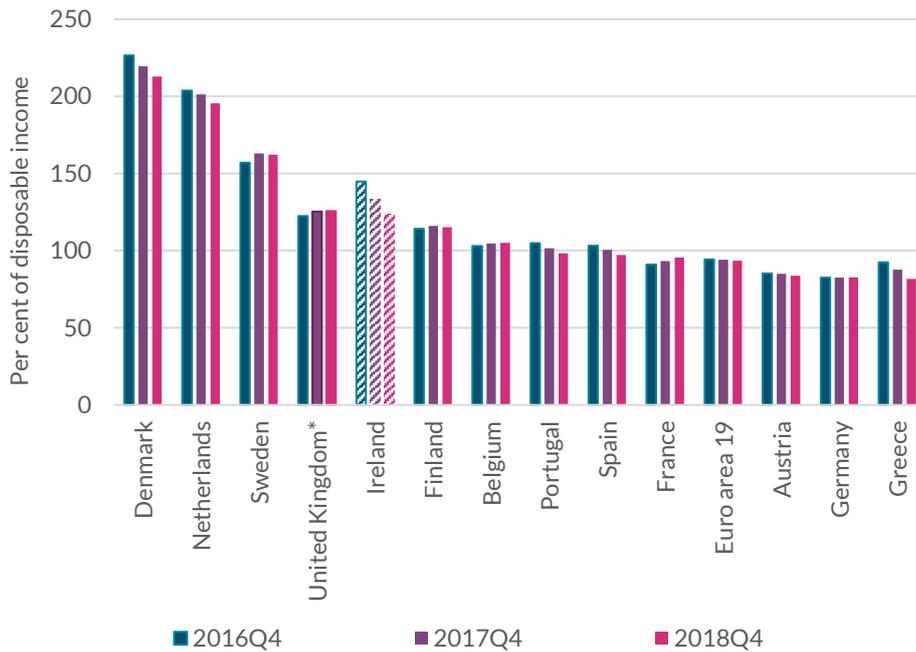
Chart 4: Household Debt to Disposable Income



Households are continuing to deleverage – debt to disposable income is at its lowest point since Q1 2004.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Chart 5: EU Cross Country Comparison of Household Indebtedness

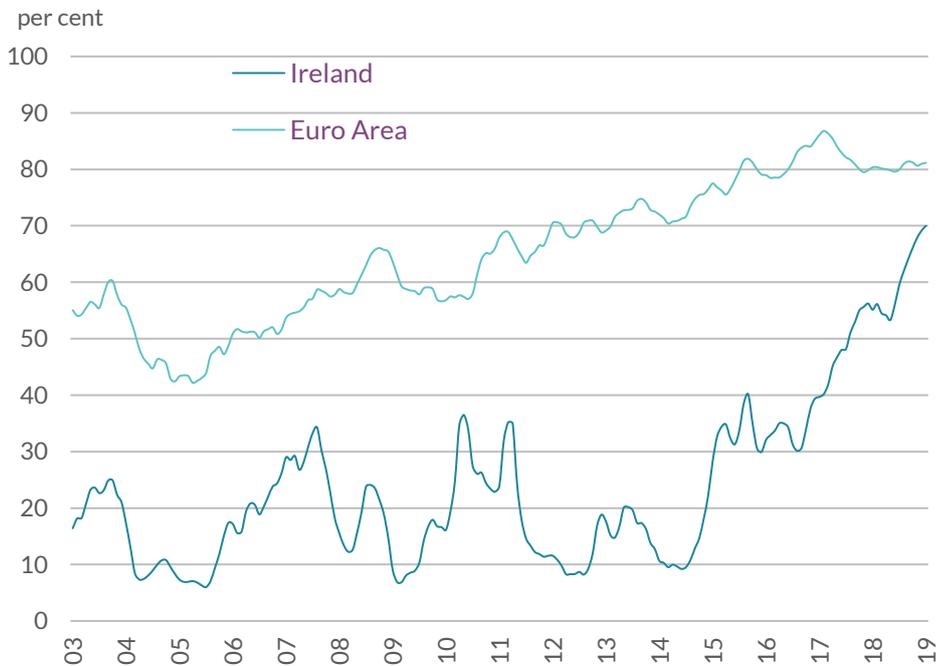


Ireland ranks fifth among European countries when comparing ratios of household debt to disposable income.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Note: *Data are from Q2 2018. **Data are from Q4 2017

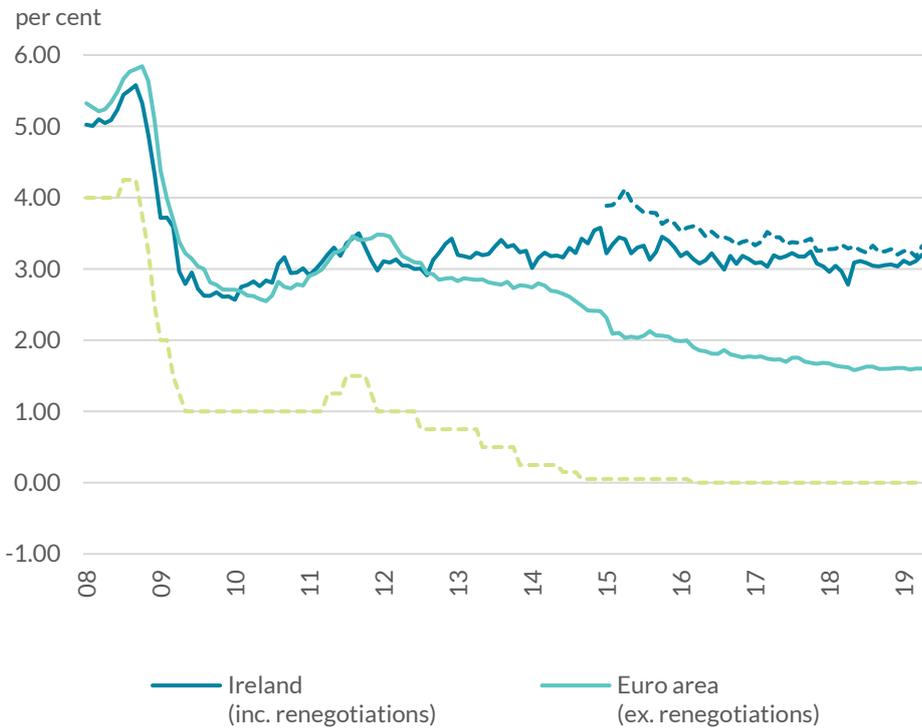
Chart 6: New Mortgage Agreements: Share of Fixed Rate Mortgages (3 Month Rolling Average)



Highest proportion of new fixed rate mortgage agreements in series history.

Source: [Interest Rate Statistics](#), Central Bank of Ireland, [ECB Statistical Data Warehouse](#)

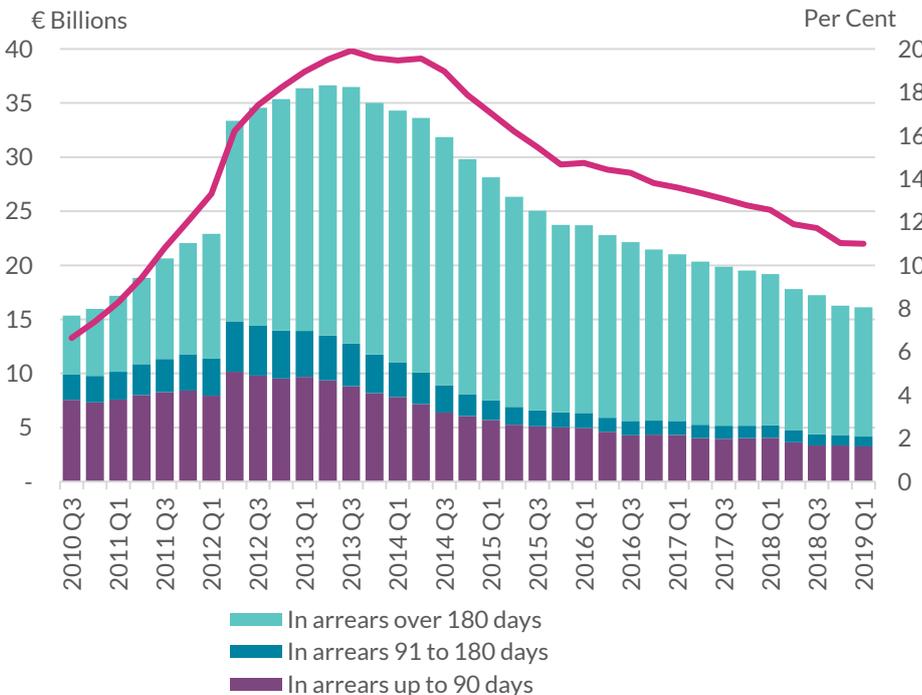
Chart 7: Interest Rates on New Variable Rate Loan Agreements to Households for House Purchase



New variable rate mortgage agreements (excluding renegotiations) had a weighted average of 3.29 per cent in January 2019.

Source: [Interest Rate Statistics](#), Central Bank of Ireland

Chart 8: Mortgage Arrears (Primary Dwelling House and Buy-to-Let)

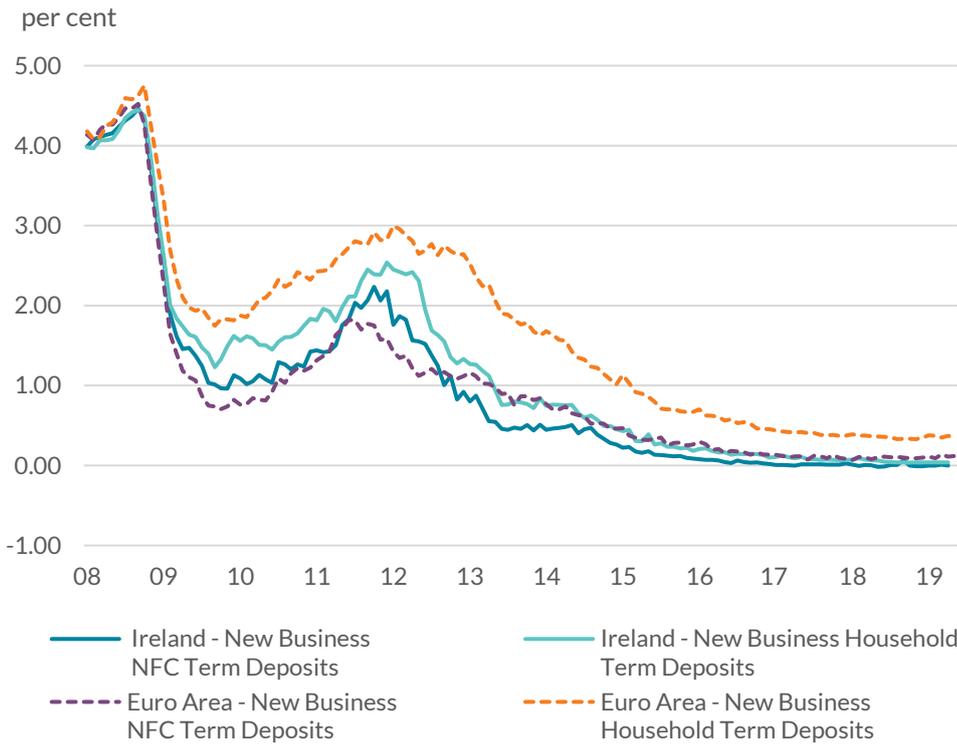


The amount of mortgages in arrears continue to decline.

Source: [Mortgage Arrears Statistics](#), Central Bank of Ireland

Note: Buy to let mortgages enter statistical population in Q2 2012

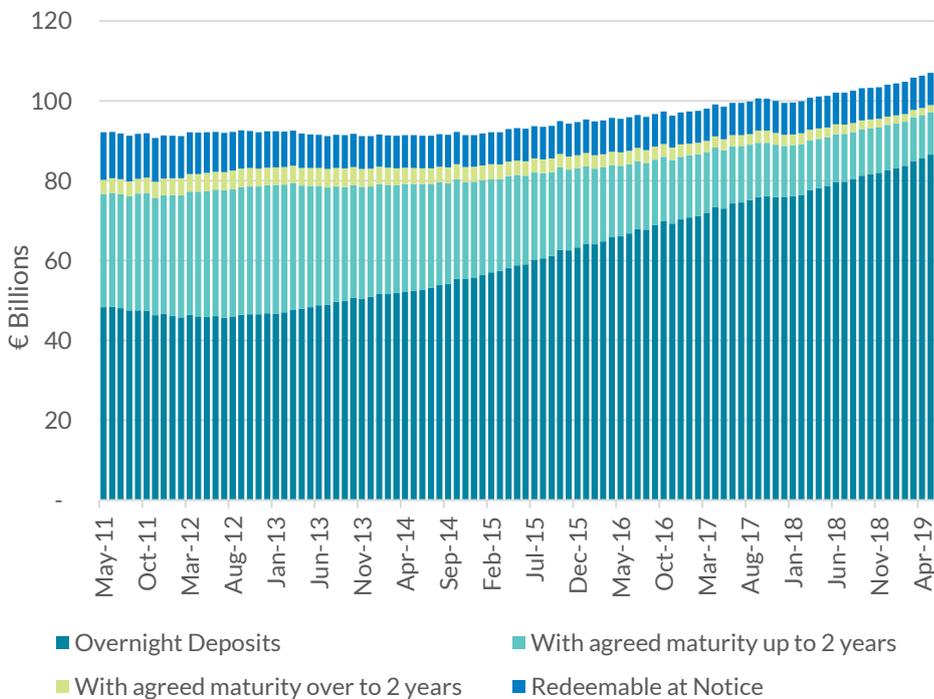
Chart 9: Interest Rates on Household & NFC Term Deposits



Interest rates on Irish new household term deposits were 0.04 in April 2019.

Source: [Interest Rate Statistics](#), Central bank of Ireland

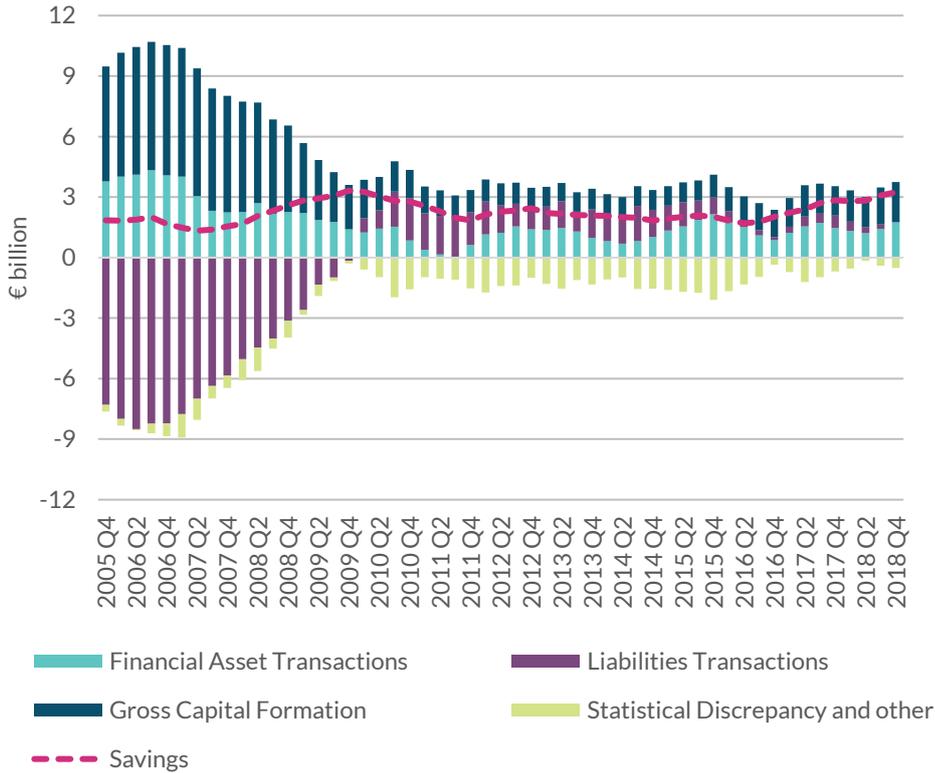
Chart 10: Deposits of Irish households by Category of Deposit



Total household deposits continue to increase, with overnight deposits continuing to increase their share of the total.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

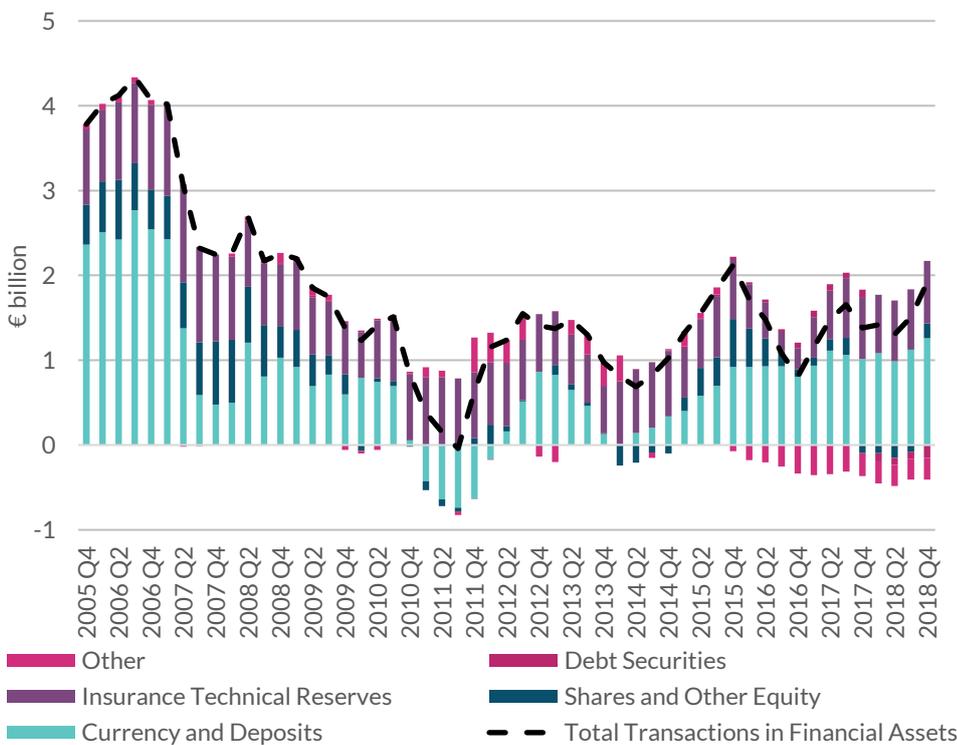
Chart 11: Household Savings by Use (4-Quarter Moving Average)



Households saved €3.2 billion in Q3 2018. This saving consisted of €2.0 billion of gross capital formation and €1.8 billion of financial asset accumulation.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Chart 12: Household Transactions in Financial Assets (4-Quarter Moving Average)

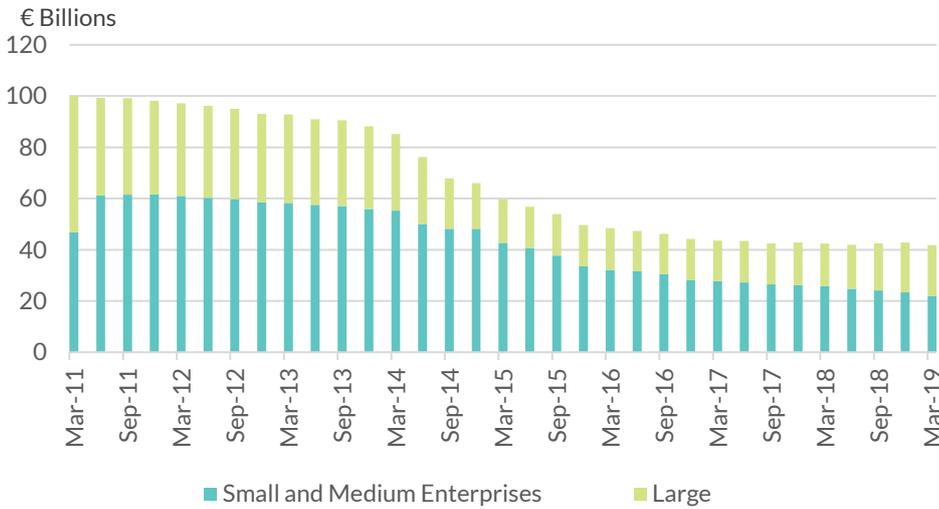


Households are investing primarily in currency and deposits and in insurance and pension policies.

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Non-Financial Corporate Sector

Chart 13: Credit Extended to Large and Small and Medium (SME) Non-financial Enterprises

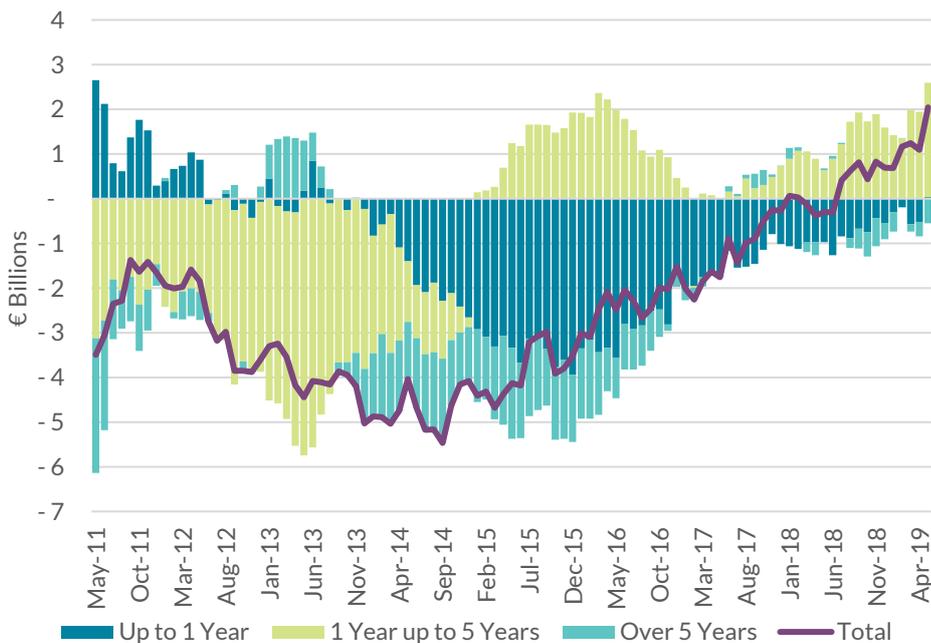


Bank lending to large enterprises has begun to recover, while lending to SMEs continues to decline slowly.

Source: [SME and Large Enterprise Credit and Deposits](#); Author's Calculations, Central Bank of Ireland

Note: SMEs are defined as enterprises with fewer than 250 employees and whose annual turnover does not exceed €50 million and/or whose annual balance sheet does not exceed €43 million. This is the standard EU definition of an SME.

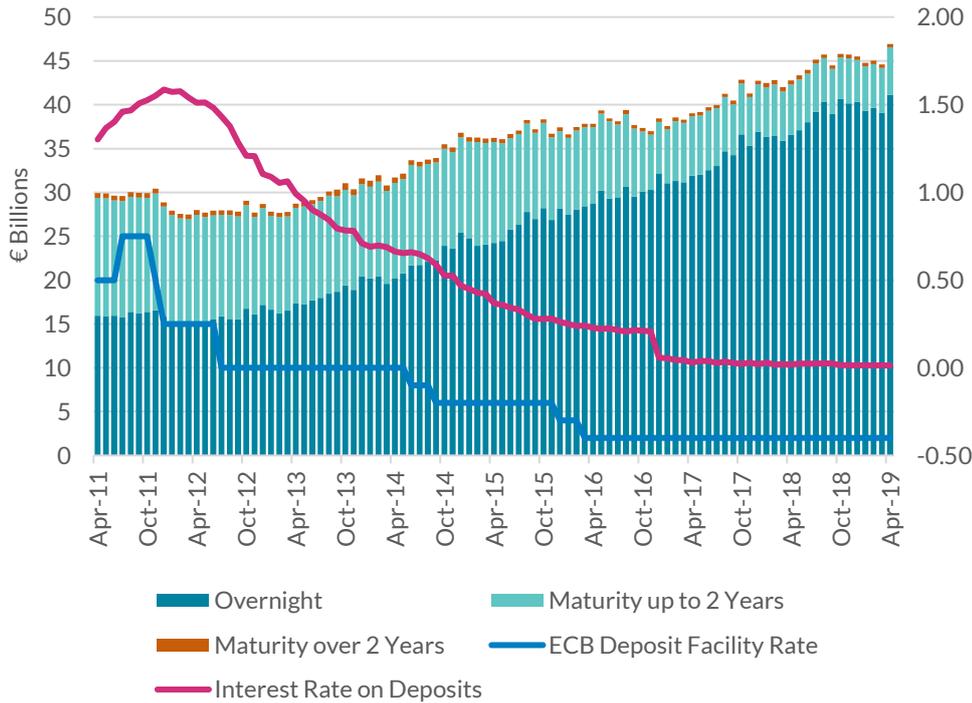
Chart 14: Loans to NFCs; Net Flows (12-Month Sum) by Original Maturity Category



NFC lending growth is driven by loans in the 1-5 years maturity category.

Source: [Loans to Irish Private Sector Statistics](#), Central Bank of Ireland

Chart 15: Deposits of Irish NFCs by Category of Deposits

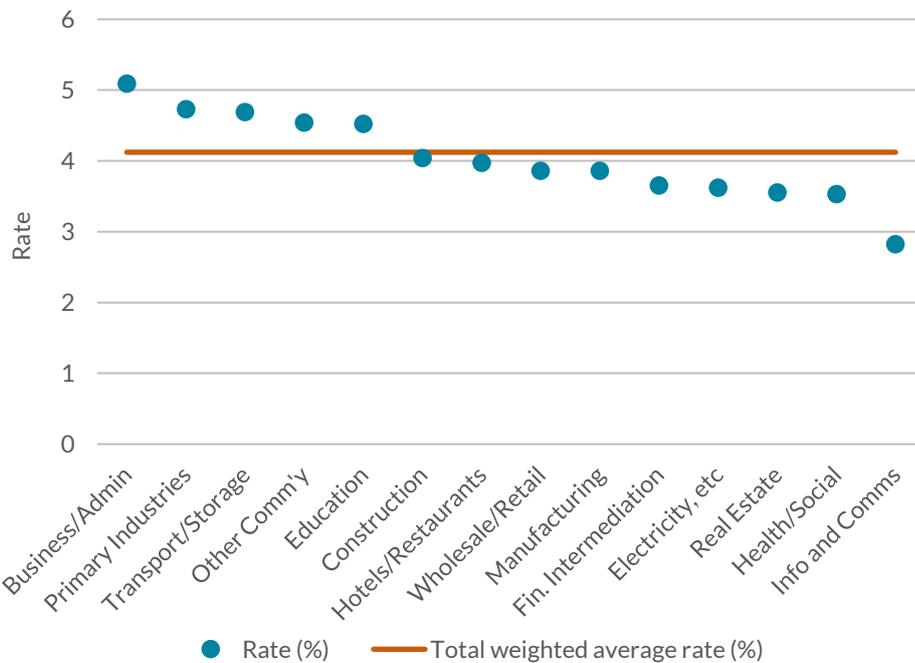


Deposits from NFCs are increasing, growth is coming from deposits of overnight maturity.

Source: [Bank Balance Sheet Statistics](#), Central Bank of Ireland

Note: Interest rate on deposits is a weighted average across maturity categories.

Chart 16: SME New Lending Interest Rates by Business Sector, Q1 2019



Business and Administration Service SMEs saw the largest net new lending in Q1 2019.

Source: [SME and Large Enterprise Credit and Deposits](#), Central Bank of Ireland

Chart 17: Gross New Lending to SMEs, Q1 2019

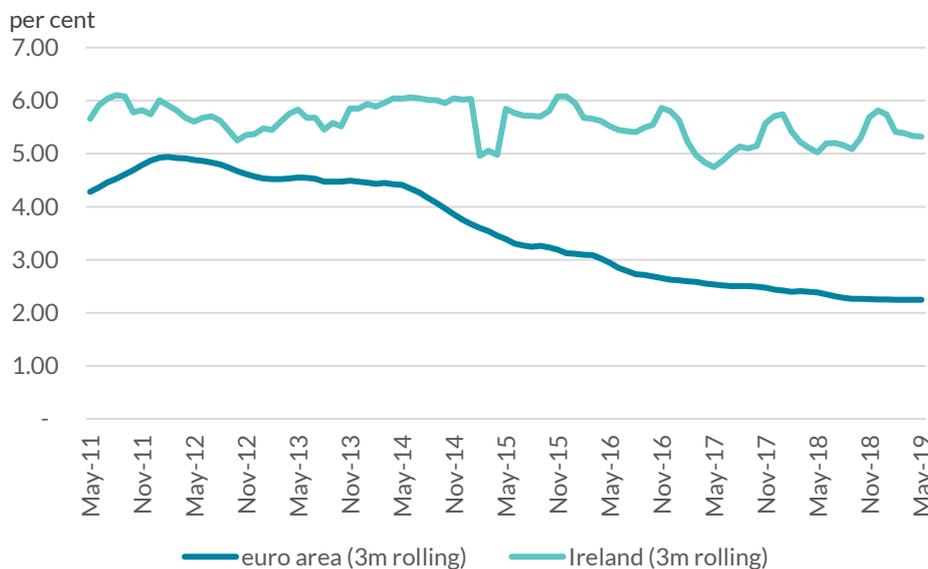


Primary Industries saw the greatest level of the new lending in Q1 2019.

Source: [SME and Large Enterprise Credit and Deposits](#), Central Bank of Ireland

Note: Other includes Education, Information & Communications, Electricity, Gas, Steam and Air Conditioning Supply

Chart 18: Interest Rates on Small Loans to Non-financial Corporations



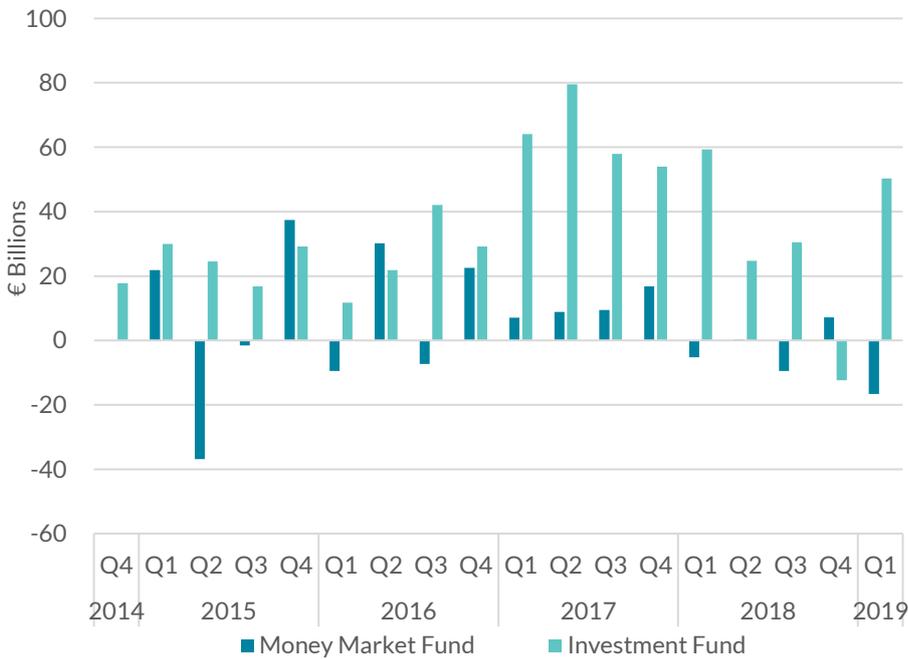
Irish NFCs face higher funding costs than the euro area average for bank loans.

Source: [Bank Interest Rate Statistics](#), ECB Statistical Data Warehouse

Note: Only includes interest rates charged on new bank lending to NFCs of amount <250k

Non-Bank Financial Sector

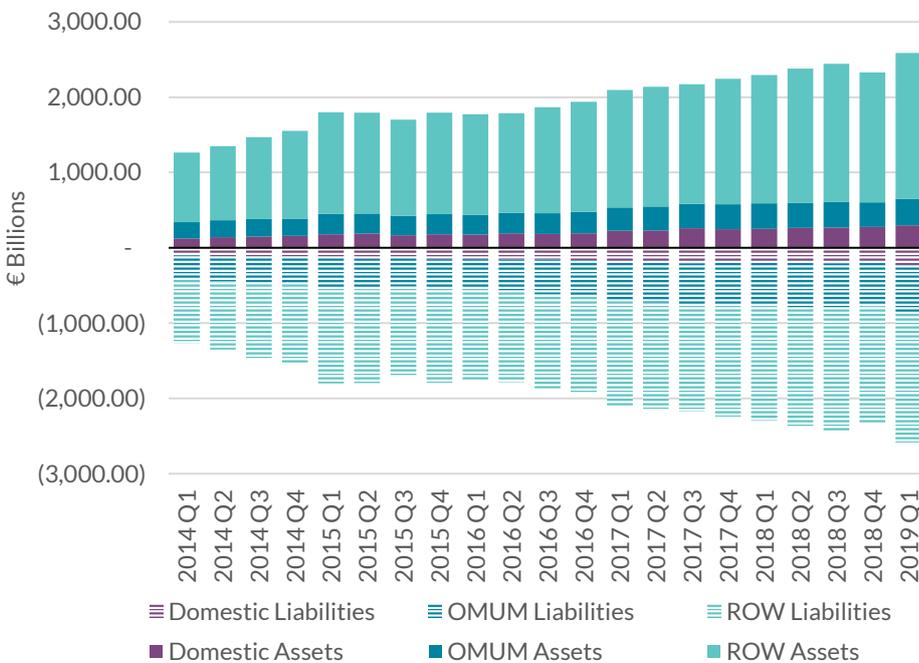
Chart 19: Net Subscriptions of Money Market and Investment Funds



Investment Funds saw their first quarter of net redemption in the history of the series in Q4 2018.

Source: [Investment Funds Dataset](#), Money Market Funds Dataset, Central Bank of Ireland

Chart 20: Total Assets and Liabilities of Investment Funds - by Region

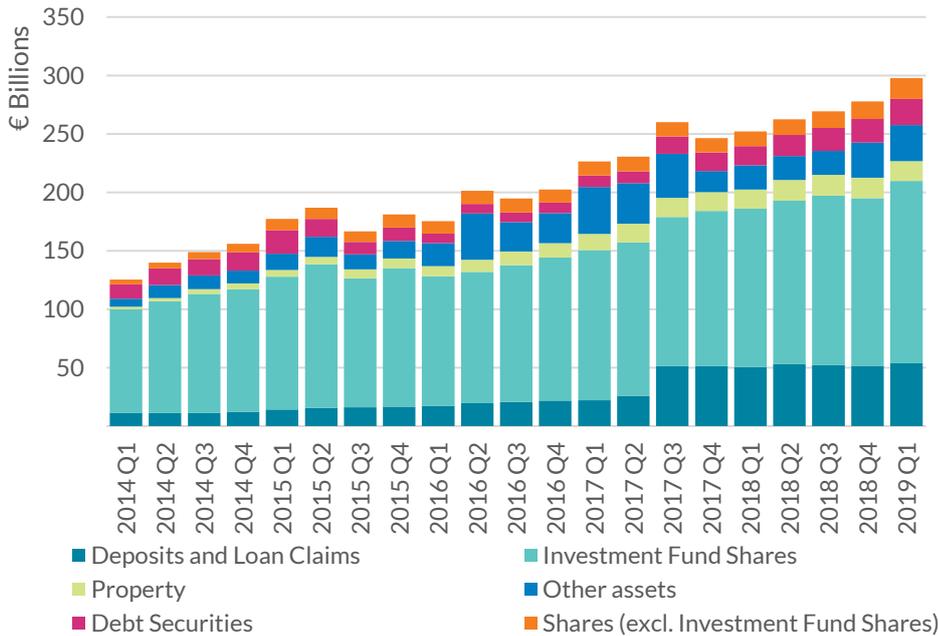


Investment funds are mainly used by foreign investors to invest in foreign assets.

Source: [Investment Funds Dataset](#), Central Bank of Ireland

Note: OMUM= Other Monetary Union Member, ROW=Rest of World.

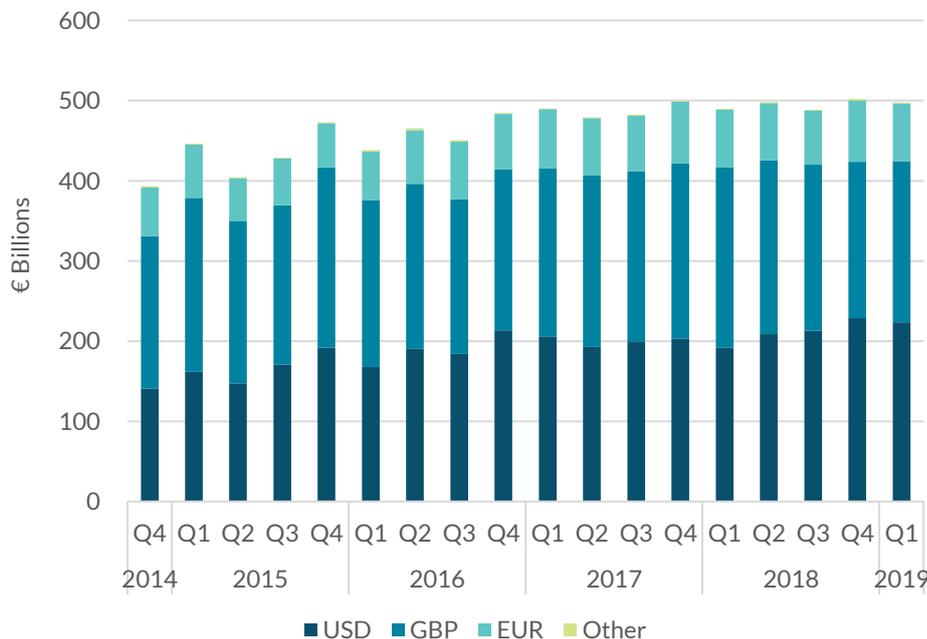
Chart 21: Total Irish Assets of Irish Resident Investment Funds, by Asset Class



Investment in other Irish funds constitutes the majority of Irish assets held by Irish resident investment funds.

Source: [Investment Funds Dataset](#), Central Bank of Ireland

Chart 22: Total Assets of Money Market Funds, by Currency

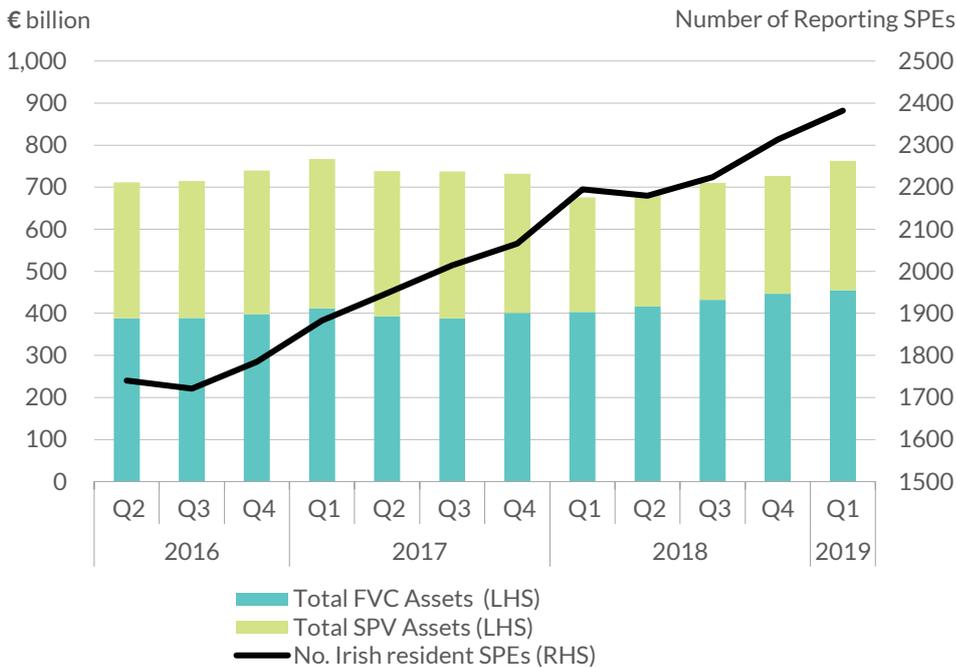


Money Market Funds mainly satisfy demand from GBP and USD investors.

Source: [Money Market Funds Dataset](#), Central Bank of Ireland

Note: Source excludes other assets and equity held by money market funds, and thus does not exactly match chart.

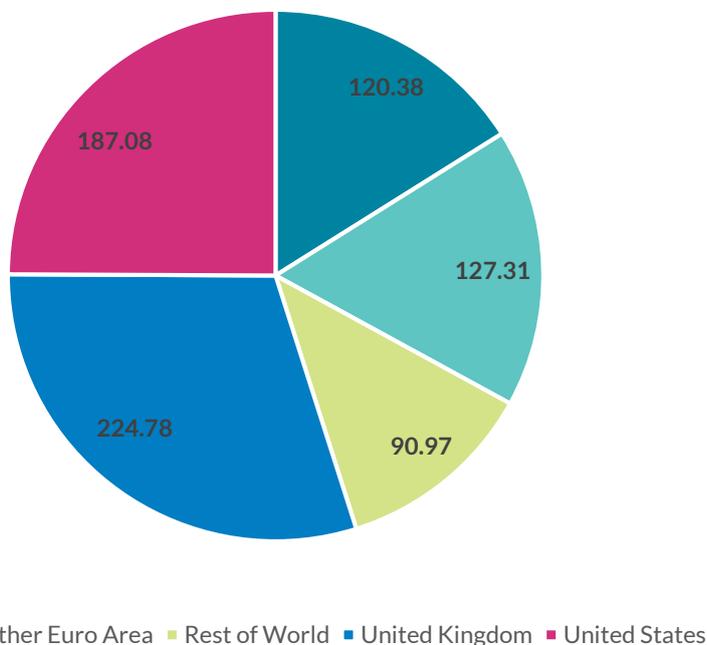
Chart 23: Total Assets and Number of Irish Resident SPEs



The growth in the number of special purpose entities continues to outpace the growth in their total assets.

Source: [Special Purpose Entities Dataset](#), Central Bank of Ireland
 Note: FVC= Financial Vehicle Corporation, SPV= Special Purpose Vehicle.

Chart 24: Total SPE assets by sponsor region in Q4 2018, € billions

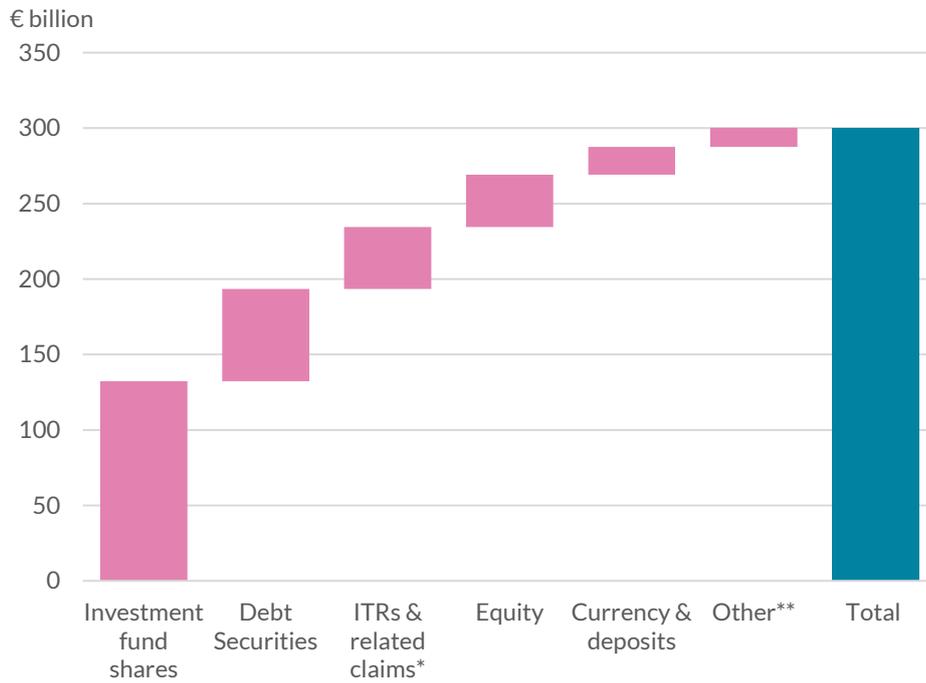


United Kingdom and United States sponsors have set up the majority of SPEs (by assets).

Source: [Special Purpose Entities Dataset](#), Central Bank of Ireland; Authors own calculations

Note: The sponsor of an SPE is the institution that has set it up.

Chart 25: Irish Insurance Corporations (ICs) Financial Instrument breakdown, Q4 2018



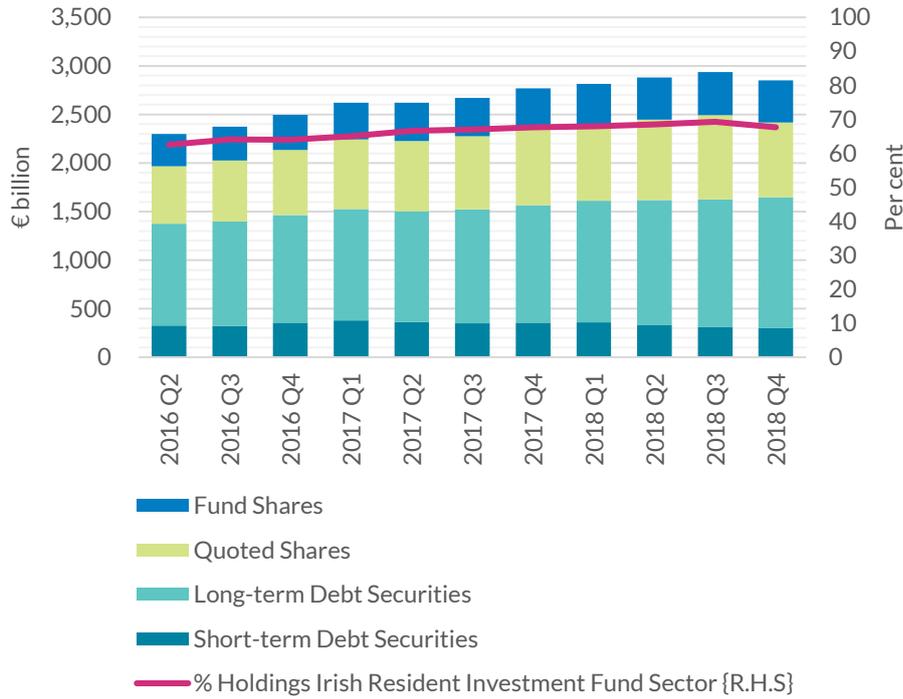
Insurance Corporations predominantly hold Investment Fund Shares.

Source: [Insurance Corporation Statistics](#), Central Bank of Ireland.

Note: *Insurance Technical Reserves and Related Claims. **Other includes Loans and Financial Derivatives.

Other Statistics

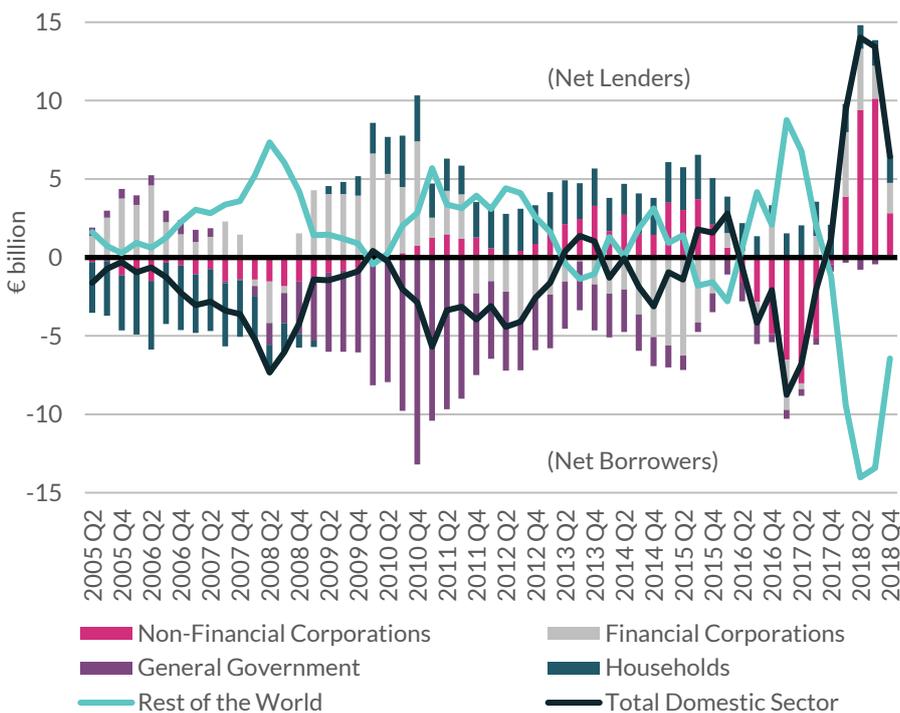
Chart 26: Total Securities holdings of Irish residents



Investment Funds hold the majority of debt and equity held by Irish residents

Source: [Securities Holdings Statistics](#), Central Bank of Ireland, Author's calculations

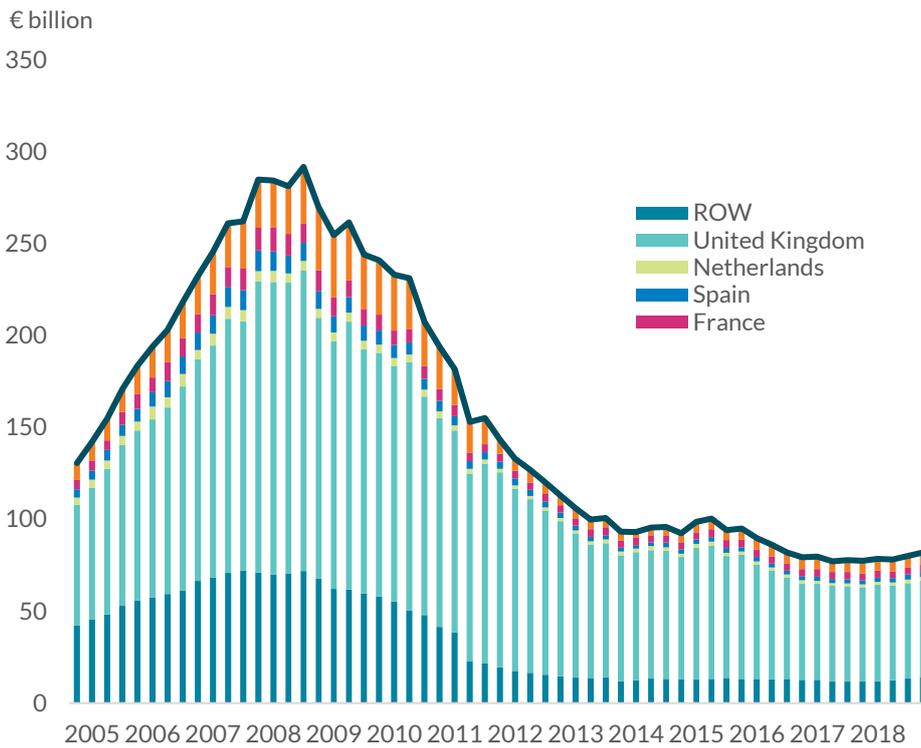
Chart 27: Net lending/borrowing of Irish residents (4 quarter moving average)



Net lending by the domestic economy fell by €7 billion to €6 billion in Q4 2018

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Chart 28: Location of Irish Foreign Claims



Domestic banks' largest foreign claims continue to be on the United Kingdom.

Source: [Consolidated Banking Statistics](#), Central Bank of Ireland

Chart 29: Issuance of Debt and Equity by Irish Financial and Non-Financial Corporations

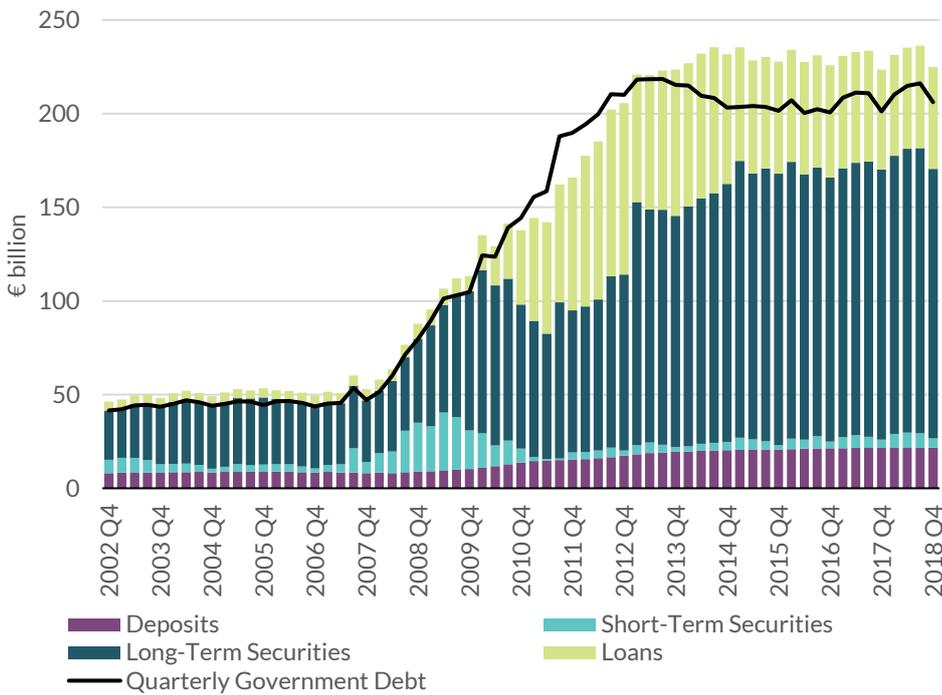


The gap between the total equity and total debt issued by Irish financial and non-financial corporations continues to narrow.

Source: [Securities Issue Statistics](#), Central bank of Ireland

Government Sector

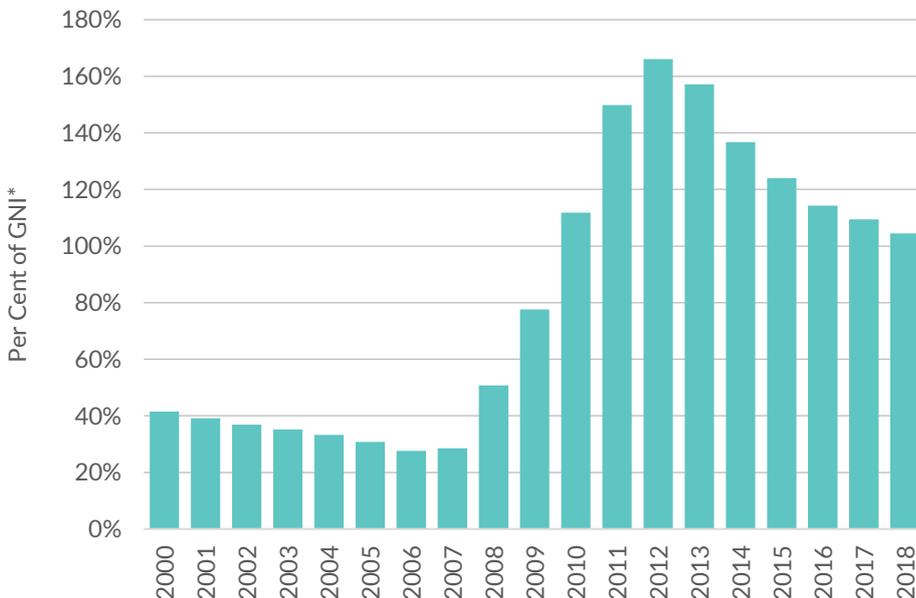
Chart 30: Irish Government Debt - by Category



Quarterly Government Debt fell by €10 billion to €206 billion in Q4 2018

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

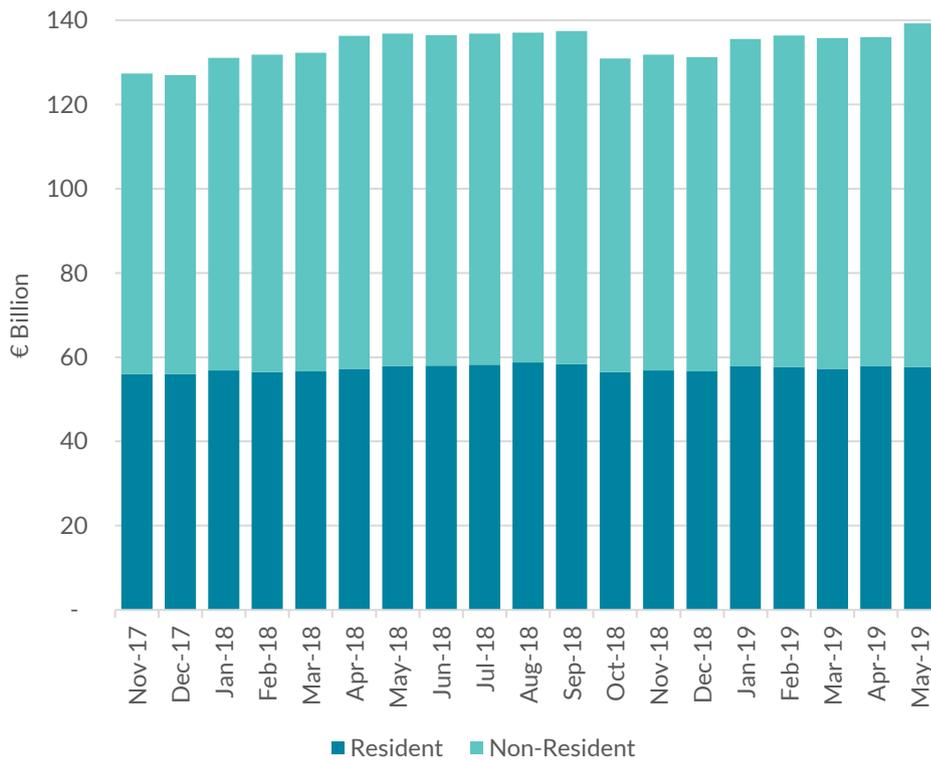
Chart 31: Irish Government Debt-to-GNI*



The ratio of General Government Debt to GNI* was 104 per cent in 2018.

Source: [Annual Government Financial Statistics](#) and [National Income and Expenditure Results](#), Central Statistics Office

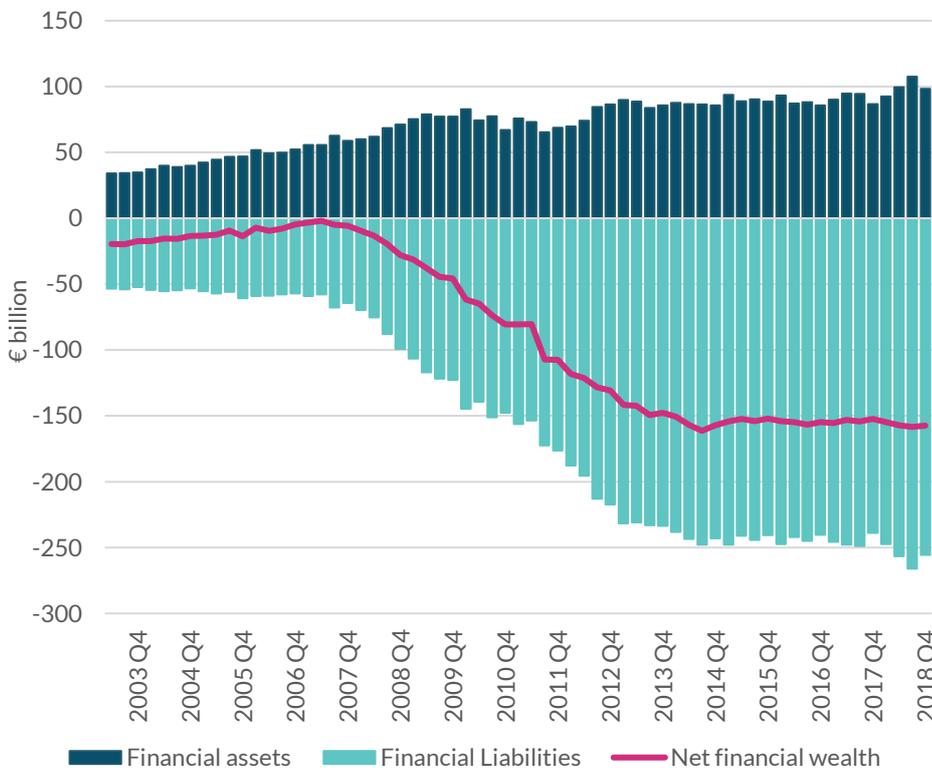
Chart 32: Breakdown of Holders of Government Bonds



Non-resident investors' holdings of Irish government bonds increased by €3bn to €82bn in May 2019.

Source: [Holdings of Long Term Government Bonds](#), Central Bank of Ireland

Chart 33: Government Net Financial Wealth



Government net financial wealth rose by €1 billion during Q4 2018 as the decrease in liabilities outstripped the decrease in financial assets

Source: [Quarterly Financial Accounts](#), Central Bank of Ireland

Section 2

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.

Modelling Overheating Risks in the Irish Economy

Thomas Conefrey, Gerard O'Reilly, Graeme Walsh and Luca Zavalloni⁴¹

Abstract

The Irish economy has recovered at an impressive pace from the economic and financial crisis that began in 2008. In the absence of adverse shocks such as a disorderly Brexit, continued strong growth and further declines in the unemployment rate could result in the emergence of overheating pressures. In this paper, we explore overheating risks in the Irish economy using the Central Bank's macroeconomic models. We illustrate that rising wages in an upturn could lead to boom-bust dynamics if wages are not flexible downwards when the buoyant economic conditions dissipate. We demonstrate how migration can play an important role in mitigating overheating dynamics in the labour market, while at the same time creating higher demand and additional pressures in other parts of the economy. Although this presents policymakers with difficult tradeoffs, appropriate macroeconomic management can help navigate these challenges while keeping the economy on an even keel. In particular, in the event of continued net inward migration and further expansion in construction activity, fiscal policy can be used to manage excess demand in the economy. This can help ensure that the required level of housebuilding can be accommodated, without placing excessive strain on an economy already operating close to capacity.

⁴¹The authors work in the Irish Economic Analysis Division. The views expressed in this article are those of the authors only, and do not necessarily reflect the views of the Central Bank of Ireland. The authors would like to thank Tara McIndoe-Calder and Paul Reddan for helpful comments and suggestions.

1. Introduction

The Irish economy has continued to improve in recent years as the recovery from the economic and financial crisis has progressed. The latest data from the CSO show that the unemployment rate fell to below 5 per cent in the first quarter of 2019, the lowest rate since Q3 2008. Although an assessment of key economic indicators provides mixed evidence on the degree of overheating in the economy currently (Section 2), there are concerns that with the economy close to full employment further increases in demand may lead to overheating, which could ultimately damage competitiveness in the medium term.

The view that tighter labour market conditions can feed into higher wages is frequently represented in the literature in terms of a linear Phillips curve where there is a negative relationship between wage growth and unemployment. However, Phillips (1958) argued that the relationship between wage growth and unemployment is likely to be highly nonlinear. Many papers have examined this potential nonlinearity. For example, Fuhrer, Olivei, and Tootell (2012) model a nonlinear Phillips curve where the impact of a change in slack depends on the level of spare capacity.⁴² In an Irish context, Linehan et al (2017) find that when unemployment is close to or below 5 per cent this will have a more pronounced effect on wage pressures than when the level of unemployment is higher. Recently, Byrne and Zekaite (2018) provide evidence of a non-linear relationship between the unemployment rate and wages in the euro area: at low levels of unemployment, reductions in the unemployment rate have a larger effect on wages than when the unemployment rate is high. Hence, a concern for policymakers is that while wage growth still seems moderate and is broadly in line with underlying productivity growth, as unemployment falls to very low levels, a threshold could be reached where wages begin to increase at a more rapid and potentially unsustainable rate.

One potential source of this nonlinearity is the possibility that wages are not downwardly flexible. Lane (2004) argues that in a booming economy, the two biggest risks are the extrapolation of the wage growth and a failure to incorporate contingencies in pay agreements that take into account the risk of major shifts in the external economic environment. Hence, one of the concerns in an overheating economy is that the labour market may lack the flexibility to adapt quickly to a worsening of external conditions leading to a loss of competitiveness of the domestic economy. This narrative goes

⁴² Fisher and Koenig (2014), Kumar and Orrenius (2014), Donayre and Panovska (2016) and Detmeister and Babb (2017) all find steeper Phillips curve slopes at low levels of unemployment in the US.

back at least to the work of Keynes (1925) and Friedman (1953) who argue for the existence of downward nominal wage rigidities in the labour market.

Underlying this mechanism is the idea that in an overheating scenario where the economy is close to full employment, wages are highly flexible upwards, but they can be slow to adjust downward when the overheating phase is over. Using the Bank's DSGE model (ÉIRE Mod) we illustrate the impact of a positive external demand shock in the presence of downwardly rigid wages. Our simulations show that an increase in world demand can lead to overheating that can threaten competitiveness in the medium-term. This would arise if wages are slow to adjust downward as the external demand shock fades.

One of the features of the Irish economy since the foundation of the State has been the elasticity of labour supply, in part reflecting the free mobility of labour between Ireland and the UK. The link between emigration from Ireland to the UK has been modelled by a number of researchers including Honohan (1992) and FitzGerald and Kearney (1999) as an increasing function of the relative unemployment rates and wage rates between Ireland and the UK. However, in the 21st century, Ireland has witnessed major structural changes in terms of migration patterns with net migration becoming positive. Positive net migration has been a consequence of the rapid growth witnessed in the economy in the early to mid 2000s and also since 2016. The accession of ten eastern European countries to the EU in the early 2000s has also been a factor (see for example, Barrell, FitzGerald and Riley (2006)). Net inward migration at the tail end of the boom in mid 2000s was over 100,000 per annum. While net migration was negative during the financial crisis, it has returned to positive territory with improvements in the state of the economy. The latest CSO estimates for 2018 point to net inward of migration of 34,000 last year.⁴³

The impact of net migration on wage growth has also been examined at length in the literature. Bentolila, Juan Dolado and Jimeno (2009), Razin and Binyamini (2007) and Engler (2007), show that higher migration flows can induce a flatter Phillips curve by changing both the aggregate labour supply and labour demand elasticities. Both FitzGerald and Kearney (1999) and Lozej (2018) make a similar point in an Irish context. The dramatic increase in net migration in the early 2000s moderated somewhat the wage increases witnessed at the height of the construction-led boom. However, it also facilitated the continuance of the boom with a further expansion in construction activity.

⁴³ Staunton and Smyth (2019) provide an overview of migration into Ireland currently.

Microeconomic studies have found that house prices can increase on foot of larger internal migration. Saiz, (2003,07) and Ottaviano and Peri, (2012) amongst others have found positive effects of immigration on both rents and prices. Rosa Sanchis-Guarner (2017) find elasticities are approximately 0.8 per cent for rents and 3.1 per cent for house prices. During the pre-2007 boom, Duffy, FitzGerald and Kearney (2005) highlighted that migration into Ireland in the face of rising house prices would be hindered as higher house prices (rents) decrease the benefits of relocating to Ireland. This, they argued, would have the effect of making labour supply less elastic ultimately leading to higher wages and making the Phillips curve less flat. They illustrate this effect by simulating a small model of the economy with a housing sector.

An additional effect of migration, has been highlighted by Howard (2017) who argues that migration can have an *accelerator effect* on aggregate demand in the face of a positive demand shock. In particular, he suggests that higher migration will have additional effects on aggregate demand by increasing demand for goods and services, increasing house prices and housing investment as migrants need shelter and higher house prices will also have a wealth effect which further increases consumption. Werning and Fahri (2014) also consider the importance of the demand effect of migrants on welfare considerations but from the perspective of the country they migrated from.

Using the Bank's structural econometric model (COSMO), we analyse the effect of a positive external demand shock and examine its propagation through the model under two scenarios (i) when the economy is operating below capacity and (ii) when the economy is operating at capacity with full employment. In COSMO, wages are a function of productivity, prices and unemployment. In this set up, the unemployment rate acts as a proxy for workers' bargaining power. The full employment scenario is implemented based on calibrating the wage response to unemployment as witnessed in the 2000-2007 period. This means in the full-employment scenario lower unemployment would result in a larger increase in wages, leading to a greater loss in competitiveness.

We next examine Howard's migration accelerator mechanism in more detail to assess to what extent extra migration leads to higher output through higher demand for housing, increased demand for goods and services and higher consumption through a wealth effect. Critical to our discussion is the offsetting effects on increased wage pressures through the return of positive net migration. Such inward migration can mitigate unsustainable wage dynamics and provide a source of additional labour supply in the face of potential labour shortages. However, positive net migration also brings an extra boost to the domestic economy through

increased demand for goods and services in the non-traded sector, housing and spillover effects to the broader economy through a housing wealth channel.

The plan of the rest of the article is as following. In Section 2, we give an overview of indicators of current state of the economy, while in Section 3 we explore the impact of downward wage rigidity when the economy is overheating. In Section 4, we examine the impact of a positive external shock over the economic cycle and explore the role of migration. Section 5 provides a brief conclusion.

2. Background

To examine the cyclical position of the economy it is helpful to consider a number of indicators of potential imbalances. While the indicators approach ensures that different sources of imbalance are assessed, there are difficulties in determining the relative importance of each indicator. Nevertheless, it is useful to monitor these data to check for signs of imbalance in different parts of the economy.

A range of indicators of overheating are presented in Figure 1 (A-O). Overall, the indicators provide mixed evidence as to the extent of overheating pressures in the economy currently. Looking at the various labour market measures (panel A-G), the unemployment rate provides the most convincing evidence of potential overheating risks. As of Q1 2019 it stood at 5 per cent and is projected to fall to 4.7 per cent in 2019, similar to the rate in 2006. At the same time, there has been a pick-up in net inward migration which amounted to 1.4 per cent of the labour force in the year to April 2018. The non-employment index (NEI) weights the different groups of non-employed (that is, both the unemployed and people out of the labour force) according to their labour market attachment, or the likelihood that a non-employed person will transition back into the job market. The latest data indicate that the NEI had declined to close to its pre-crisis level, despite the employment rate being lower (Figure 1(D)). This suggests that inward migration will be a more important driver of future employment growth than an expansion in domestic labour supply. The issue of capacity constraints in the labour market is discussed in detail in another article in this Quarterly Bulletin by Byrne and McIndoe-Calder (2019).

To date, the tightening of the labour market has not been accompanied by significant evidence of strong overall wage or price pressures. Nominal compensation per employees measured 2.8 per cent in 2018. More detailed quarterly data point to some acceleration in sectors such as financial services and ICT, but overall wage pressures remain broadly contained.

A number of other measures provide little evidence of the existence of pronounced overheating pressures currently. In particular, the ratio of underlying investment to GNI* is currently low compared to historic averages (Figure 1 (I)) and, despite recent strong growth, is projected to be similar to its 1997 level in 2020. The household sector switched to a net lending position in 2009 and the latest Institutional Sector Accounts data shows that the sector remained a net lender in 2018. In terms of indicators of external imbalance, the adjusted current account of the balance of payments recorded a surplus of 6.5 per cent of GNI* in 2017. Looking at the net external debt of domestic banks (Galstyan and Herzberg, 2018), Ireland is well below the adjusted threshold of 17 per cent of GNI*.

The Bank's Business Cycle Indicator (Conefrey and Walsh, 2018) suggests that the economy moved into an expansionary phase around early 2013, after five years of below average growth.⁴⁴ The most recent data signal a continuation of strong growth, underpinned in particular by improvements in the labour market. This is similar to the position in the late 1990s and contrasts with the 2005-07 period when growth was driven by construction investment and accelerating house prices (Figure 1, graph O).

Lastly, the output gap is defined as the difference between an economy's actual level of output in a given year and what it could feasibly produce if all factors of production (land, labour and capital) were fully utilised. A positive output gap is a signal of potential overheating because excess demand in the economy could result in unsustainable increases in prices and wages. Estimates of the output gap published by the Department of Finance (2019) and IFAC (2019) suggest that the economy is operating at or slightly above capacity in 2019.

⁴⁴ See Conefrey and Walsh (2018) for a description of the Central Bank's Business Cycle Indicator.

Figure 1: Indicators of Irish economy's cyclical position

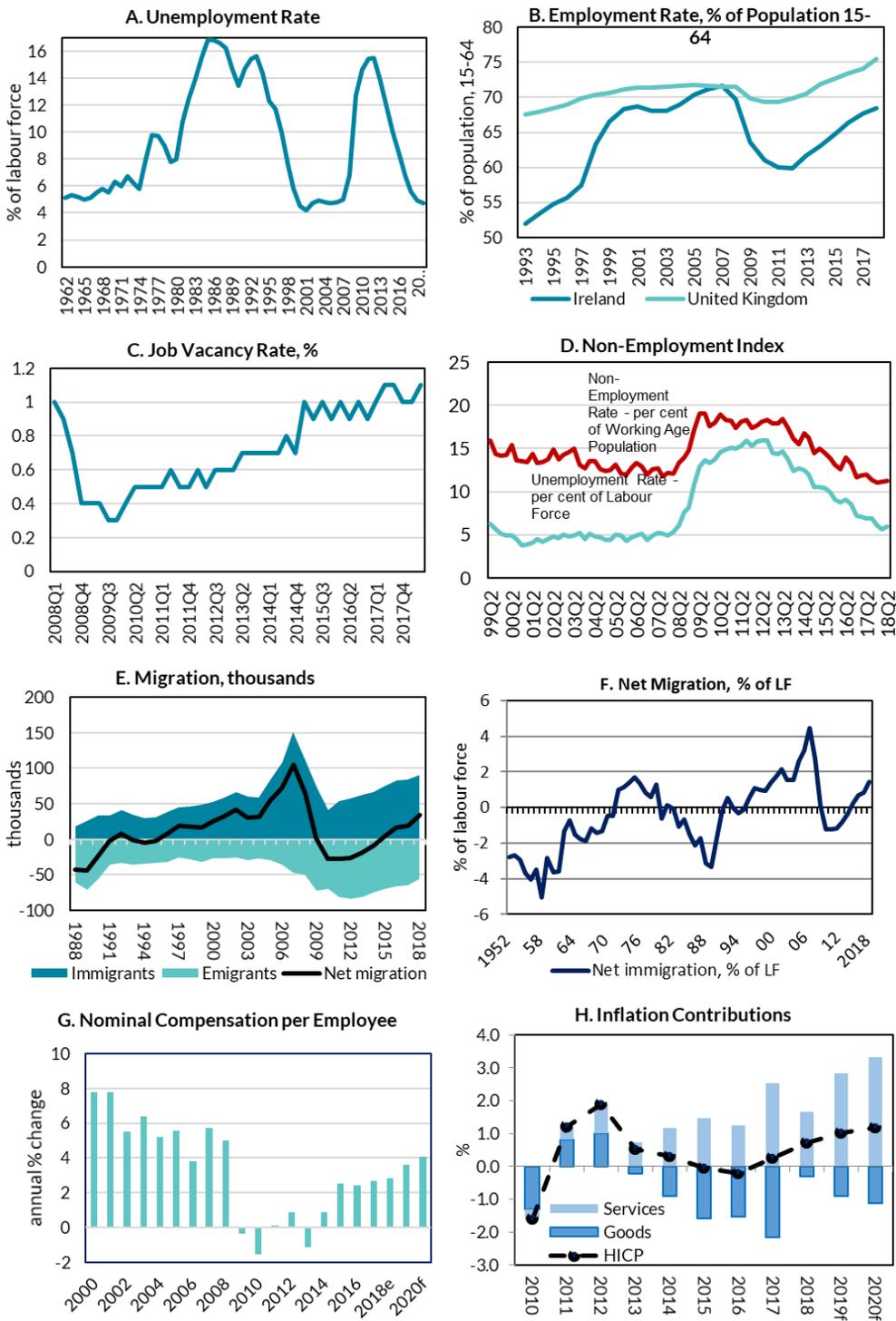
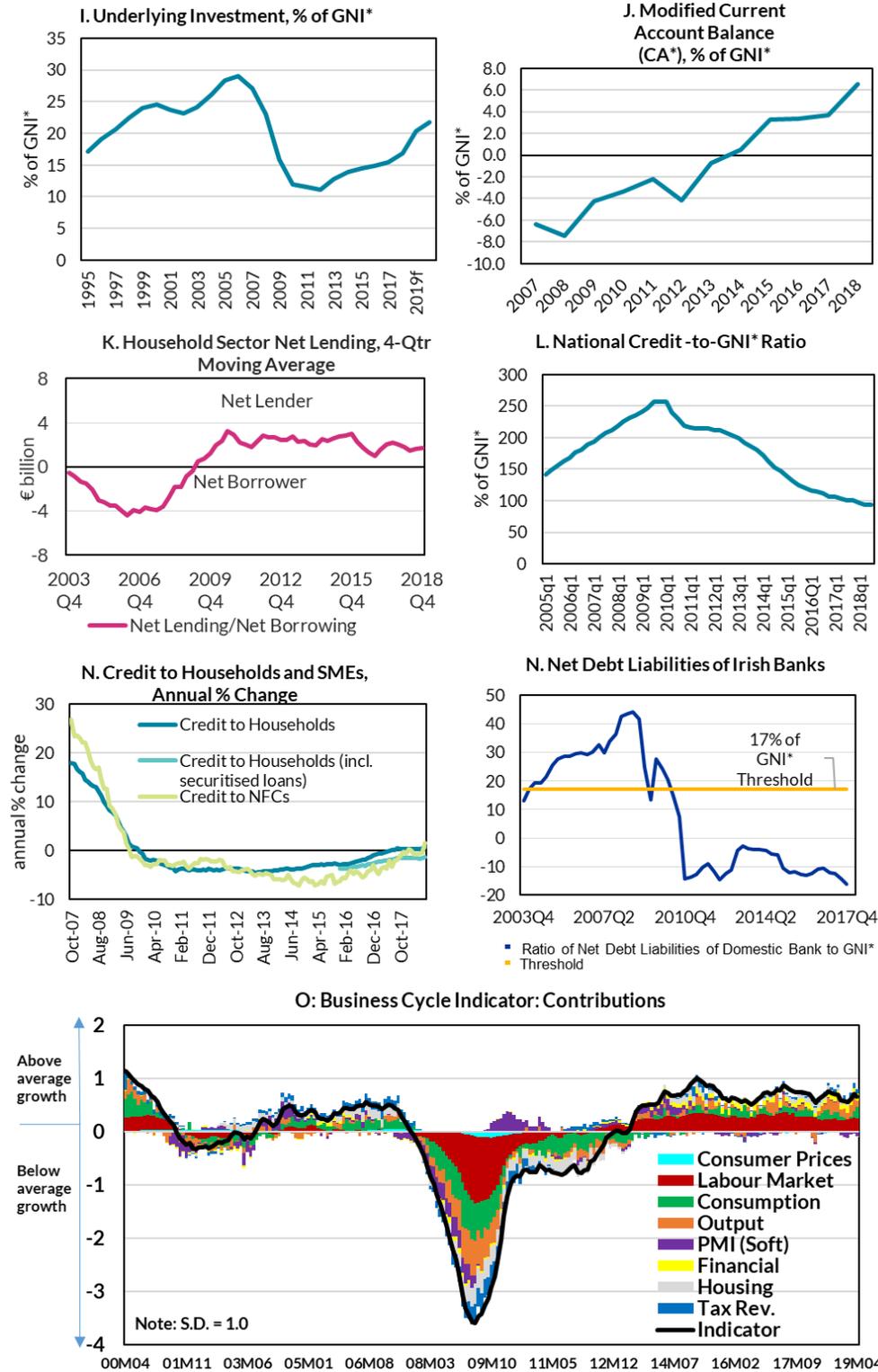


Figure 1 (Contd.): Indicators of Irish economy's cyclical position



Sources: CSO, Central Bank of Ireland.

3. Wage Flexibility and the Business Cycle

For this analysis, we extend the Bank's DSGE model of the Irish economy (ÉIRE Mod) (see Clancy and Merola 2015, 2017 and Lozej, Onorante and Rannenberg 2017) to account for the existence of downward nominal wage rigidities.⁴⁵ Our aim is to highlight the risks that an overheating scenario, associated with upward pressure on wages and prices, can affect competitiveness of the Irish economy in the medium term. The use of downward wage rigidities in DSGE models is not new. Schmitt-Grohe (2013, 2014, 2016) and Schmitt-Grohe and Uribe (2010, 2011, 2012), develop a small open economy with tradable and non-tradable sector, downward nominal wage rigidity and a fixed nominal exchange rate, and argue that the observed failure of nominal wages to adjust downward after 2008 despite sizable increases in unemployment suggests that downward nominal wage rigidity played an important role in the rise in unemployment during the financial crisis in the euro area. In particular, they show that the efficient adjustment to a negative external shock is a decline in real wages. However, downward nominal wage rigidity and a fixed exchange rate together imply that real wages measured in terms of tradable goods are downward rigid.

A number of studies have examined the degree of wage flexibility in Ireland during the 2008-2012 economic and financial crisis. Doris, O'Neill and Sweetman (2015) find evidence to suggest that wages are somewhat flexible in Ireland particularly after the onset of the financial crisis. They find that the degree of wage rigidity is low in international comparisons, based on analysing individual employee revenue data. However, at an aggregate economy-wide level there is evidence of the presence of wage rigidity. Surveys of Irish firms prior to the crisis by the Central Bank suggest that wage cuts are rare (see Keeney and Lawless (2010), Du Caju et al (2013) and Babecký et al. (2015)), while post crisis, Branten, Lamo, and Room (2018) find evidence of wage rigidity across European countries including Ireland. While there is evidence of downward wage flexibility in the face a large increase in unemployment, this flexibility was relatively small. Bergin, Kelly and McGuinness (2012) reach a similar conclusion.

⁴⁵ ÉIRE Mod is a two-sector New Keynesian small open economy model of Ireland within a monetary union. Firms produce non-traded goods and exports. Imported goods are sold on the domestic market as well as being used in the production of exports. The model allows for some degree of wage and price stickiness. There is also a banking sector which is funded by domestic deposits and wholesale funding from abroad. Agents in the model have forward-looking expectations.

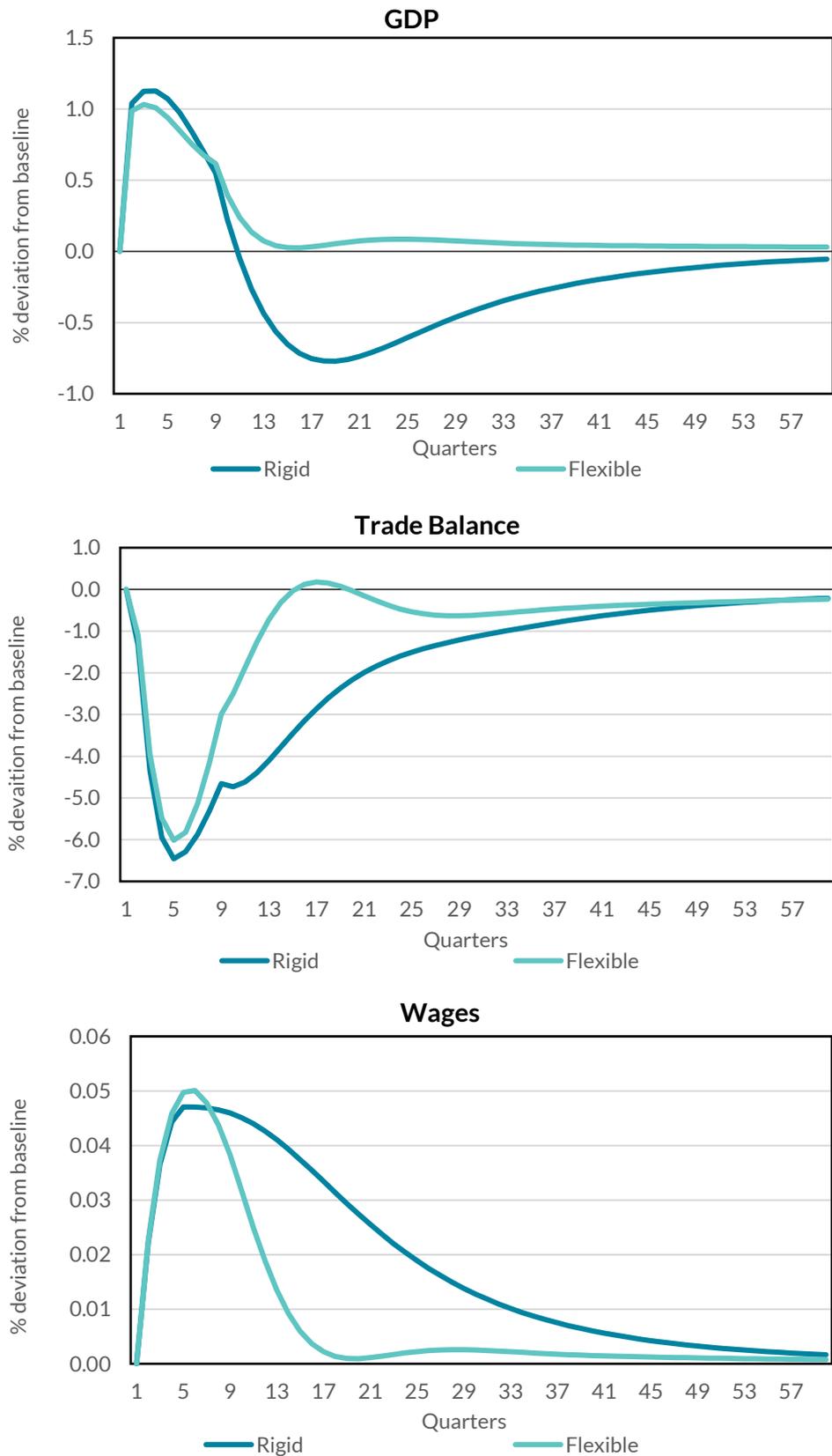
For this simulation, we have hard wired downwardly sticky wages into the model. The extent to which this is true is clearly an empirical issue that is the subject of ongoing research. The simulation we carry out is useful in order to illustrate the potential negative consequences of an overheating economy if wages are not downwardly flexible.

The point we wish to illustrate is that, due to the asymmetry in the wage response introduced by downward nominal wage rigidity, a positive shock which leads to an overheating scenario can threaten the competitiveness of the Irish economy in the medium run. The intuition is straightforward: if a booming economy leads to a sharp upswing in wages, and wages are slow to adjust downward, then, as the positive shock fades away, wages are unlikely to adjust quickly downwards and can give rise to a loss in competitiveness and a possible recession.

In this simulation we compare the response of the economy to an increase in external demand under two scenarios, (i) when wages are flexible and (ii) when wages are downwardly rigid. This is illustrated in Figure 2. A temporary increase in external demand increases wages and prices in the traded and non-traded sectors. At the same time, higher wages boost domestic demand which, in turn, stimulates production in the non-tradable sector and increases imports. The response of domestic demand puts additional pressure on wages causing overheating in the domestic economy, with wages increasing proportionally more than output.

In the medium term, the dynamic of the economy is very different depending on whether wages are flexible or downwardly rigid. If wages are flexible, as the demand fades, the wage level falls quickly allowing a smooth transition of the economy to the steady state. Notably, GDP reverts back to trend without experiencing any recessionary phase. On the contrary, if wages are slow to adjust, the domestic economy enters a prolonged recessionary phase. This is due to the loss of competitiveness caused by wages which do not fall quick enough to offset the decline in external demand. As a consequence, the level of wages is too high relative to the level compatible with full employment. The net effect is that the demand for labour in the tradable sector decreases, this reduces employment and domestic demand which in turn affects the non-traded sector. The deterioration in competitiveness leads to a fall in exports, while the reduction in domestic demand lowers imports. In our simulation, the decrease in export dominates and the trade balance deteriorates. Investment and consumption fall as well.

Figure 2: A positive external shock with downward wage rigidity



Sources: Authors' calculations based on ÉIRE Mod model.

4. External Demand Shocks, Migration and Overheating

Using the Bank's structural econometric model, COSMO, we examine a situation where a positive external shock in tandem with migration could feed through to the macroeconomy,⁴⁶ leading to overheating. Howard (2017) suggested that migration could amplify an initial shock leading to what he called a *migration accelerator*.

COSMO is a detailed multisectoral structural econometric model of the Irish economy.⁴⁶ The model contains three sectors: traded, non-traded and government, with the sectors defined based on the input-output tables.⁴⁷ The long-run equilibrium in the model is driven by the supply side. The supply block consists of a 3-factor normalised nested constant elasticity of substitution (CES) production function with labour augmenting technical progress. The estimation approach for each sector follows that of Barrell and Pain (1997). The short-run dynamics in the model are determined by the error correction system. The long-run equilibrium in the model, based on the optimisation problems, ensures that the variables in the model eventually converge on their long-run path as specified by theory. This is achieved through the price-wage system whereby the prices of the factors of production adjust to guide the economy back to its long-run potential level when there are short-run deviations.⁴⁸

To simulate this scenario in COSMO, we assume that there is an increase in demand for Irish exports leading to higher demand for labour and higher migration into the domestic economy. The latter will also increase the demand for housing which pushes up house prices. This is because migration increases the size of the key household formation age group, which enters the house price equation (housing demand equation) in the model. In COSMO, housing demand is modelled as a standard inverted demand equation where the real price of housing is positively related to income, and negatively related to user cost of capital, unemployment and the per capita housing stock. In the model, the per capita variable used for housing is the number of people aged between 25-34 as these are considered the cohort of individuals actively buying/renting property. Models which use a similar specification in an Irish context include Murphy (1998), Duffy et al (2005), and Kennedy and McQuinn (2012).

⁴⁶ More details on the model can be found in Bergin et al (2017) and Conefrey, O'Reilly and Walsh (2018).

⁴⁷ The traded sector is defined as those sectors of which at least 50% of total final uses is exported. The government sector consists of those sectors of which at least 50% of total final uses is used in government consumption. The non-traded sector is defined as the remainder of output.

⁴⁸ For more details on the structure of COSMO, see Conefrey, O'Reilly and Walsh, (2018). Available at: <https://www.niesr.ac.uk/publications/modelling-external-shocks-small-open-economy-case-ireland>

house prices

$$= f \left(\begin{array}{l} \text{per capita housing stock, disposable income, mortgage interest rate,} \\ \text{unemployment rate, credit conditions} \end{array} \right)$$

In the case of a positive external demand shock, the increase in house prices would further increase consumption through a housing wealth effect. Hence, an initial demand shock which affects migration leads to further increases in aggregate demand through both residential investment and consumption. As we will see, the effects of such a shock in the presence of migration will be dependent on where we are in the economic cycle.

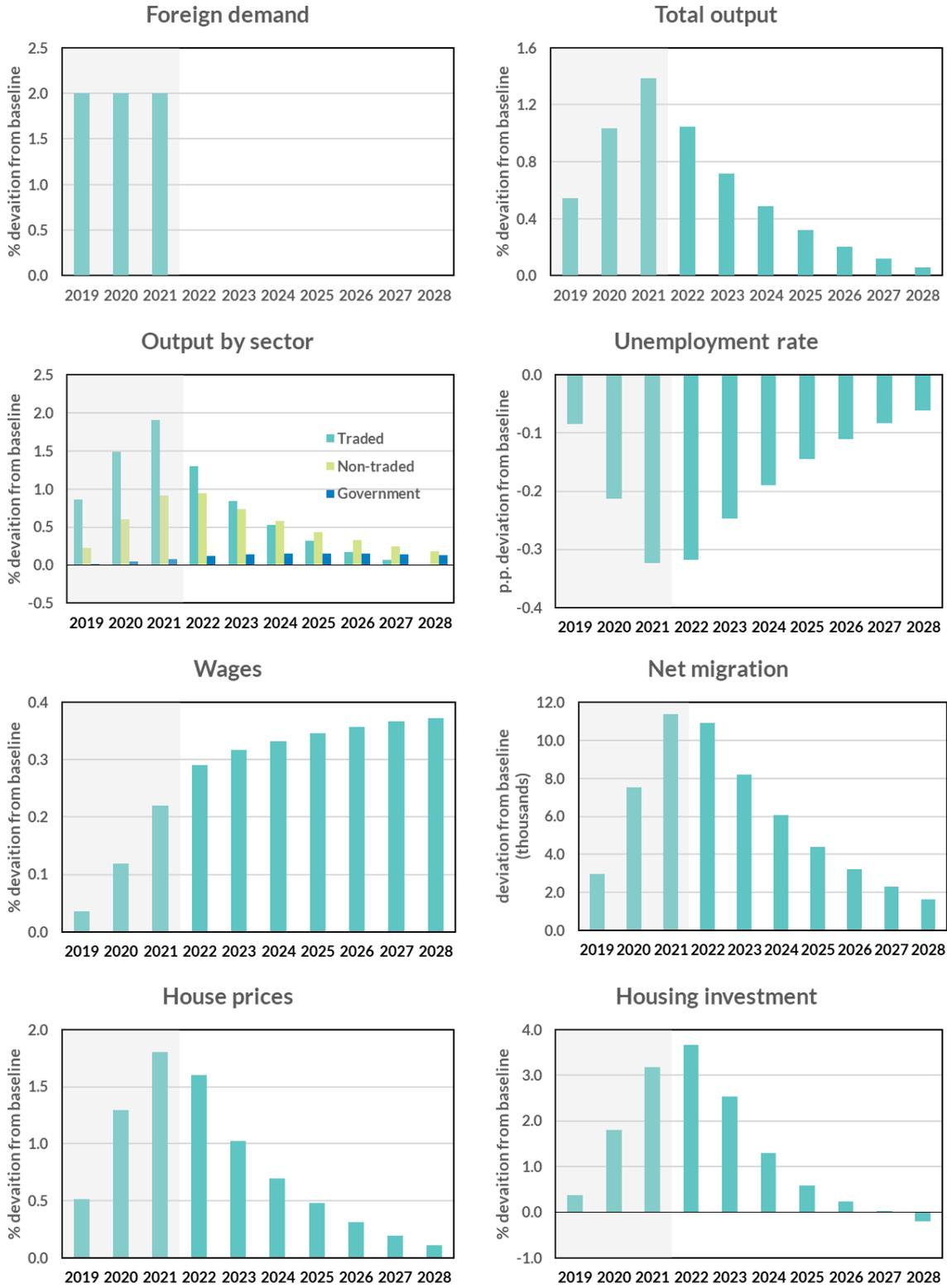
We examine this mechanism when there is a temporary (three-year) increase in external demand for Irish output under two scenarios (i) the economy is operating below capacity and (ii) the economy is operating at capacity. In Figure 3, we illustrate the effects on the economy when external demand increases by 2 per cent for three years and the economy is not at full employment. The shock can be interpreted as a general pick-up in activity in Ireland's key trading partners. Higher foreign demand increases output in the traded sector by close to 2 per cent by year 3 and results in a rise in exports. To facilitate increased production in the traded sector, investment also rises above the baseline. With higher growth in Ireland's trading partners and a more favourable international economy, investment in the traded sector in Ireland would also be boosted by higher FDI inflows. To meet the extra demand, both employment and wages increase in the traded sector and this positive effect spills over to the non-traded sector as domestic demand and imports rise.

Higher activity in both the traded and non-traded sectors increases the demand for labour which is filled by increased employment both by domestic residents as well as higher migration from abroad. This further leads to higher demand for nontraded goods and services. Higher migration, however, also increases the demand for housing putting upward pressure on house prices. The spillover effect of higher house prices generates a further increase in consumption due to the housing wealth effect. Figure 4 shows the boost to consumption from this channel. In COSMO, consumption is a positive function of real disposable income, net financial and housing wealth. The elasticity of consumption is estimated to be 11 per cent which is similar to estimates by for Ireland by McCarthy and McQuinn (2014) and Clancy et al. (2014) and in line with international evidence such as Berger et al (2017) and Mian and Sufi (2012).

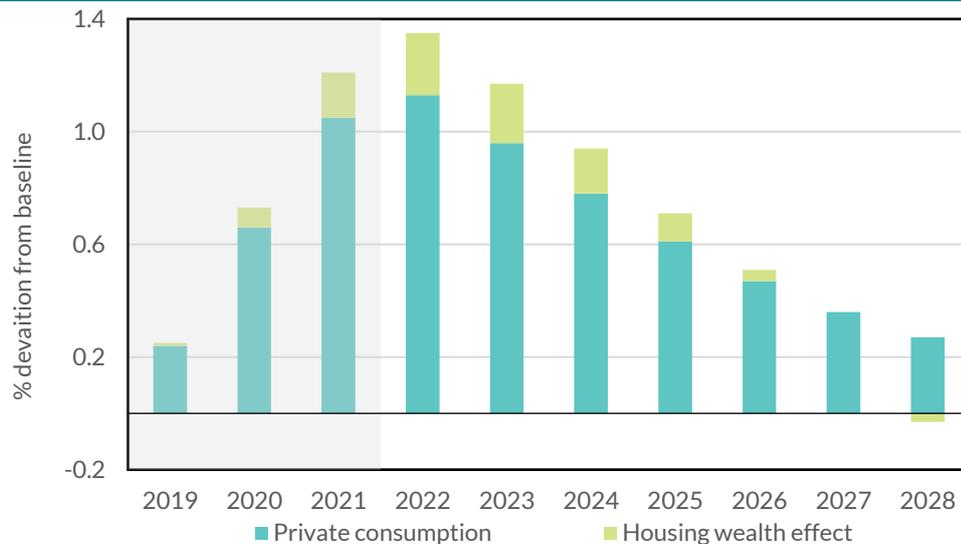
Over time, the positive impact of the temporary external demand shock dissipates. Higher wages negatively impact the competitiveness of Irish exporting firms, although the net effect on exports is still positive after 10 years. Overall, higher external demand from Ireland's trading partners

produces a positive effect on the Irish economy, with the traded sector leading an expansion that stimulates the rest of the economy.

Figure 3: External demand shock with economy below capacity



Sources: Authors' calculations based on the COSMO model.

Figure 4: Foreign demand shock, impact on consumption

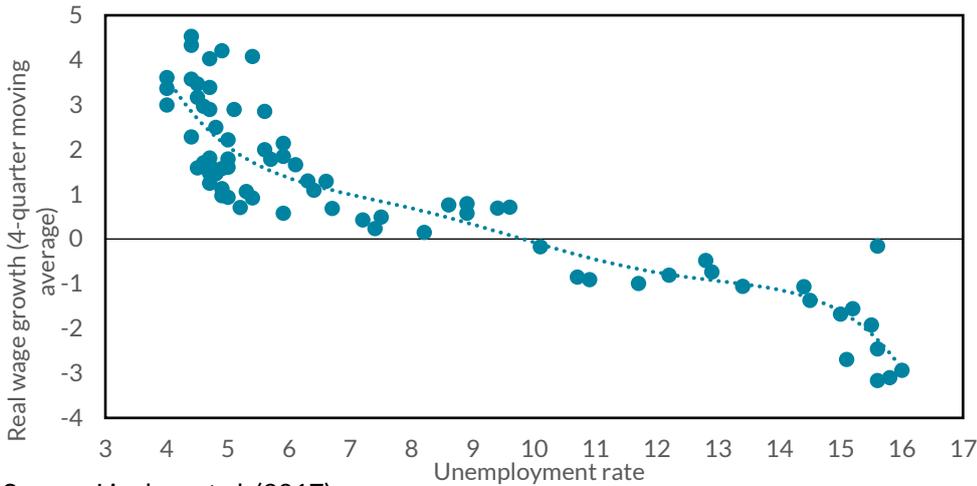
Sources: Authors' calculations based on the COSMO model.

4.1 Higher External Demand when Economy is at Capacity

We repeat the simulation in the previous section but now we assume the economy is operating at capacity. We model this full employment scenario by increasing the responsiveness of real wages to the unemployment rate. Linehan et al. (2017) present evidence of a non-linear relationship between wage growth and unemployment in Ireland, whereby the degree of sensitivity of wages is greater during periods of low or high unemployment (Figure 5). To calibrate the non-linear effect of unemployment on wages we estimate the wage equation in COSMO over the period 2000-2007 when the Irish economy was at full employment and the unemployment rate was below 5 per cent. The estimation results are in line with the evidence in Linehan et al. (2017) and indicate a higher sensitivity of wages to changes in the unemployment rate during this period of full employment. To examine the consequences of a positive external demand shock in a full-employment economy, we replace the coefficient on unemployment in the wage equation in the standard model with the coefficient estimated over the 2000-2007 period.

It is important to note that this calibration is implemented for illustrative purposes to show the potential effects on the economy of a positive external shock when the labour market is tight. The precise sensitivity of wages to reductions in the unemployment rate during the current cyclical upswing is uncertain and may be higher or lower than observed during the 2000-2007 period. Nevertheless this episode of overheating acts as a useful benchmark with which to consider the implications for the economy if there is an increase in demand and the response of wages is similar to that observed during a previous full employment period in Ireland.

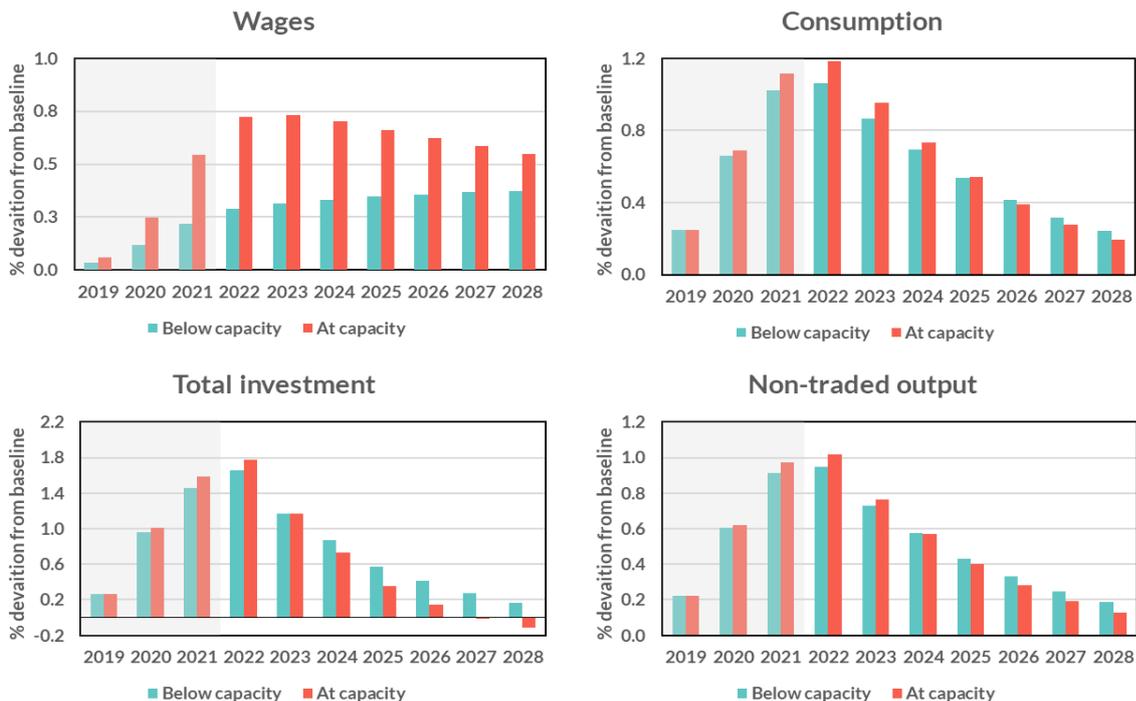
Figure 5: Non-linear response of wages to unemployment



Source: Linehan et al. (2017)

The same three-year external demand shock is implemented in this full-employment version of the model. Figure 6 shows the impact of the external demand shock on key variables when the economy is below capacity (green columns) and at capacity with full employment (red columns). In the latter case, increased world demand now leads to a higher increase in wages than in the former scenario. Initially, higher wages boost personal income and consumption. Investment and output in the non-traded sector are also higher in the short-run, supported by increased inward migration.

Figure 6: External demand shock with economy at capacity

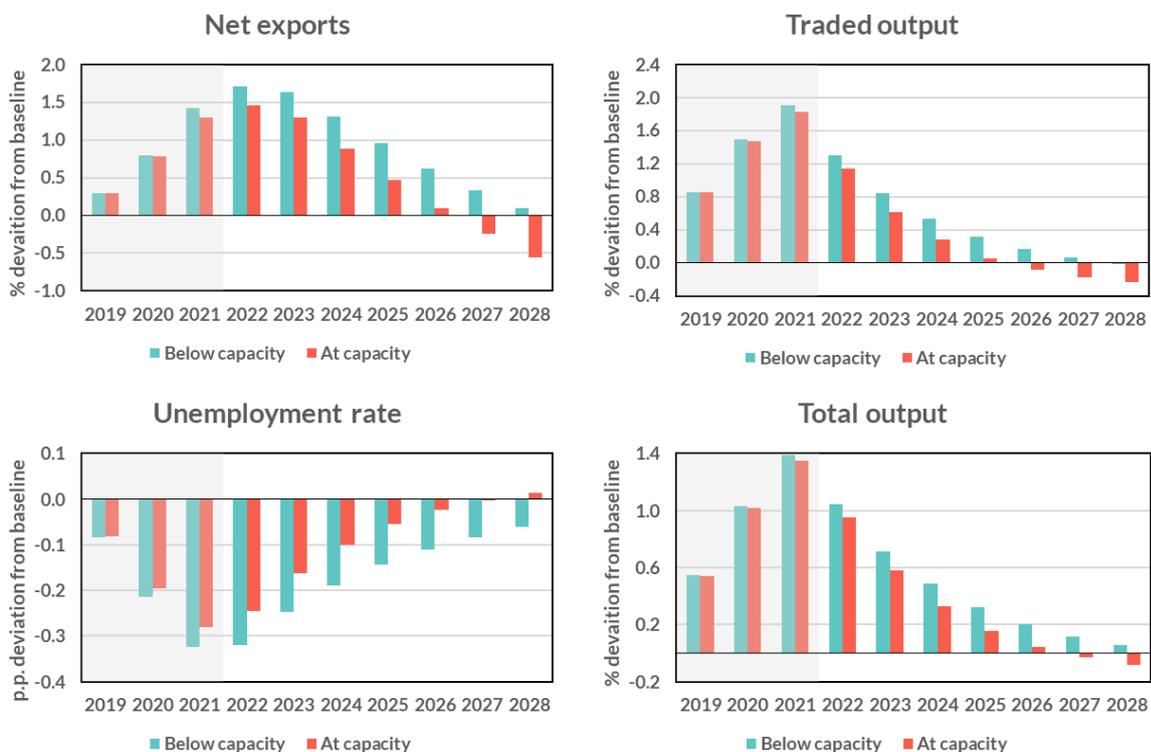


Sources: Authors' calculations based on the COSMO model.

In the long run, the additional boost to wages and domestic demand when the foreign demand shock occurs in the full-employment scenario has negative spillover effects on other parts of the economy as resources are drawn away from the traded sector (Figure 7). In particular, the more pronounced upward pressure on wages and prices means that the traded sector suffers a more severe loss of competitiveness compared to the case where the economy is operating below capacity (Figure 3). This crowding out of the traded sector is reflected in significantly lower net exports in the full-employment case. Once the world demand shock has dissipated, the loss in competitiveness ensures that overall real output declines and there is a marginal increase in the unemployment rate. This contrasts with the results in Figure 3 which showed a positive long-run effect on the economy when the external demand stimulus occurs and the economy is not at full employment.

To summarise, an external demand shock occurring when the economy is at full employment results in higher domestic demand than observed when the economy is below capacity. While higher activity in the non-traded sector initially boosts output, this comes at the cost of lower overall output in the long run as increases in prices and wages undermine competitiveness and result in a loss of output in the traded sector.

Figure 7: External demand shock with economy at capacity

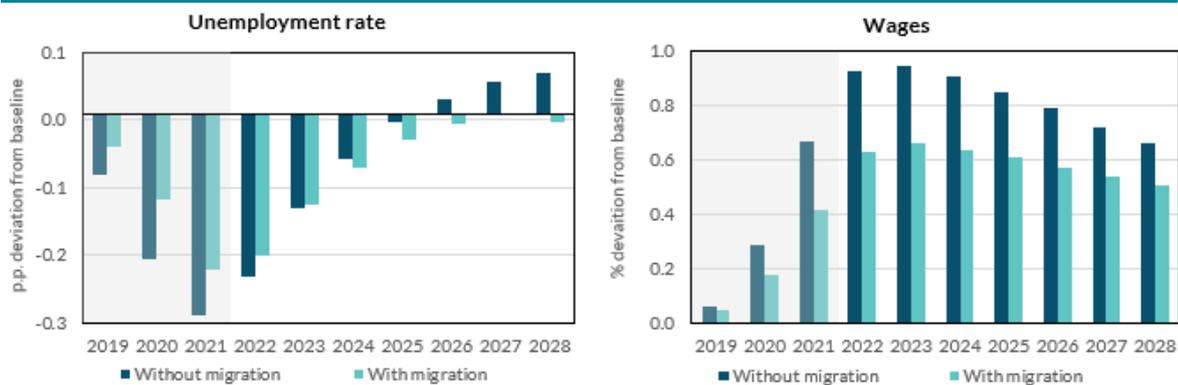


Sources: Authors' calculations based on the COSMO model.

4.2 The Migration Channel

The elasticity of Irish labour supply through migration is an important characteristic of the Irish labour market. Highly elastic labour supply means that, even with full employment, overheating in the labour market in response to a positive demand shock could be mitigated if labour supply is boosted by an increase in inward migration. To illustrate this channel, we run two versions of the external demand shock described in the previous section (the full-employment scenario): one with the migration channel switched on – this replicates the results above – and one where migration is switched off, i.e. net migration remains unchanged at its level observed prior to the world demand shock. The results are shown in Figure 8a and Figure 8b.

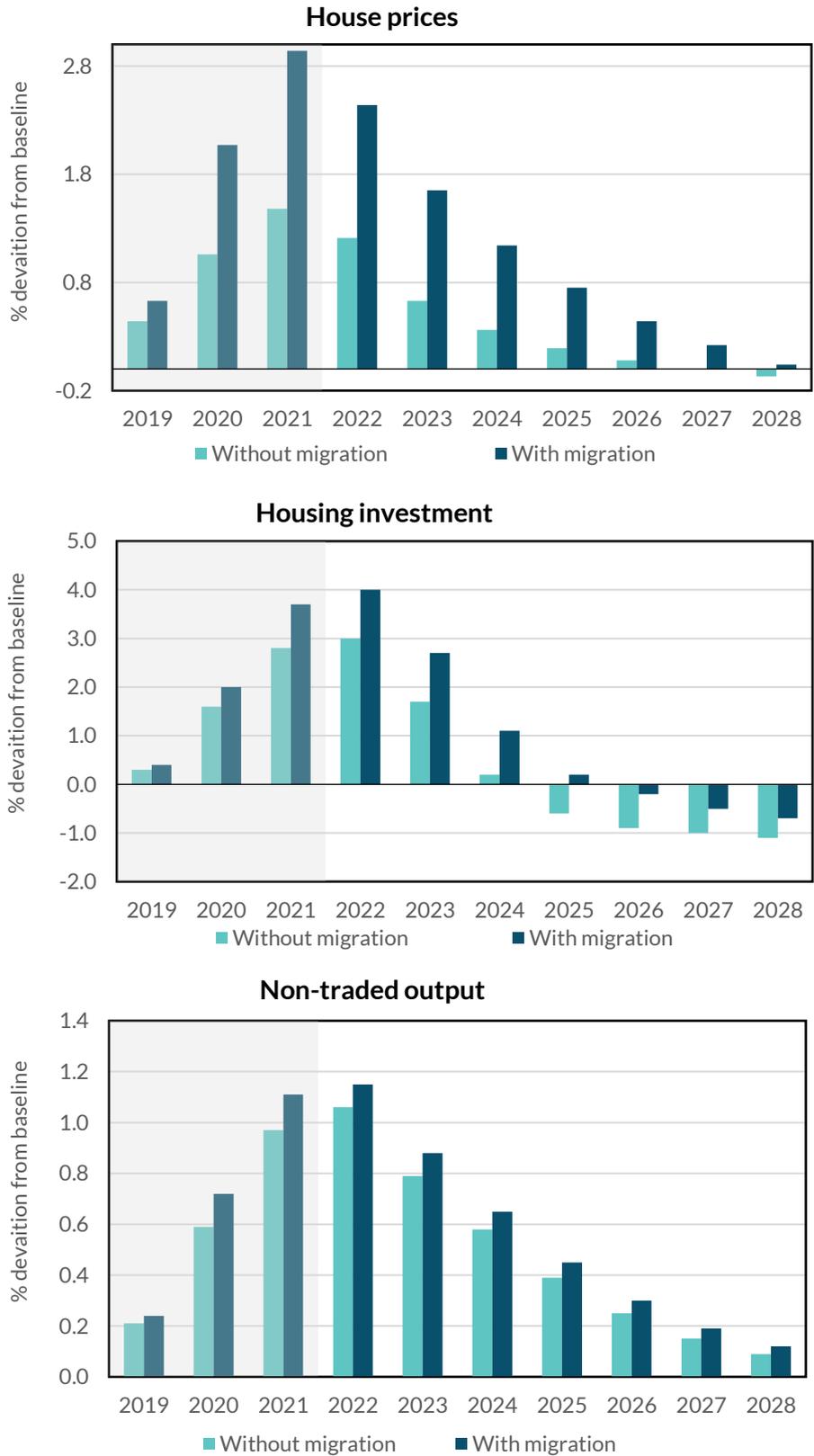
Figure 8a: External demand shock with and without migration: effect on labour market



Sources: Authors' calculations based on the COSMO model.

In the no additional migration case (labelled 'without migration'), the positive external demand shock would result in a larger decline in the unemployment rate compared to the case where there is an additional inflow of migration above the baseline (labelled 'with migration'). In the latter case, net inward migration increases by around 11,000 above the baseline. Actual net inward migration in 2018 amounted to 34,000 and so this corresponds to an increase in the observed inflow of around one third. This significant migration response moderates the decline in unemployment compared to the without migration scenario (Figure 8a). By leading to a smaller fall in unemployment, inward migration also results in a less pronounced rise in wages in the scenario with migration compared to the without migration variant. As a result, in terms of the effect on the labour market, the migration channel can help to ease overheating pressures by lowering the effect on wages of a positive external shock in a full-employment economy.

Figure 8b: External demand shock with and without migration: effect on domestic economy



Sources: Authors' calculations based on the COSMO model.

However, while easing overheating pressures in the labour market, the simulation results show that the increase in inward migration creates pressures in other parts of the economy. By increasing the size of the key household formation age group, migration puts upward pressure on house prices. One of the variables which determines housing investment in COSMO is Tobin's Q, a measure of the profitability of housing construction, defined as the ratio of house prices to building costs which reflects the value of housing relative to its replacement cost. With higher migration and house prices, housing investment rises which also leads to higher consumption.

$$\text{residential investment} = f\left(\begin{array}{l} \text{house prices, building costs, loans to construction sector,} \\ \text{interest rate, unemployment rate, insolvencies} \end{array}\right)$$

As shown in Figure 8b above, housing investment and overall non-traded output are higher in the presence of migration relative to the case where there is no additional migration. Overall, the gains from migration in terms of reducing overheating in the labour market are largely offset by the additional overheating pressures created in the domestic economy, leaving the overall effect on output broadly similar in the with and without migration cases.

5. Conclusions

In this paper, we examine overheating risks in the economy through the lens of the Bank's macroeconomic models and assess the potential propagation mechanisms of an external demand shock in terms of wages and output when the economy is close to full employment.

With the economy near full employment, a positive external shock could lead to a rapid increase in wages. If wages are flexible, as the demand fades, the wage level falls allowing a smooth adjustment of the economy. If instead wages are downwardly rigid, this can lead to a loss of competitiveness and fall in output. The analysis highlights the importance of nominal wage flexibility in smoothing the adjustment of the economy to shocks.

We next examined the effects of a positive external demand shock when the economy is operating below capacity and when the economy is at full employment. Our results show that when the economy is operating at full employment, the benefits of a positive external shock are lower than when the economy is operating below capacity. This is because the external stimulus puts upward pressure on wages and leads to a loss of competitiveness and lower traded sector output in the long run. Our results demonstrate how migration can help ease overheating pressures in the

labour market but at the same time can create higher demand in other parts of the economy.

Taking these results at face value, it would appear that policymakers face a difficult dilemma: addressing overheating pressures in the labour market via higher migration amplifies capacity constraints in another part of the economy. Appropriate macroeconomic management can help navigate these challenges while keeping the economy on an even keel. Ireland is likely to require significant inflows of workers from abroad over the coming years provided the economy remains on a favourable growth trajectory. A continued focus on addressing housing supply shortages can help ensure that Ireland remains an attractive location for the migrants who will be needed to fill vacancies in the labour market (see Byrne and McIndoe Calder, 2019).

To help ensure that the economy has scope to accommodate the required increase in housebuilding while minimising overheating pressures, fiscal policy can play an important role in managing excess demand in the economy (see FitzGerald et al. (2000) and FitzGerald et al. (2010)). The analysis in Conefrey, O'Reilly and Walsh (2019) illustrates that if budgetary policy is excessively expansionary at a time when the economy is operating close to capacity limits, this has the potential to crowd out the tradable sector and could move the economy onto an unsustainable growth path.

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Employment Growth: Where Do We Go From Here?

Stephen Byrne and Tara McIndoe-Calder⁴⁹

Abstract

The improvement in the Irish labour market since late 2012 has been remarkable. Unemployment has fallen towards 5 per cent, while the number of persons employed in the state has now surpassed its pre-crisis peak. Using detailed microdata from the CSO's Labour Force Survey, we suggest that decreases in unemployment and increased labour force participation will not be sufficient to support employment growth at current levels over the short to medium term. As such, strong net inward migration will be the most important source of employment growth if the economy continues to grow at the rates seen over the last number of years.

⁴⁹Irish Economic Analysis Division. The views expressed in this article are solely our own, and do not necessarily reflect the views of the Central Bank of Ireland. We would like to thank Mark Cassidy, John Flynn, Reamonn Lydon, Terry Quinn, Mícheál O'Keeffe, Thomas Conefrey and David Cronin for comments on an earlier draft. We also thank Jim Dalton and Edel Flannery from the Central Statistics Office for significant help with the data. All remaining errors are our own.

1. Introduction

Since early 2014, the Irish Economy has exhibited particularly strong growth in employment. As a result, the unemployment rate, which reached 16 per cent in 2012Q1, has fallen to 5.0 per cent according to the latest data for the first quarter of 2019. The labour force participation rate (LFPR) is now 62.5 per cent, similar to levels seen during the early 2000s and in line with other European and North American countries. Net inward migration, which was a major feature of the Irish labour market during the period from 2004 to 2007, increased to 34,000 in 2018, the third consecutive year of strong gains.

In this paper, we assess the extent to which the economy can sustain employment growth in the short to medium term without generating wage and price pressures. We show that conditions in the domestic labour market are now consistent with full employment,⁵⁰ and that sustained increases in net inward migration will be needed in the coming years to ensure that growth will be not impeded by labour supply constraints.

Typically, employment growth at or above the “full employment” level is accompanied by strong growth in wages and prices.⁵¹ As the supply of labour is scarce relative to demand, workers’ bargaining power increases and the price of labour increases. Since labour is one of the primary inputs in the production of goods and services, increases in the price of labour typically pass through to increases in consumer price inflation. The past through from wage to price inflation is, however, not one-for-one. This is due to a variety of factors, including competitive price pressures and the influence of buyer power, plus the fact that the labour costs account for around 50 per cent of firms’ total costs (Linehan, Lydon and Scally, 2015).

An economy at or beyond full employment also has implications for growth in national income. Specifically, the GDP growth contributions from labour can no longer come from the employment rate and an expansion in the number of hours worked, but rather must come from increases in the size of the working age population through migration or increases in labour force participation.

To show that the conditions in the domestic labour market are now consistent with full employment, we address three key questions. First, despite the unemployment rate being in the region of previous estimates of

⁵⁰ 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 some unemployment occurs as workers move between jobs, referred to as frictional unemployment.

⁵¹ For this reason, full employment is often referred to as the non-accelerating inflation rate of unemployment (NAIRU).

full employment, increases in both average wages and prices have been relatively subdued. As such, it is important to understand whether strong increases in wages and prices are to be expected in the short-run or whether structural changes in the labour market mean that the unemployment rate can fall to a lower level than previously believed.

Second, the labour force participation rate has averaged 62 per cent since mid-2016.⁵² This is in contrast to strong growth in the participation rate seen during the Celtic Tiger and early 2000s. It is important to understand whether the labour force participation rate can be expected to increase substantially to meet further employment demand.

Third, net migration during the early 2000s was important in sustaining employment growth (through the positive effects of migrants on participation, demographic and employment channels) up to 2007 and substantial outflows of emigrants mitigated the rise in the unemployment rate thereafter. Going forward can we expect migrants to flow into the economy in the numbers required to meet the on-going strong job growth?

On unemployment and labour force participation, we show that the scope for future increases in aggregate employment are limited in the short-run. In particular, we show that current labour force participation rates are now similar to comparable European countries, and that a number of once-off temporary factors boosted the participation rate during the mid-2000s. This implies that there is limited scope for gains from domestic participation in drawing those not currently active in the labour force into work.

As such, we argue that net inward migration will be the most important source of employment growth in the short to medium term. However, we caution that the period from 2004 to 2007 coincided with a once-off substantial expansion in the pool of available migrants, i.e. EU enlargement. It is not likely that a significant change as large as this will occur over the short to medium term. This means that Ireland is now competing for migrants with other European countries facing similarly tight domestic labour markets. Further, whilst migration inflows can assist in dampening wage growth, increased numbers of migrants will create overheating pressure in other areas of the economy, and particularly in the already congested housing market (Conefrey, O'Reilly, Walsh & Zavalloni, 2019).

The remainder of this paper is structured as follows. Section 1 describes the contribution of employment to the overall economy. Section 2 characterises the recovery of the domestic labour market since the great recession. Sections 3 and 4 examine potential domestic and external,

⁵² Labour force participation of the 15-74 age population.

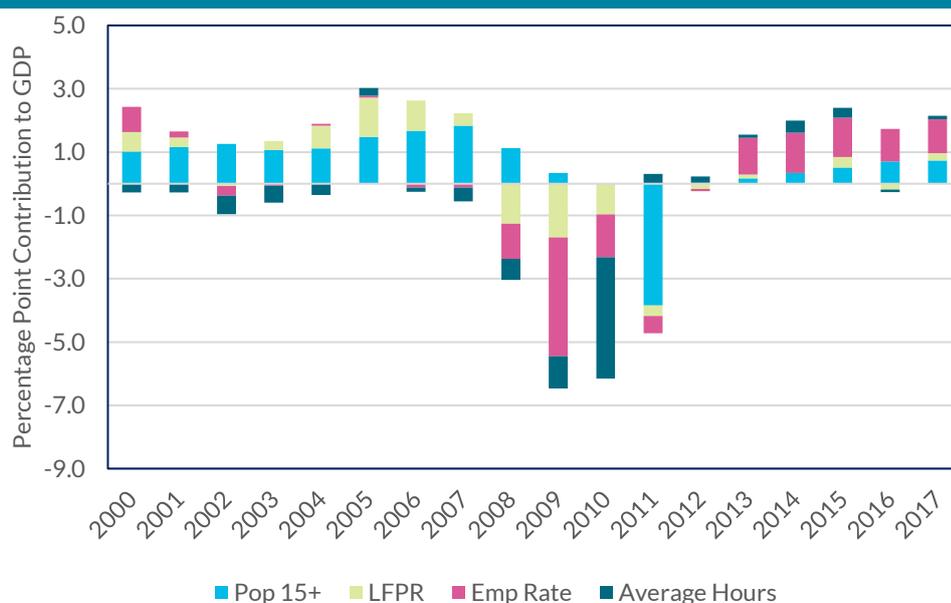
respectively, sources of labour to meet employment growth going forward. Section 5 concludes with a discussion of the policy actions available to authorities in small open economies, without recourse to independent monetary policy, when faced with a labour market at full employment.

2. The Importance of Employment in the Economy

National income expands when labour and capital combine productively to generate output. Chart 1 decomposes the growth in national income into its labour, capital and productivity contributions. The labour contribution is comprised of four elements: additions to the working age population, growth in the labour force, increases in the employment rate and rises in the average hours worked. Labour contributed strongly to GDP growth during the Celtic Tiger (late 1990s-2003) and subsequent period from 2003 to 2007, with the expanding working age population and an increasing labour force participation rate being important from the turn of the millennium up to 2007. The recovery since 2012 has seen the employment contribution to national income coming disproportionately from the increasing employment rate and increases in the working age population. The potential for increased contributions from the working age population and the labour force participation rate going forward will depend on demographic trends, including migration, as well as an understanding of the likely response of the LFPR to a continued employment expansion.

Employment growth has been an important driver of the recovery in the Irish economy.

Chart 1: Labour Contributions to Real GDP Growth



Source: CSO and Authors' Calculations

Prior to 2008, average hours worked were a drag on GDP growth, albeit a small one. During the crisis, a substantial reduction in average hours worked assisted in mitigating the fall in the employment rate as the economy contracted. Hours worked have expanded since 2012; however the contribution of this component to overall GDP growth during economic expansions is limited, especially as wages rise.

Table 1: Labour Market Definitions

	Definitions	Details
Labour Market States	An individual can be at any given time in one of three states: employment, unemployment and inactivity.	Employed = worked for one hour or more for payment or profit, in the reference week including work on the family farm or business and all persons who had a job but were not at work because of illness, holidays etc. in the reference week.
		Unemployed = : Persons who, in the week before the survey, were without work and available for work within the next two weeks, and had taken specific steps, in the preceding four weeks, to find work. Per Eurostat guidelines, the upper age limit for classifying a person as unemployed is 74 years.
		Inactive = all other individuals – also referred to as “not in the labour force”.
The labour force	Sum of all individuals age 15 and over who are either employed or unemployed.	These groups represent the current supply of labour for the production of goods and services in a country (International Labour Organisation, 2019).
Working Age Population	Sum of individuals age 15 years and over.	In our analysis, we restrict this to individuals under the age of 75. This is to match with the CSO's definition of the labour force for the purposes of calculating the unemployment rate.
Labour Force Participation Rate	Proportion of individuals who are in the labour force, expressed as a percentage of the working age population.	
The Unemployment Rate	Number of individuals who are unemployed expressed as a fraction of the labour force.	In order to match Eurostat harmonisation guidelines the labour force is restricted to individuals aged 15-74 for the purposes of generating the unemployment rate.
Inactive Population	Individuals who are neither employed nor unemployed.	This is a heterogeneous group, including the retired, individuals looking after children or relatives, and those in education, among others.

Whilst employment contributes to growth, an economy that moves beyond full employment can experience significant wage increases as the supply of labour is scarce relative to demand, workers' bargaining power increases and the price of labour increases. These developments have negative consequences for competitiveness and productivity. Since labour is one of

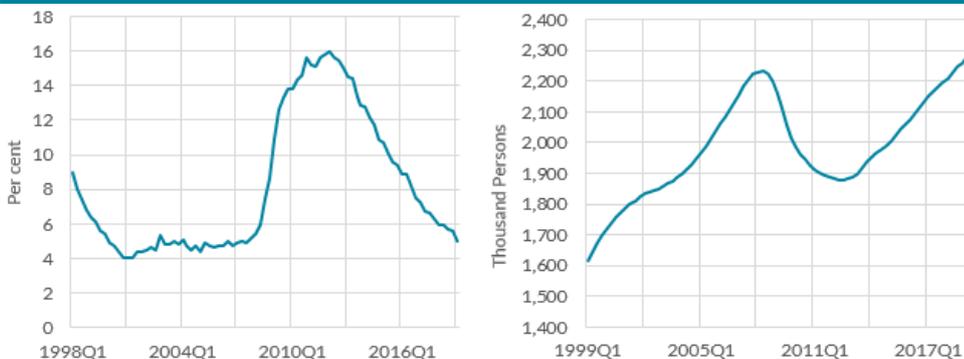
the primary inputs in the production of goods and services, increases in the price of labour also typically pass through to increases in price inflation.

Although the unemployment rate is now in the region of previous estimates of full employment, increases in average wages have been relatively subdued. Compensation per Employee grew by just 0.8 per cent in 2017, rising to 2.8 per cent in 2018. There have been a number of potential explanations put forward to explain this phenomenon. During the last period of full employment in Ireland, the relationship between unemployment and wages and prices was not linear, growth in wages and prices picked up strongly after the unemployment rate fell below 5 per cent (Linehan, et al. 2017). This non-linearity of the wage Phillips curve is also a feature in the Euro Area (Byrne and Zekaite 2018). Another explanation could be that the unemployment rate is not an adequate measure of the level of slack available in the labour market. Byrne and Conefrey (2017) showed that that accounting for those individuals who are not classified as unemployed, but who are outside of the labour force, shows that the pool of available labour may be larger than would be suggested by the standard unemployment rate. For these reasons, our analysis looks beyond the standard measures of unemployment to determine whether the economy is at full employment and is likely to see a pickup in wage growth in the near term.

3. Characteristics of the Recent Employment Expansion

There has been a remarkable recovery in the labour market since 2012. The unemployment rate, which peaked at 16 per cent in the first quarter of 2012, has fallen to 5 per cent in the first quarter of 2019. The number of people employed in the state has now surpassed its pre-crisis peak of 2.24 million persons recorded in the fourth quarter of 2007. As of the first quarter of 2019, there were 2.32 million employed in the state (Chart 2).

Chart 2: Unemployment Rate (LHS) and Employment (RHS)

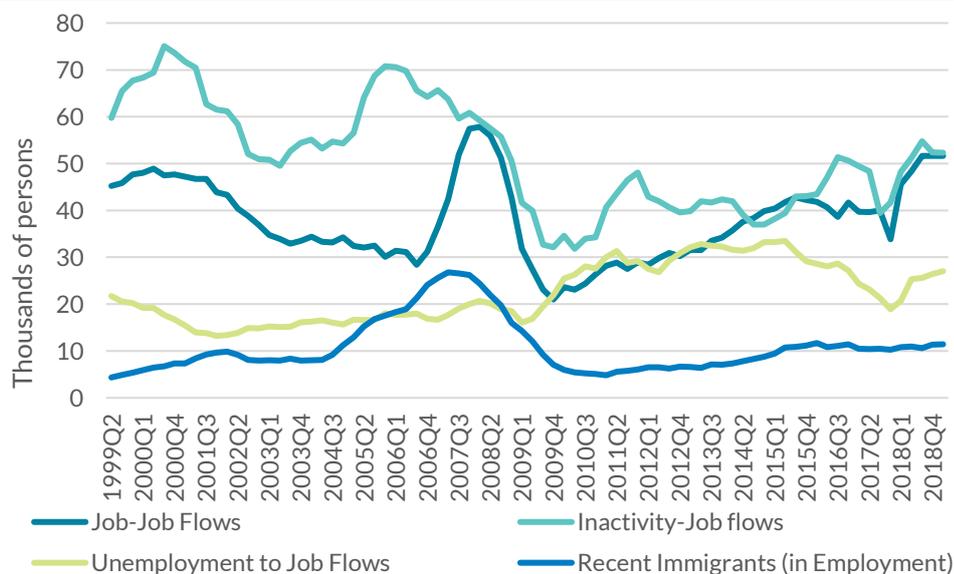


Source: CSO LFS.

New workers can “flow” into employment from four sources: a different job (employment), unemployment, inactivity or inward migration. Note however that only the latter three can increase aggregate, as job-to-job flows only reallocate labour between firms – leaving the level of employment unchanged.

To examine this further, it is helpful to investigate the changing composition of the flows into employment over time. We calculate gross inflows into employment from the CSO’s Labour Force Survey (LFS) by adding all the inflows into employment (Job-Job, Unemployment to Job and inactivity to job). We also calculate the number of immigrants who join the pool of employed workers from the LFS data.⁵³ Chart 3 shows the relative contribution of domestic flows into employment as well as immigrant contributions.⁵⁴

Chart 3: Gross Employment Flows: Contributions



Source: CSO LFS and authors’ calculations.

Note: Series seasonally adjusted using a four-quarter moving average. Cell sizes for recent quarters in the migrant contribution series shown here are small and as such should be treated with caution.

⁵³ Indeed, the LFS is now the primary source of data for the CSO’s annual population and migration estimates. Population estimates are then benchmarked to the Census results every 5 years

⁵⁴ Gross and net flows follow similar trends for the inactivity to job (IJ) and unemployment to job (UJ) flows shown in Chart 3. Gross IJ (UJ) flows are larger than net flows by a factor of 4 (7).

The gross flows into employment are dominated by flows originating in the domestic labour market. In the Celtic Tiger and early 2000s, as well as in the recovery after the recession the largest share of gross new jobs came from those flowing from inactivity into employment. During periods where the labour market is tight, such as the period from 2004-2008, and since late 2015, job-to-job flows are as important as the flows from inactivity to the formation of gross new jobs in each quarter.⁵⁵ Significant job to job flows mean that firms are competing with each other for workers, and is positively correlated with wage growth. Lydon & Staunton (2019) show that job switching tends to increase rapidly when the labour market is tight. Table 1 shows that contributions to gross new jobs from those moving from unemployment into jobs was highest in the recession and recovery and now looks to be returning slowly to its pre-recession average. Employment contributions from immigrants currently comprises around 10 per cent of gross new jobs, versus 1 in 5 jobs coming from the unemployed, almost 40 per cent from inactivity and the remainder (34 per cent) from other jobs.

The largest contribution to gross employment gains come from those in jobs and those out of the labour force.

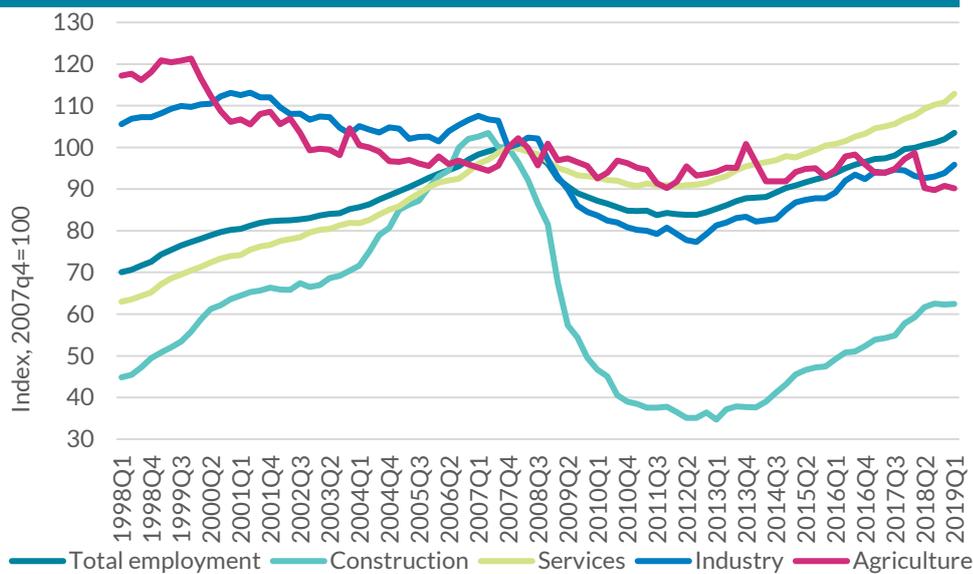
Table 2: Employment Contributions by Flow Type: Annual average shares

	Employment to Employment	Inactivity to Employment	Unemployment to Employment	Migrant Share
1999-2003	33	48	13	6
2004-2007	27	47	13	13
2008-2012	29	39	24	9
2013-2015	32	34	27	7
2016-2019	34	38	20	9

Source: CSO LFS and authors' calculations.

On a sectoral level, the employment expansion since late 2012 has been broad-based. Gains have accrued to all of services, industry, construction and agriculture (Chart 4). Although services recovered to pre-recession levels of employment in late 2014, this was mainly due to the sector losing relatively few jobs during the crisis when compared to construction or industry that saw falls of 60 per cent and 25 per cent, respectively, between 2008 and 2012. This represents a reallocation of labour from relatively less productive sectors, like construction between 2004-2007, to sectors that are more productive.

⁵⁵ The increase in flows from inactivity to employment is mirrored by recent increases in the labour force participation rate.

Chart 4: Employment Growth by Sector: Index (2007q4=100)

Source: CSO LFS and authors' calculations.

Note: Seasonally adjusted employment series used.

It will be important to monitor these developments as the labour market tightens further. In a well-functioning labour market more productive firms offer higher wages, resulting in efficient labour reallocation and an increase in productive output ([Hopenhayn, 2014](#), [Honohan and Walsh 2002](#)).

Growth in vacancies and hourly earnings provide an indication of the demand for jobs. Table 3 shows employment, vacancies and average hourly earnings moving together, both within sectors and across the economy. Average total earnings is the product of the number of hours worked and hourly earnings. An increase in hourly earnings indicates that there is reduced capacity for firms to use hours growth to meet employment demand.

Hourly earnings did not fall as rapidly as employment during the crisis, firms in many cases reduced hours rather than cut jobs (see Chart 1). This is consistent with the literature on nominal wage rigidity, which suggests that it is easier to reduce effective wages by reducing hours worked rather than wages (Bernanke, 1986; Lydon, Mathä & Millard, 2019). Relatedly, hourly earnings have taken much longer than employment to return to growth. In fact between 2013 and 2015 hourly earnings fell, indicating the large reserves of labour capacity available in economy, from both unemployment and under-employment (reduced hours) once employment began to grow from 2013.

Employment growth has been broad-based.

Table 3: Employees, Vacancies and Hourly Earnings: Average annual growth rates

Sector	Time Period	Employees	Vacancies	Average Hourly Earnings
Construction	2008-2012	-18.63	45.83	-0.81
	2013-2015	9.95	69.31	0.28
	2016-2019	11	81	2
Industry	2008-2012	-4.89	5.26	1.33
	2013-2015	4	8	0
	2016-2019	2.6	12.67	1.6
Services	2008-2012	-2.6	-0.84	1.81
	2013-2015	3	22	-1
	2016-2019	3.85	6.72	1.44
All	2008-2012	-3.93	-0.86	0.51
	2013-2015	3.23	21.22	-0.18
	2016-2019	4.05	7.44	1.61

Source: CSO LFS, CSO EHECS and authors' calculations.

Vacancies provide an additional measure of labour market demand. Indeed, vacancies in construction and industry have grown strongly since 2013, although services vacancies appear to have moderated somewhat after strong growth between 2013 and 2015. Box A provides some further insights on vacancy trends using data from Indeed.

Box A: Labour demand in Ireland – insights from online job postings

Reamonn Lydon⁵⁶

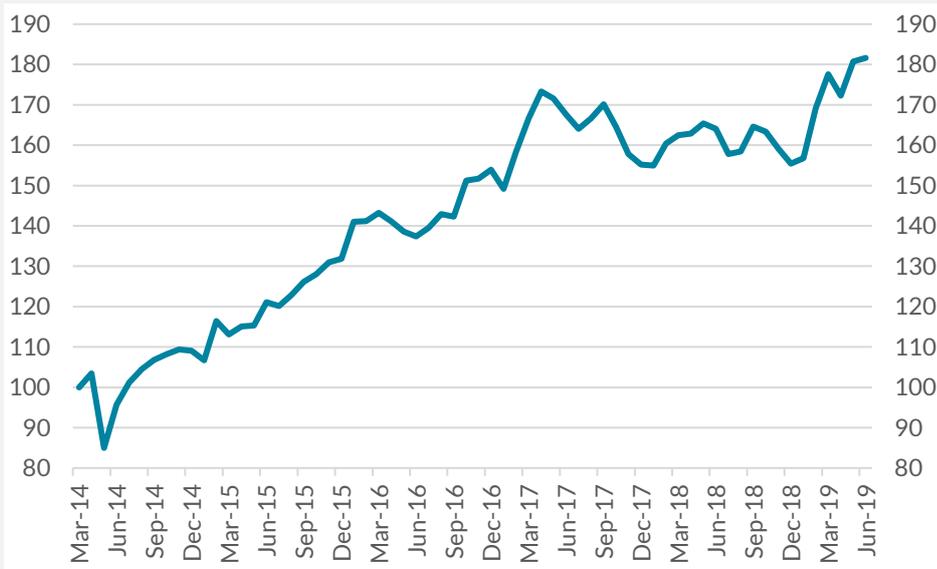
In a recent *Economic Letter* ([Adrjan and Lydon, 2019](#)), we show how information from online job postings on [Indeed's](#) Irish website can shed light on labour market developments. This box updates the analysis in two ways. First, it provides a timely update on labour demand by showing trends in job postings through to mid-2019 and identifying the most 'in-demand' jobs. Second, given the increasing importance of inward migration for employment growth, it identifies the jobs that attract the most interest from jobseekers located abroad.

⁵⁶ The author is a Senior Economic Advisor at the Central Bank of Ireland.

Strong demand for workers in the first half of 2019

One of the key findings from [Adrian and Lydon \(2019\)](#) is that online job postings closely track official estimates of job vacancies from the CSO. Figure 1 plots the job posting trends to June 2019. There has been a pick-up in the first half of the year, with job postings almost 6.5 per cent higher, compared to the first half of 2018. June 2019 alone was over 10 per cent higher than May 2018.

Figure 1: Job posting trends (January 2014 = 100)



Source: Indeed. See [Adrian and Lydon \(2019\)](#) for data definitions. Data seasonally adjusted.

Historically, changes in vacancies and changes in new hires are positively correlated. Using the CSO vacancy series from 2008 (allowing us to go back further than the Indeed series), the elasticity of new hires to vacancies is around 0.5. In other words, a 1 per cent increase in vacancies is associated with a 0.5 per cent increase in the number of *new hires*.⁵⁷

The response of employment, unemployment and wages to an increase in job postings/vacancies depends on the share of job churn in new hires. As pointed out in this article and [Staunton and Lydon \(2018\)](#), the share of job churn has grown steadily throughout the recovery and now accounts for over a third of all new jobs in a quarter –marginally above pre-recession levels. [Staunton and Lydon \(2018\)](#) also show that higher job churn tends to put upward pressure on wages.

With a wide range of skills demanded...

Around 30,000 new job postings appear on the Indeed website each month, attracting 3.9 million monthly visits.⁵⁸ Table 1 lists the top-ten job titles advertised on Indeed in the first half of 2019. Just over one in every hundred jobs is for a 'Customer Service Representative'. Related roles of

'Sales Assistants' and 'Sales Representatives' also appear in the top-ten. After this, the range of job titles is quite diverse, covering healthcare, financial, administrative, construction and service-related roles. This is consistent with the broad-based nature of employment growth since the start of the recovery.

Table 1: Top-ten job titles advertised on Indeed Jan-Jun 2019

Rank	Occupation	Share of all job postings
1	Customer Service Representative	1.10%
2	Quantity Surveyor	0.90%
3	Cleaner	0.80%
4	Sales Assistant	0.80%
5	Chef	0.80%
6	Sales Representative	0.70%
7	Administrator	0.70%
8	Porter	0.60%
9	Healthcare Assistant	0.60%
10	Accountant	0.60%
	<i>Top-ten total</i>	7.70%

Source: Indeed job postings advertised on Indeed's Irish Website between January and June 2019.

Table 2: Fastest-growing occupations – Growth in the share of job postings on Indeed from Jan-Jun 2018 to Jan-Jun 2019

Rank	Occupation	Growth rate
1	Food Preparation Workers	69.00%
2	Surveyors	69.00%
3	Truck Drivers	60.00%
4	Civil Engineers	58.00%
5	Sales and Related Workers	50.00%
6	Electrical and Electronic Engineering Technicians	47.00%
7	Teacher Assistants	36.00%
8	Mechanical Engineers	35.00%
9	Electrical Engineers	34.00%
10	Architectural and Civil Drafters	34.00%

Source: Indeed occupations with at least 500 jobs posted in each period.

⁵⁷ A 'new hire' is defined as any employee starting a new job in the last three months. This includes workers who transition from inactivity (including inward migration) or unemployment *and* workers moving from one job to another, i.e. 'job churn' or 'job switchers', as in [Staunton and Lydon \(2018\)](#).

⁵⁸ SimilarWeb, Total Visits, January 2019.

As well as the *absolute* share of job postings in 2019 H1, we can also look the jobs that have *grown* their share of postings over the last year (Table 2). We aggregate jobs to slightly wider occupational categories than in Table 1 to show a broader picture of current trends in labour demand (these ten occupations represent 8.2 per cent of job postings in 2019). For example, whilst *Quantity Surveyors* are among the most common job titles, we see growth in a much broader range of skilled construction-related roles (surveyors, civil engineers and architectural/civil drafters). This increase in the demand for construction-related roles, combined with strong wage growth in the sector⁵⁹, suggests that it may be a challenge to meet this increasing labour demand in the short-term.

Migrants are a potentially important source of workers in technology, healthcare and construction

Inward migration will play an increasingly important role in meeting labour demand in Ireland in the future.⁶⁰ We use the Indeed data to analyse the search patterns of jobseekers located outside of Ireland actively searching for jobs in Ireland. This information on ‘migration intentions’ has been shown by Mamertino and Sinclair (2019) to be strongly positively correlated with actual migration patterns.

We measure ‘migration intentions’ by counting the share of clicks on job ads from jobseekers located outside of Ireland, at the time of the search.⁶¹ Table 3 lists the top-ten job titles ranked by share of clicks from within the EU, but outside of Ireland. For these top-ten jobs, almost four out of every ten clicks (37 per cent) is from a job search outside of Ireland (overall foreign share). To put this figure in context, for all job postings on Indeed, around one-in-nine clicks (11 per cent) comes from outside Ireland. For comparison, the same figures for the UK and London are 3 per cent and 9 per cent respectively.

Language-related roles attract considerable interest, with up to 40 per cent of clicks on these jobs coming from jobseekers outside of Ireland, and around 25 per cent from within the EU. After languages, technology-related job searches are popular, with more than one-in-three clicks from foreign jobseekers, of which around half are within the EU. Architects are the only job title that appears in both the ‘fastest growing’ list in Table 2 and in the top-ten list of EU job-seeker interest. This suggests that

⁵⁹ See [CSO EHECs, May 2019](#).

⁶⁰ This is a recurring theme in recent Quarterly Bulletins. As well as this article, see Box C, [Quarterly Bulletin 2, 2019](#), “Inward Migration and the Irish Labour Market”, by David Staunton.

⁶¹ From the geolocation of the Internet Protocol address.

fulfilling these high-demand roles in the future may rely increasingly on inward migration, from both within and outside of the EU.

Table 3: Top 10 job titles by share of clicks from elsewhere in the EU, Jan-Jun 2019

Rank	Occupation	EU click share	Overall foreign click share
1	Translator	25%	41%
2	Bilingual Sales Representative	23%	36%
3	Game Tester	19%	32%
4	Obstetrics And Gynaecology Physician	16%	53%
5	Media Content Reviewer	16%	29%
6	Architect	14%	39%
7	iOS Developer	13%	36%
8	Android Developer	13%	35%
9	PHP Developer	13%	41%
10	C++ Developer	12%	31%

Source: Indeed job titles with at least 100 posted jobs. EU excludes Ireland.

Table 4 lists the top-ten job titles ranked by share of clicks from outside of the EU. Technology related job titles are once again prominent, with various roles receiving around 30 per cent of clicks from foreign jobseekers. The key difference versus Table 3 is the high interest in healthcare roles when we look outside the EU. Four of the top-ten roles, including the top-three, are in healthcare, with up to a half of all job search for some of them coming from workers currently located outside of Ireland. Finally, as with Architects in the previous table, we see that fulfilling labour demand in certain skilled construction-related jobs – like *Senior Civil Engineers* – relies heavily on inward migration, with 40 per cent (35 per cent) of clicks on these jobs coming from foreign (non-EU) searches. It is clear that Irish employers are competing in global labour market for many of these skilled roles.

Table 4: Top 10 job titles by share of clicks from outside the EU, Jan-Jun 2019

Rank	Occupation	Non-EU click share	Overall foreign click share
1	X-Ray Technician	45%	51%
2	Obstetrics And Gynaecology Physician	37%	53%
3	Emergency Medicine Physician	36%	43%
4	Senior Civil Engineer	35%	40%
5	Senior .Net Developer	34%	40%
6	Intensive Care Nurse	33%	37%
7	Senior Software Engineer	32%	40%
8	SAP Consultant	31%	41%
9	Senior Automation Engineer	30%	36%
10	Software Architect	29%	36%

Source: Indeed job titles with at least 100 posted jobs.

4. Domestic Sources of Employment Growth Going Forward

In this section we examine the working age population to establish whether we can expect domestic demographic and labour force participation trends to contribute to employment growth going forward.

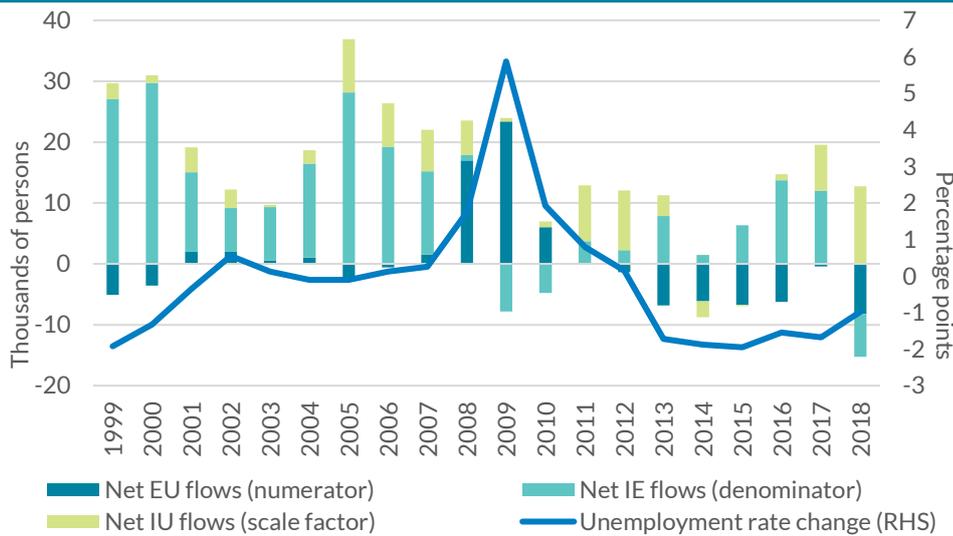
The fall in the unemployment rate since 2012 has been remarkable in both scale and speed. Reductions in the unemployment rate occur due to falls in the numbers unemployed (numerator); and/or increases in the labour force (denominator).

We decompose unemployment rate changes into three net labour market flows (Chart 5): employment to unemployment flows (numerator); inactivity to employment flows (denominator) and unemployment to inactivity flows (occurring in both numerator and denominator).

Chart 5 confirms that entering employment from unemployment contributes substantially to falls in the unemployment rate. The pool of the unemployed has fallen, since the peak of over 350,000 in 2010, to approximately 110,000 in early 2019. The contribution from this group to the decline in the unemployment rate, and indeed the employment expansion, will decline going forward as the stock of these individuals falls to levels consistent with job churn.

In the early 2000s labour force inflows came primarily from inactivity directly to employment, with an increased role for transitions to unemployment occurring during the early 2000s as the labour market tightened substantially. This pattern has re-emerged since early 2018, inflows into the labour force are coming increasingly from unemployment, a further sign that the labour market has tightened.

Chart 5: Unemployment Rate Falls: Annual average contributions



Source: CSO LFS and Authors' calculations.

Note: EU – Employment to Unemployment. IE – Inactivity to Employment. IU – Inactivity to Unemployment.

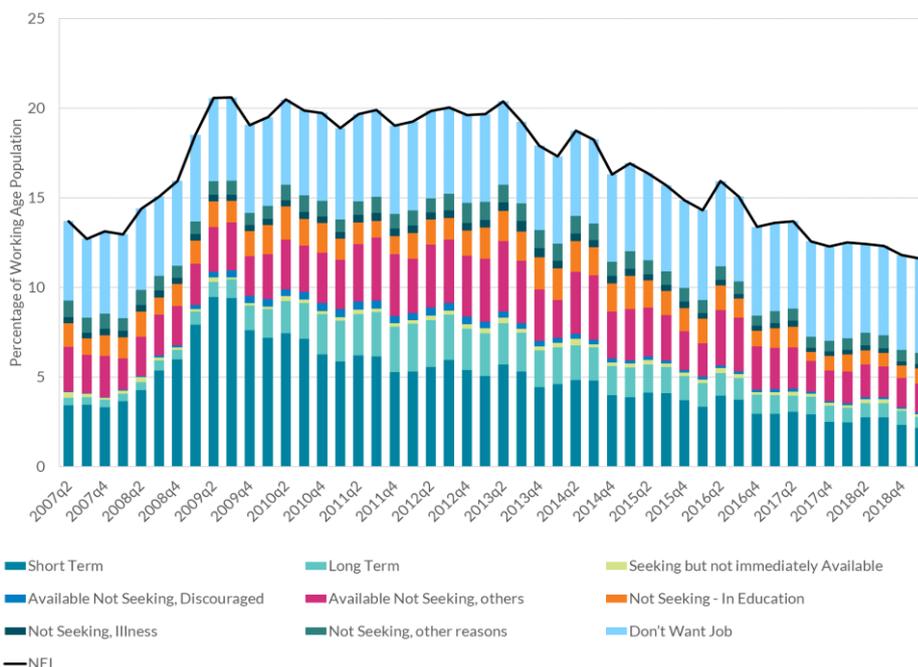
Non-Employment Index

A key point in Chart 5 is the importance of the fall in flows from inactivity to employment. This represents a further decline in the slack available to the domestic labour market. To quantify this, we decompose the “Non-Employment Index” from Byrne and Conefrey (2017). That paper showed that while the stock of individuals outside of the labour force is quite large, the rate at which these individuals transition into employment is heterogeneous depending on their reason for being inactive. For example, people who are inactive because they are caring for children may eventually resume work, whereas retired individuals are much less likely to do so. This has important implications for the analysis in this paper. Chart 6 shows three key facts about the remaining stock of inactive individuals. First, the numbers of short-term unemployed, those with the highest transition probabilities has fallen to historically low levels consistent with job churn. Second, individuals who characterise themselves as “available: not seeking”, the group with the second highest transition probability on average, has also declined significantly. It is clear that in the aftermath of the crisis, this group grew significantly – as workers became discouraged stopped their job search activity. While it is not possible to estimate a

natural level for this group, the remaining stock is not large enough to support significant employment growth into the future.

Lastly, the largest contribution to non-employment are individuals who classify themselves as “Do not Want a Job”. Byrne and Conefrey (2017) show that this group have a very low transition probability (in the region of 1 per cent per quarter on average). However, the size of the group raises the question of whether they represent a substantial pool of additional slack available to the economy.

Chart 6: Non-Employment Index Contributions



Source: CSO and Authors’ calculations.

In the first quarter of 2019, there were 934,000 individuals in the “Do not want a Job” category (Table 2). However, using the LFS microdata, we can see that a significant majority of these individuals are aged between 15-20 and 65+.

Table 4: Components of the Inactive Population

	2019Q1 (thousands)
Inactive Population	1480.2
Of Which: Does Not Want a Job	934.8
Does Not Want a Job (ex -15-20 and 65+)	351.6

Source: CSO and authors’ calculations.

Excluding these groups, 351,000 individuals between the ages of 20 and 65 remain in the category. This represents 14 per cent of the total population in this age group. Using a simple regression analysis, we find that people are more likely to be in the “Don’t want a Job” category if they are older, female, married, less educated and have children.⁶² The likelihood also increases significantly with the time since they last held employment. Indeed, excluding the over 50s from the category further reduces the number to 171,000 (9.7 per cent of the population in this age group).

The numbers of those neither in work, nor searching for work, have fallen substantially.

Labour Force Participation

A key difference between the last period of full employment (2005-2007) and the present period is in the labour force participation rate, which is significantly lower than it was over a decade ago (Chart 7). However, this reflects a number of factors which, taken together, imply that we are unlikely to see significant gains to participation over the coming years.

Chart 7: Labour Force Participation Rate



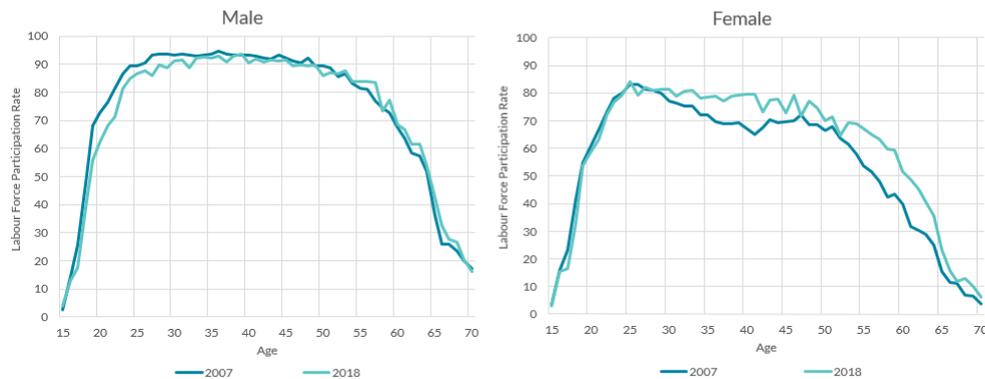
Source: CSO LFS.

First, the participation rate of men aged between 25 and 35 during the 2000s was much higher than at present (Chart 8). This was primarily related to the predominance of construction employment among individuals in this age cohort during this period (Conefrey & McIndoe Calder, 2018) which boosted participation among this cohort. This was a temporary phenomenon, in particular, the very high participation rate of those in the younger age groups, has declined and is now more in line with European Union averages.

⁶² The model was estimated using a probit where the dependent variable takes a value of one if the individual is classified as “do not want a job” and zero otherwise. A set of standard labour supply determining covariates were included. Results available on request.

Second, younger people are staying in education longer on average, which is likely to have positive advantages for productivity and labour force participation in the long-run (FitzGerald & Bercholz, 2015).

Chart 8: Labour Force Participation Rate by Age in 2007 and 2018: Male (LHS) and Female (RHS)



Source: CSO LFS and Authors' calculations.

Third, labour force participation among prime working age (25-50) women has increased significantly compared with its level in 2007 (Chart 8, RHS). There are a number of factors that could be driving this development, including increased housing costs. Female labour force participation is lower than that of men for most age cohorts across the EU (Table 5). The LFPR gender gap is falling both within the EU and in Ireland and in 2018 stood at 12 per cent on average, compared to 10.5 per cent in the EU and close to 9.5 per cent in the UK and the Netherlands. LFPR gender gaps across countries reflect both cultural and institutional factors, Walsh (1993). Ireland's convergence to the EU average for the LFPR gender gap has been rapid and sustained over recent decades. This reflects both cultural changes and the implementation of policies supporting women entering the labour force over recent years, for example child care subsidies. In addition, it is clear that across the age distribution (Chart 8 RHS) female participation now closely mirrors the shape of male participation. Together these factors suggest that labour force participation among women in Ireland is unlikely to increase much further, at least in the short-term.

The labour force participation rate gender gap is falling.

Table 5: LFPR gender gap: Ireland and selected EU countries

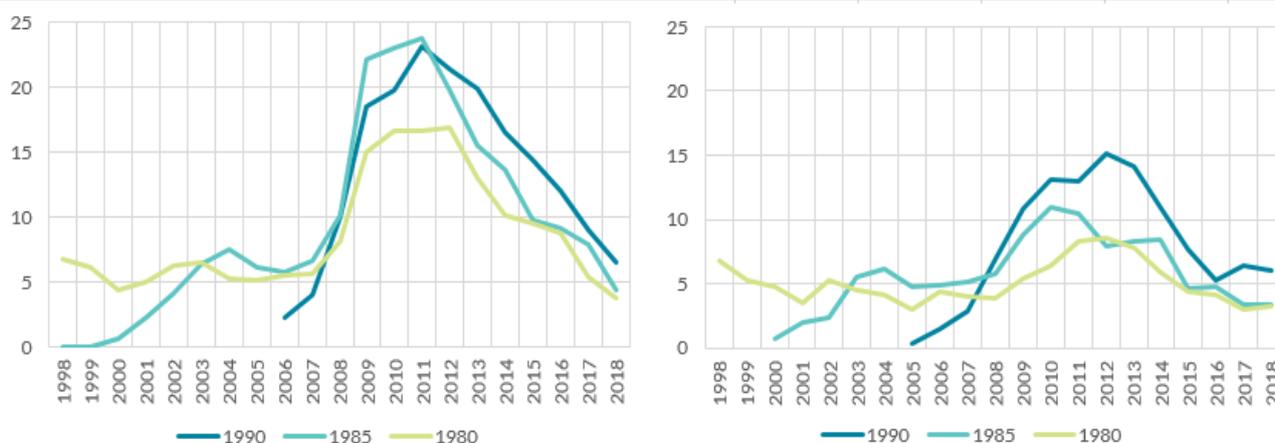
	Ireland	EU	Sweden	UK	Netherlands	Germany
1998-2003	22.5	17.7	5.7	14.4	16.9	15.4
2004-2008	19.2	14.7	5.7	13.1	13.8	12.6
2009-2012	14	12.7	6.1	11.9	11	11.3
2013-2018	12.7	10.9	5.1	10.3	10	9.6

Source: Eurostat and authors' calculations.

Note: LFPR gender gap calculated as the average quarterly percentage point difference between the male and female LFPR.

Fourth, another factor affecting the reduced participation rate of younger cohorts in 2019 is that many of them (particularly ages 25-30) entered the labour force during the financial crisis. There is a large literature on the scarring effects of unemployment spells on the young, Bell and Blanchard (2011) and Strandh et. al. (2014). Chart 9 shows that the unemployment rate of both men and women who were born in 1990 was approximately 1.5 percentage points higher in 2019Q1 than individuals born in 1980.⁶³

Chart 9: Unemployment Rate by Birth Year over Time: Male (LHS) and Female (RHS)



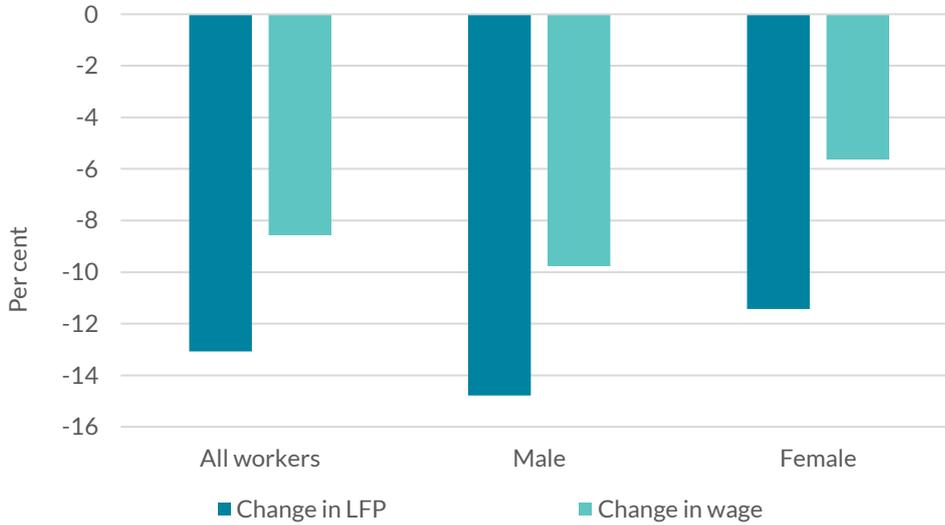
Source: CSO LFS and authors' calculations.

Last, participation declines of the young co-move with unemployment rates and wages. Lydon and Lozej (2018) find that new hires suffered the largest pay declines at the onset of the financial crisis in 2008. Chart 10 shows the results of a set of regressions where the dependent variable is the difference in earnings of age group *i* for each gender between 2017 and 2007, and the explanatory variables capture wage determining characteristics such as experience and occupation. This model, together with the observed labour force participation rates of younger cohorts is

⁶³ This holds for individuals born between 1988 and 1991.

consistent with published estimates of the elasticity of labour participation to wages (Byrne and O'Brien, 2017).

Chart 10: Labour Force Participation and Wages for the Young: Changes between 2007 and 2017 by gender



Source: CSO SILC and authors' calculations.

These factors combined confirm our hypothesis that labour force participation is unlikely to increase significantly over the short to medium term. We confirm this using the cohort model with cyclical effects from Byrne and O'Brien (2017). This model estimates a labour force participation equation for each age-gender-birth year group and sums them to a trend aggregate participation rate. The results of the model for males and females combined is shown in Chart 11.⁶⁴

Chart 11: Cohort Model



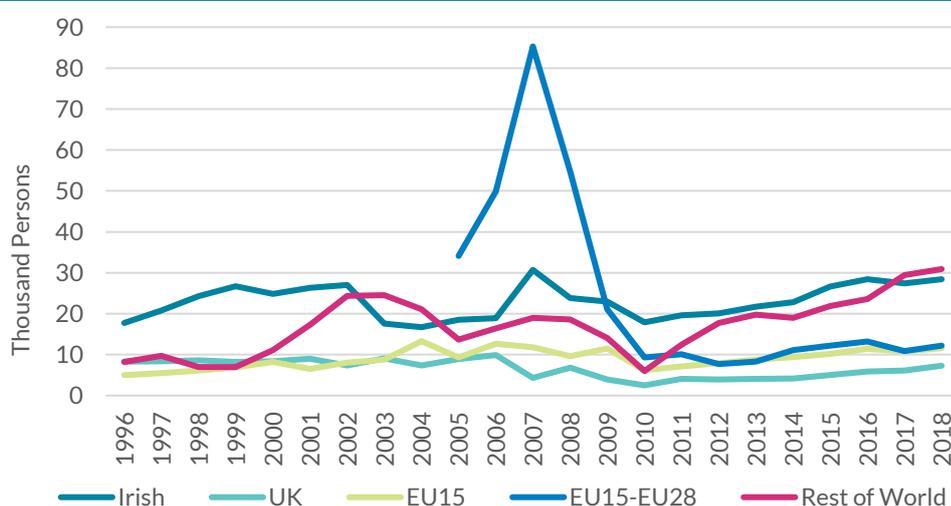
Source: CSO LFS and Authors' Calculations.

⁶⁴ Separate male and female model results are available on request.

5. External Sources of Employment Growth Going Forward

The analysis thus far shows that the conditions in the domestic labour market are now consistent with full employment. Conefrey *et al* (2019) suggest that increases in net inward migration can dampen the adverse effects associated with full employment, in particular strong wage growth. In a highly open economy such as Ireland, a very tight labour market tends to attract labour from abroad. During the mid-2000s, the accession to the European Union of eight eastern European countries had a significant impact on labour market developments in Ireland at a time when the economy was at full employment (Chart 12).

Chart 12: Immigrant flows (By Nationality Grouping)



Source: CSO.

A key question is whether the substantial net inward migration into employment seen during this period will be repeated in the short to medium term. To answer this, it is helpful to consider the characteristics and employment profile of the current cohort of migrants as distinct from the group who entered Ireland in the mid-2000s.

Table 6 highlights the differences in the nationality profile of employed migrants since 2013 when compared to the pre-financial crisis period. While EU accession countries made up nearly 60 per cent of all recently arrived migrants in employment between 2004 and 2007, they account for around one in four new migrants currently. Since 2013, the share of migrants from emerging economies beyond the EU account for one in three employed new migrants, a tripling of their pre-crisis share.

Table 6: Recent Immigrant Employment Share, by Nationality: Annual averages

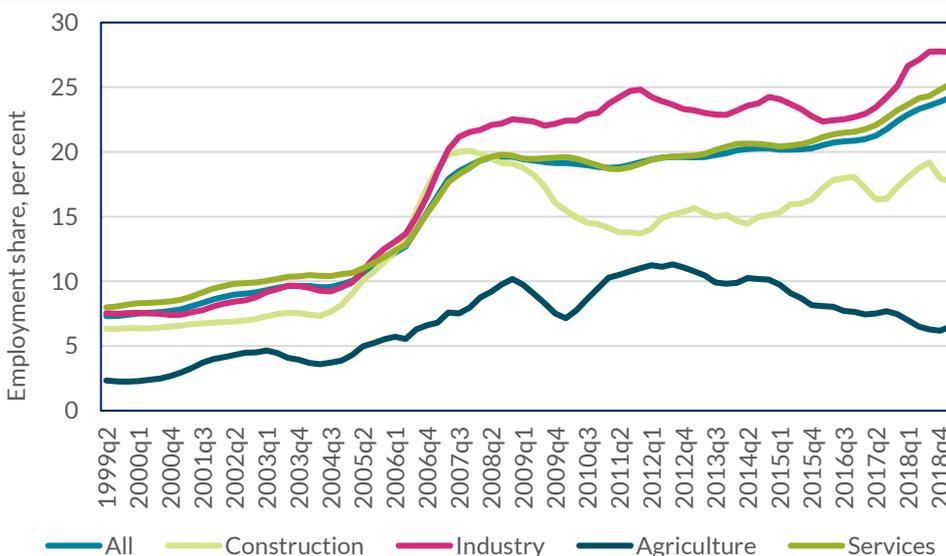
	UK	EU15	EU15-EU28	Other Developed	Other Emerging Economies
1998-2003	28.74	32.34		11.16	27.76
2004-2007	6.92	15.62	58.81	7.19	11.45
2008-2012	8	29	42	7	15
2013-2019	7.24	27.26	23.32	8.27	33.91

Source: CSO LFS and authors' calculation

Note: Other developed and Other Emerging Economies are broken down from the CSO's "Rest of World Category" in the LFS using the authors' calculations. Other developed include: Other European; Australia and Oceania; North America. Other emerging economies include: North Africa and other Africa; South and South-East Asia and East Asia; Central America and Caribbean, South America, Near and Middle East.

Examining the migrant share in all employment (Chart 13) shows that in the first quarter of 2019, nearly 1 in 4 of those employed were non-nationals, this is highest for industry and services. Despite growing since 2014, the share of non-nationals in construction remains below its previous 2008 peak of 1 in 5.

Chart 13: Migrant Share in Employment, by Sector



Source: CSO LFS and authors' calculations.

Note: Series seasonally adjusted using a four-quarter moving average. Cell sizes for recent quarters in the agriculture share series shown here are small and as such should be treated with caution.

The (non-Irish) migrants entering Ireland to work are increasingly highly skilled with the majority now holding at least tertiary qualifications. The growth in the migrant share in industrial employment, however, has seen similar growth in those with secondary and post-secondary qualifications relative to those with at least tertiary qualifications. Employment in industry is becoming increasingly characterised as highly skilled (those with at least tertiary qualifications), migrants with secondary and post-secondary qualifications have contributed in equal numbers to those with at least tertiary qualifications since the end of the boom and continuing into the recovery and growth phases of the labour market.

Over the coming years, a sustained increase in the number of migrants back to levels seen during the last period of full employment would ease labour supply pressures. Conefrey, O'Reilly and Walsh (2019) confirm this finding, but they also find that a sustained increase in migration creates overheating pressures in other areas of the economy – particularly in the housing market.

There are also a number of reasons why the rate of net inward migration may not return to the high levels seen in 2005-2007. During that period, 10 countries⁶⁵ joined the EU and provided a large pool of potential migrants for the Irish labour market. Until mid-2011 however, the number of migrants from the eight accession countries in Eastern Europe were restricted by all EU member states except Ireland, Sweden and the United Kingdom. These restrictions were removed in 2011. The shrinking share of European migrants in all migrants indicates that Ireland must compete with several EU destinations for migrants from within the Union. This is a change from the years up to 2008. Going forward, Ireland will be competing for migrant labour from with other high employment countries in Europe and the OECD (Economist, 2019; OECD 2019). Indeed, job flows from abroad are increasingly originating from outside of the EU. The visa regime for non-EU citizens has been adjusted to allow for non-EU migrants being sought for particular skills shortages. For example, the Critical Skills Employment Permit, introduced in 2014. Still, visa requirements for non-EU citizens are onerous, and employment is often a prerequisite for residency. This means that non-EU citizens may face different elasticities of supply with respect to labour shortages in Ireland than their EU counterparts. The gravity model of migration (Anderson, 2011) also implies the challenges in attracting migrants from outside of the EU, migration-inducing wage differentials need to be higher the further away migrants originate from, in addition

Migrants are increasingly well-educated and come from outside of the EU.

⁶⁵ Czech Republic, Cyprus, Estonia, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia.

Ireland is competing for these migrants with many other expanding developed and developing countries.

6. Conclusions

This article has shown that conditions in the domestic labour market are now consistent with full employment. Employment numbers are above pre-crisis levels, while the unemployment rate fell to 5 per cent in the first quarter of 2019 and the stock and composition of individuals outside of the labour force has fallen to a level such that it is unlikely to support continued employment growth. Labour force participation rates are also above trend, evidenced by the strong increase in female participation – primarily among women aged between 25 and 50. We have shown that the high participation rates of young cohorts seen during the Celtic Tiger and early 2000s period was a temporary factor, and has now returned to levels comparable with those seen in the Euro Area. Migration, which facilitated strong employment growth during the period from 2004 to 2008, has increased strongly in 2018 and early 2019, but the analysis has shown that it is unlikely to reach the levels seen during after EU enlargement in the short to medium term. This is due in part to Ireland having to compete for migrants with other high employment economies both within and beyond the EU. As such, attracting migrants may only occur at higher wage differentials going forward than seen in the 2004-2007 period that coincided with the EU accession countries joining the pool of available EU migrants at relatively low wages. This implies that the wage dampening effect of net inward migration may be subdued when compared to the pre-crisis period.

This remarkable improvement in the labour market is welcome, but maintaining such favourable conditions will require action on the part of policymakers to avoid eroding competitiveness through wage and price pressures as the economy continues to grow. The policy actions available to authorities faced with an economy at full employment are constrained when it is small, highly open and part of a monetary union. However, it is important that government policy does not exacerbate competitiveness challenges, while maintaining supply-side supports to improve housing supply, transport networks and public services to support continued employment growth.

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Euro Area Slowdown – a Country-Sector Analysis

David Byrne and Conor Parle⁶⁶

Abstract

During the second half of 2018 and first half of 2019, euro area growth has been slower than in previous years. Surveys of growth imply that the manufacturing sector has led this slowdown, with German manufacturing being particularly affected. This Article uses granular measures of output and the labour market to examine whether the slowdown is concentrated in a small number of sectors or regions, or is more broadly evident.

Examining data at the level of pairs of euro area countries and economic sectors, we find evidence for a small, broad-based, weakening of growth rates across countries and sectors. However, the dominant contribution to lower output growth comes from manufacturing in a small number of European countries, most notably Germany. Growth in other sectors and countries, and in the labour market, remains relatively robust but faces a risk of weakness subsequently spilling over from the manufacturing sector.

⁶⁶ The authors work in the Monetary Policy Division. The views expressed in this article are those of the authors only, and do not necessarily reflect the views of the Central Bank of Ireland. The authors would like to thank Mark Cassidy, Sarah Holton, Reamonn Lydon, Gillian Phelan and Terry Quinn for their helpful comments and suggestions.

1. Introduction

The euro area economy has grown consecutively for six years, recovering from the previous recession, and entering a broader expansionary phase. Since the second half of 2018, however, growth rates have weakened. Much attention has focused on whether this slowdown is broad-based across the euro area economy, or if it is being driven by idiosyncratic, or one-off, factors in a number of sectors or countries.

To address this question, we examine the growth rates of gross value added (output) for pairs of euro area countries and sectors. We show that there is some evidence of a slowdown across country-sector pairs, but also find evidence for large, negative, contributions from a small number of these pairs. Examining measures of dispersion in growth, we do not find strong evidence that euro area growth has fragmented across countries and sectors.

To gain a broader sense of euro area economic performance, we also examine developments in wage and employment growth in the euro area country-sector pairs. We find that employment growth remains elevated, albeit at a slightly lower rate than in previous years. Employment growth is widespread across countries and sectors. Euro area wages are growing at the fastest rate since the global financial crisis, with an increase in dispersion driven by particularly strong growth from a small number of sectors.

2. Background

During the second half of 2018, growth rates in economic activity were markedly weaker than those that were observed in the preceding years. The scale and scope of this slowdown, and its causes, have since received much attention from economic commentators and policymakers.

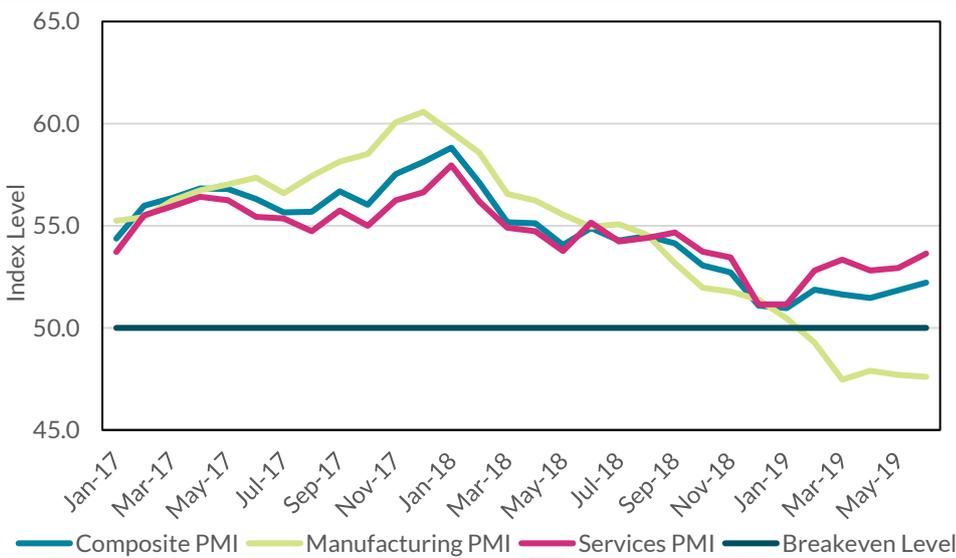
In particular, there has been debate about how widespread the slowdown has been and whether it is temporary or likely to be more sustained. Growth in measures of manufacturing output have performed particularly poorly, especially in Germany. Whether the slowdown is specific and contained to this sector is important for interpreting its effects and the appropriate policy response. A broad-based slowdown could signal that economy has entered the late phase in the economic cycle. A slowdown driven by sector-specific effects could instead unwind if it were driven by transitory factors.

Another important consideration is whether a slowdown currently localised in the manufacturing sector could subsequently spill over to other sectors. The current weakness in the manufacturing sector may thus represent a downside risk to the path of overall economic growth.

Indicators such as employment and wage growth continue to imply that labour market is resilient and continues to expand. Labour market indicators typically lag developments in the business cycle, however, and may not provide timely evidence of spreading weakness in growth.

From a monetary policy point of view, it is important to understand drivers of the current growth outcomes. The implications for price stability may differ depending on what is causing the slowdown. If, for instance, labour market indicators show evidence of a slowdown, this could delay convergence of inflation toward target. Employment and wage growth have been the major drivers of consumption growth over this economic expansion phase. They also play a key role in the projected path of inflation (ECB, 2019). Continued resilient growth in labour market indicators could thus maintain support for inflation in spite of the downturn in other sectors and indicators.

Figure 1: Manufacturing has driven the slowdown in the euro area, Services have shown resilience

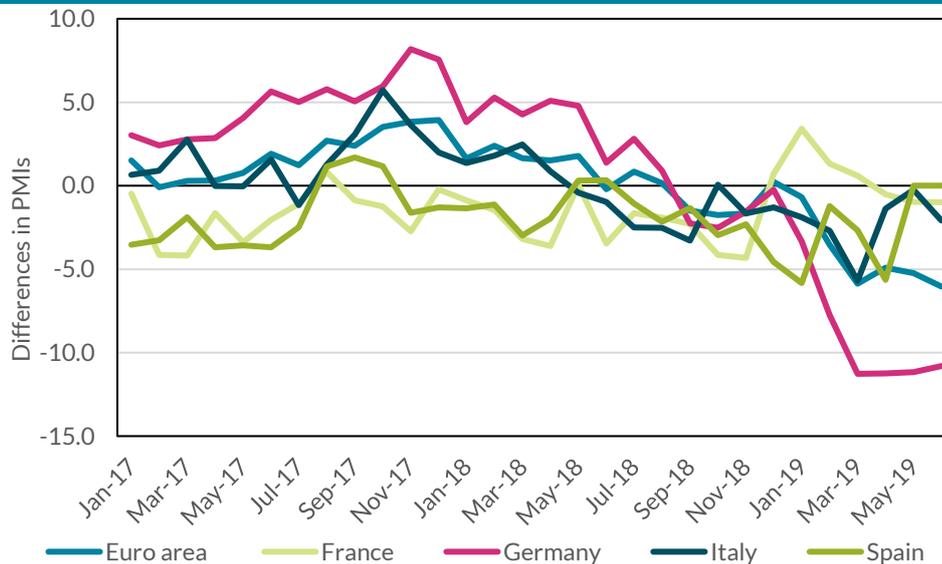


Source: IHS Markit. Note: 50 = no change.

The recent dynamics in economic activity can be seen in the trends in the IHS Markit Composite Purchasing Managers’ Index (PMI). This is a monthly measure of euro area output, which has a strong correspondence with quarterly measures such as GDP. Figure 1 shows the Composite PMI, alongside the indices for the Manufacturing and Services sectors. Since 2018, the Composite PMI has been on a downward trend, indicating positive but declining output growth rates. More strikingly, the Manufacturing PMI, which had been growing more strongly than the Services and Composite PMIs, began to indicate negative growth in February 2019. Growth in manufacturing has remained negative

thereafter, while increasing growth rates in the Services PMI have caused some recovery in the Composite PMI.

Figure 2: Manufacturing has weakened relatively more in Germany than in other countries



Source: IHS Markit. Note: difference in Manufacturing and Services PMIs.

Figure 2 shows developments across euro area countries. We show the difference in the levels of the Manufacturing and Service PMIs for Germany, France, Italy, Spain and the euro area. Negative values indicate that manufacturing is growing at a slower rate than services.

The largest divergence is found in Germany, where negative manufacturing growth is countered by robust growth in services. German manufacturing had been growing at faster rates than services from January 2017 until September 2018. By comparison, France, Italy and Spain have roughly balanced growth rates across their manufacturing and services sectors. The Manufacturing PMI in Italy has shown negative growth rates during 2019, but to a smaller degree than the German PMI. In late 2018 and early 2019, the French PMIs showed some negative growth rates, but each returned to growth in the second quarter of 2019.

These survey data suggest a divergence in growth between the manufacturing and services sectors in the euro area. Furthermore, they suggest that the weakness in manufacturing growth is particularly evident in Germany. This motivates further examination of these differences in hard data, taking into account divergences between countries and sectors.

3. Overview of the literature

Dossche and Martinez-Martin (2018) highlight the German automobile industry as the particular source of weakness in manufacturing in Germany

and ultimately in the euro area. They argue that this weakness was caused by temporary factors relating to weather conditions and industrial actions. They conclude that the disruption should be temporary and should not affect employment and wage growth outcomes, despite affecting output.

Duma et al. (2019) examine “soft patches” in euro area growth, in the context of developments since the second half of 2018. Soft patches describe periods in which the output growth rate reduces compared to the recent prior history. A key consideration is whether a soft patch is temporary or is a signal of further weakness or a recession. They conclude that soft patches are not a reliable indicator of a turning point in the business cycle, and are much more common than recessions.

Buti et al. (2019) note that euro area domestic demand remains robust, and highlight the disconnect between the performance of the manufacturing and services sectors. They do not find evidence for a lead-lag relationship between survey indicators of the manufacturing and services sectors, and thus conclude that weakness in manufacturing need not necessarily spill over to services. In particular, they highlight the examples of 1999 and 2005 where spillovers were limited and domestic demand growth remained resilient.

This Article is related to a literature on examining euro area growth at a granular level, looking across countries and sectors. However, much of the previous literature focus on dispersion across countries or across sectors, and not across both dimensions, as we do.

The most similar previous work is ECB (2017), where the share of sectors with positive growth and the dispersion of value added growth were analysed using pairs of NACE sectors and euro area countries. At the time, the authors found an increasing number of pairs had positive growth rates, with the standard deviation of growth falling over time. This pointed towards a broadening of economic growth across the euro area towards the latter half of 2016.

On a country-level basis, Andersson et al. (2008) examine wage growth dispersion across euro area countries. The authors found that at the time, dispersion of wage growth across euro area countries was greater than the dispersion of wage growth within regions of Germany, USA, Italy and Spain.

Similarly, Martinez-Martin et al. (2018) show an increased level of synchronisation between GDP growth rates in euro area countries since the founding of the euro area. The authors examine business cycle correlations across the euro area, and show that there was an increase in synchronicity of growth during the financial crisis, and a fall in synchronicity during the recovery period, with an increase in 2018. We

build on this measure by looking at country-sector pairs, to achieve a broader measure of growth synchronicity.

On a sectoral basis, Benelal et al. (2006) examine the breakdown of dispersion of value added growth across euro area countries at a sectoral level. They find that the weighted standard deviation of growth was highest in construction and lowest in the service sector in 2006. They noted that the dispersion of manufacturing growth fell markedly post monetary union, suggesting that manufacturing became more synchronised.

4. Data and Methodology

To gain an understanding of recent growth developments in the euro area, we examine measures of output and labour market indicators across NACE⁶⁷ sectors and euro area countries. We take annual growth rates in Gross Value Added (GVA), Employment, and Wages. This allows us to examine both the sectoral and geographic composition of recent euro area growth patterns. Our sample begins in the first quarter of 2009. Complete data are available to Q1 2019 for GVA and to Q4 2018 for employment and wages.

To acknowledge the degree of variation in euro area countries and economic sectors, we weight each country-sector pair by its share, in levels, in the relevant aggregate for the euro area. We can thus calculate the weighted contribution of the growth rate of each country-sector pair to the overall euro area growth rate.

To examine how broad-based an economic expansion or slowdown is, we calculate some measures of dispersion. We examine the share of country-sector pairs with positive growth rates. In addition, we calculate the standard deviation of weighted growth rates, which shows the dispersion in sectoral growth (see ECB, 2017). The former measure shows what share of the economy is experiencing growth at each point, while the latter measure shows how closely distributed the growth rates are over time.

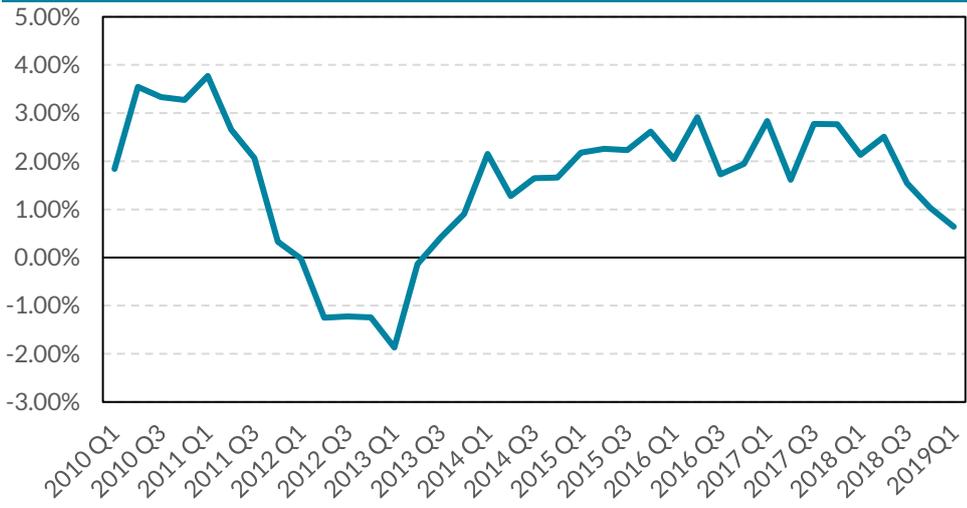
5. Results

Gross Value Added

As can be seen in Figure 3, in the second half of 2018 and first quarter of 2019, GVA grew at a slower rate than the highs of 2016-17. This is consistent with the PMI survey data (Figure 1).

⁶⁷ NACE is the statistical classification of economic activities in the European Union, see [here](#) for further details.

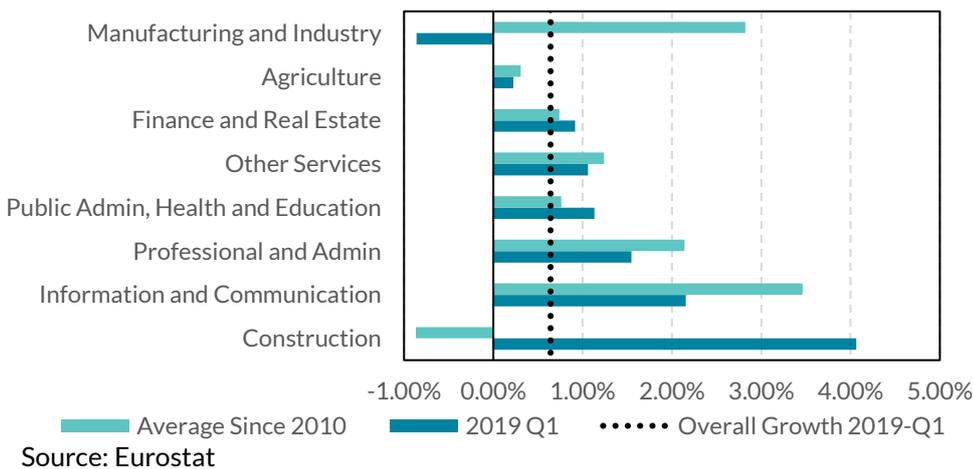
Figure 3: Annual euro area growth in value added



Source: Eurostat

Figure 4 shows developments at a euro area sectoral level. We show the annual growth rates in GVA across sectors in 2019 Q1, the average annual sectoral growth rates since 2010 Q1, and the overall GVA growth rate in 2019 Q1 (dotted line). We note that the Manufacturing and Industry sector had a negative growth rate in 2019 Q1, contrasting with its series average of 2.82 per cent. Information and Communication, Construction and Professional and Administration Activities were the three best-performing sectors in the year to 2019 Q1.

Figure 4: Sectoral GVA Growth Rates



Source: Eurostat

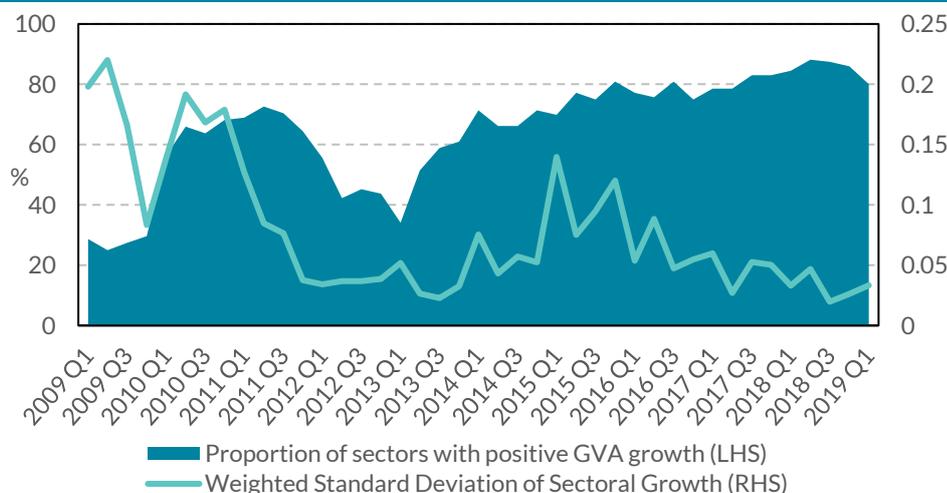
The euro area sectoral level data show a degree of heterogeneity in growth rates. Figure 4 does not show us the relative contributions of these sectors to the overall growth rate, however, nor does it tell us whether the negative growth rate in euro area manufacturing is widespread across the euro area countries or localised in one country, or a few countries.

To address these questions, we take the growth rates of pairs of sectors and countries. Figure 5 shows the proportion of euro area country-sector pairs with positive year-on-year GVA growth, from 2009 Q2 to 2019 Q1. It also depicts the weighted standard deviation of the growth rates, where the pairs are weighted by their overall contribution to euro area GVA.

From Figure 5, we note that the proportion of growing country-sector pairs has fallen marginally but remains relatively elevated. It has fallen to 80 per cent, from 88 per cent in the second quarter of 2018. That was the highest share observed over the series. The weighted standard deviation of sectoral growth has not increased by much in the second half of 2018. There is thus little evidence for an increase in the dispersion of growth across sectors.

Taken together with Figure 3, we conclude that a large majority of country-sector pairs are continuing to grow, albeit at a slower rate. There appears to be an adjustment on the intensive margin of growth (growth per country-sector), rather than the extensive margin (share of growing country-sectors).

Figure 5: Dispersion of growth across country-sector pairs



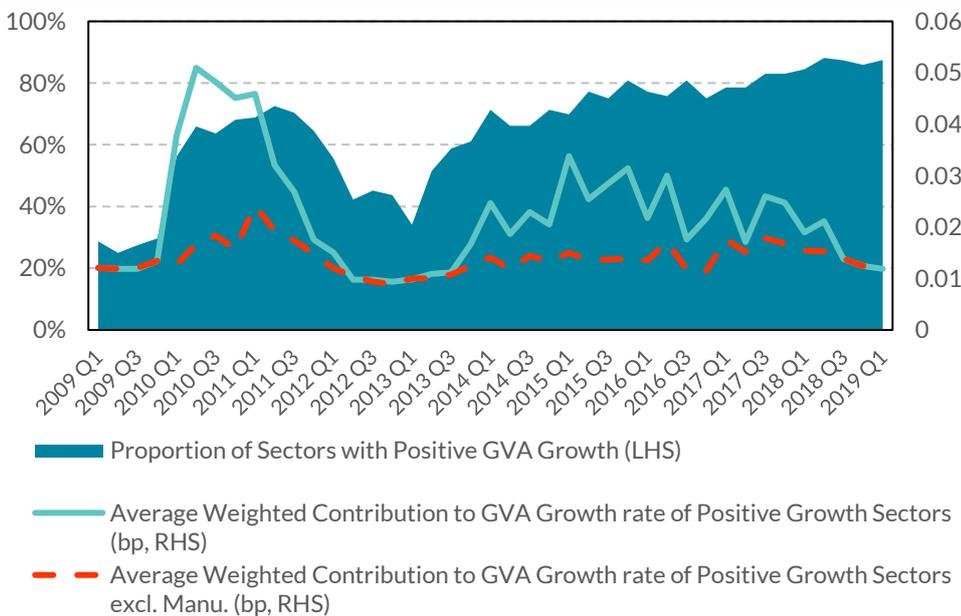
Source: Eurostat

In Figure 6, we plot the weighted average contribution to GVA growth of the positive-growth pairs, and of the pairs when excluding the Manufacturing and Industry sector. We observe that, between the second half of 2013 and the second half of 2018, manufacturing made a large positive contribution. Since the second half of 2018, manufacturing's contribution has fallen and these two series have converged.

This is consistent with two stylised facts:

1. The manufacturing sector is growing at a much slower rate than other sectors are. This has lowered aggregate GVA growth to a considerable degree. The weighted standard deviation remains largely unchanged because manufacturing was previously outperforming other sectors, and is now underperforming them.
2. There has been a broad decrease in the average growth contributions from the other country-sector pairs, excluding manufacturing, to aggregate GVA growth. This decrease, however, is considerably smaller in magnitude than the decrease in the manufacturing contribution.

Figure 6: Contribution of positive growth sectors to growth rate



Source: Eurostat

Turning to specific country-sector pairs, in Tables 1 and 2 we show the GVA growth rates, and weighted contributions to the overall euro area GVA growth rate, of the 10 weakest and 10 strongest sectors in 2019 Q1. Three of the four weakest-performing country-sector pairs are based in the Manufacturing and Industry sector, covering Germany, Italy and France. German manufacturing is particularly weak, which is consistent with the PMI figures in Figure 2. Its -2.4 per cent growth rate reduces the euro area weighted figure by 30 basis points, given the size of this country-sector pair.

It is also notable that four of the 10 weakest sectors are based in Italy, which is consistent with the subdued Italian growth dynamics indicated from PMIs (Figure 2). The 10 strongest performing pairs are mainly based in

the services sector, and are distributed across Germany, France and Spain. They are growing at rates that are relatively tightly dispersed, consistent with the low standard deviation observed in Figure 5.

Table 1: 10 Weakest Performing Sectors in 2019 Q1

Country	Sector	Growth Rate	Weighted Contribution to Euro Area Growth
Germany	Manufacturing and Industry	-2.39%	-0.30%
Italy	Manufacturing and Industry	-0.77%	-0.04%
Italy	Professional and Admin	-2.79%	-0.03%
France	Manufacturing and Industry	-0.33%	-0.02%
Italy	Information and Comms	-2.54%	-0.01%
Italy	Other Services	-0.27%	-0.01%
France	Construction	-0.68%	-0.01%
Finland	Finance and Real Estate	-2.65%	-0.01%
Greece	Finance and Real Estate	-1.41%	-0.01%
Greece	Public Admin, Health and Education	-1.41%	0.00%

Source: Eurostat

Table 2: 10 Strongest Performing Sectors in 2019 Q1

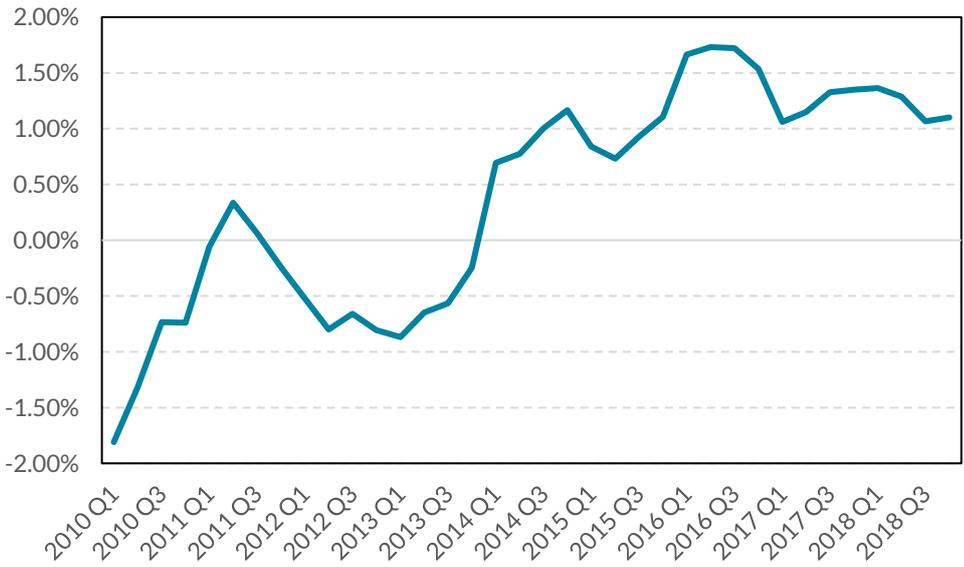
Country	Sector	Growth Rate	Weighted Contribution to Euro Area Growth
Germany	Other Services	1.56%	0.08%
Spain	Other Services	2.58%	0.07%
Germany	Public Admin, Health and Education	1.49%	0.07%
France	Finance and Real Estate	1.92%	0.06%
Spain	Public Admin, Health and Education	2.85%	0.05%
Spain	Professional and Admin	5.35%	0.05%
Germany	Information and Comms	3.12%	0.05%
France	Professional and Admin	1.62%	0.04%
Germany	Construction	4.57%	0.04%
Spain	Construction	6.13%	0.04%

Source: Eurostat

Employment

Figure 7 shows the recent patterns in employment growth. It should be noted that while in 2018 Q4, employment growth was at a marginally slower rate than at the start of 2018 and the highs of 2015-16, it remains elevated relative to previous years. Employment growth was at 1.1% in 2018 Q4.

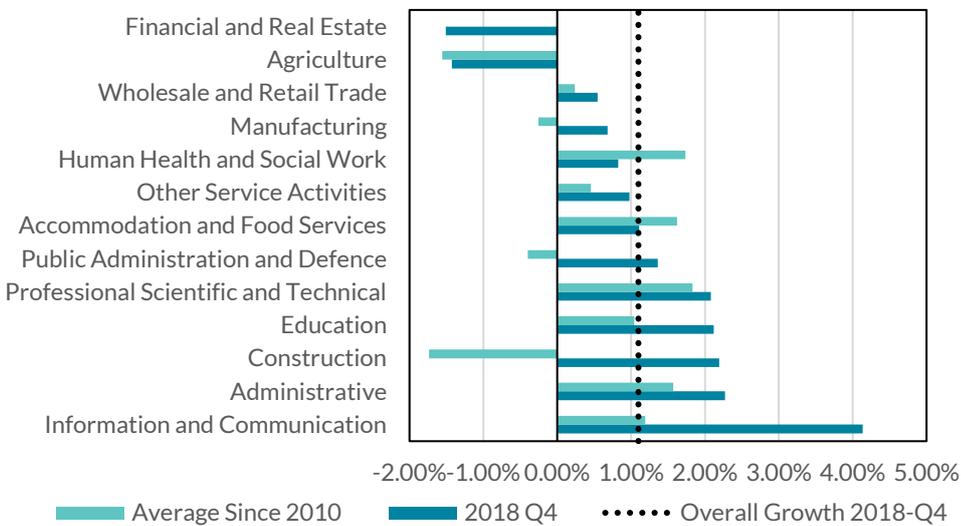
Figure 7: Annual euro area employment growth



Source: Eurostat

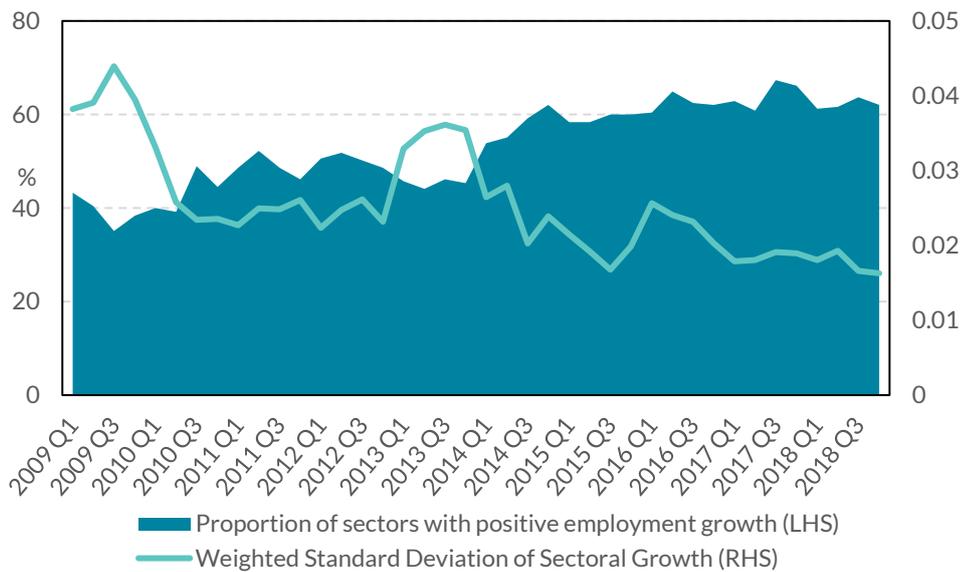
Once again, we consider the performance of broader sectors in the euro area. This is shown in Figure 8. In contrast with the GVA measure, we note that employment growth is still positive in manufacturing. It is possible that this is due to employment growth dynamics lagging output dynamics, however. The Agriculture and Financial/Real Estate sectors both had negative employment growth rates. Once again, Information and Communication and Administration related activities are the fastest growing sectors, further highlighting the resilience of economic activity in the service sector. This is consistent with domestic demand growth remaining robust, as was shown by Buti et al. (2019).

Figure 8: Annual euro area sectoral growth in employment



Source: Eurostat

Figure 9: Dispersion of employment growth across country-sector pairs



Source: Eurostat

Figure 9 plots the proportion of sectors with positive employment growth and the weighted standard deviation of country-sector employment growth. The proportion of sectors with positive growth is currently at 62 per cent, not far behind the post-crisis high of 67 per cent recorded in 2017 Q3. The weighted standard deviation of employment growth is also relatively low.

Wages and salaries

Turning to wages, Figure 10 shows the recent pattern in annual growth of euro area wages. As can be seen, wage growth has been accelerating in recent times. The latest data show an annual growth rate of approximately 3.75 per cent, close to the highest annual rate of increase since the global financial crisis (which was recorded in 2018 Q3).

These wage growth dynamics are driven by the tightening labour market (Byrne and Zekaite, 2019), and underpin projections of consumption and domestic demand (ECB, 2019). The pass-through of the recent stronger euro area wage growth to inflation should be supportive of the path of inflation over the medium term.⁶⁸

⁶⁸ Bobeica et al. (2019) show that increases in labour costs pass through to higher inflation in the euro area, but that the degree of pass-through is state-dependent. Pass-through occurs to a greater degree when inflation is stably on a sustainable path.

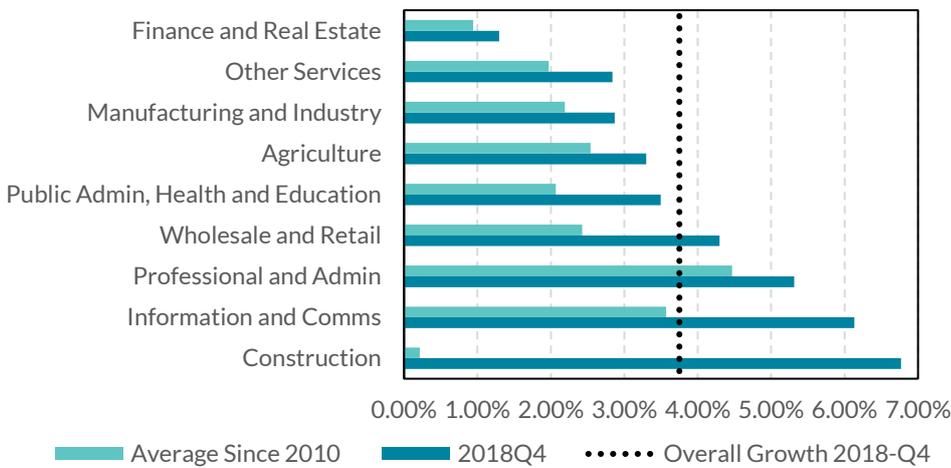
Figure 10: Euro area wages and salaries (compensation of employees) annual growth rate



Source: Eurostat

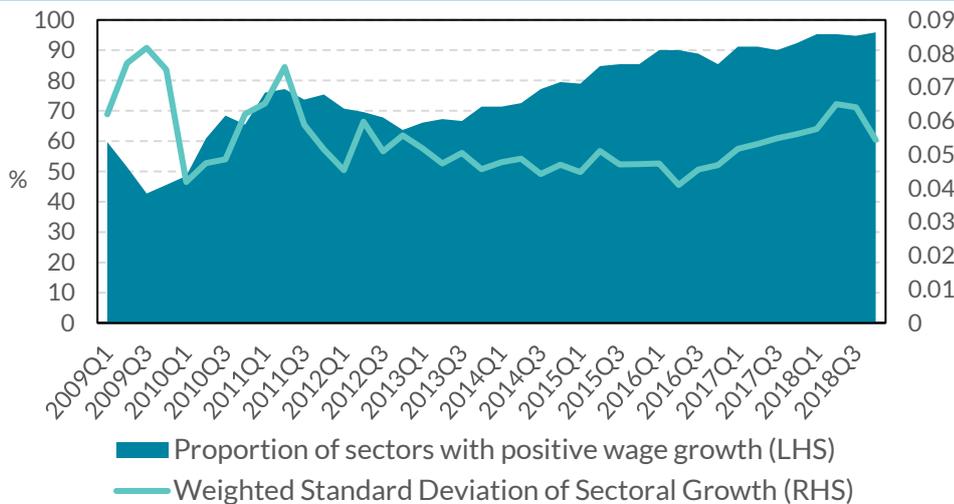
From a sectoral perspective, all growth rates are consistently above their average since the financial crisis (Figure 11).

Figure 11: Euro area wages and salaries – sectoral growth rates



Source: Eurostat

Interestingly here, there is no clear pattern in growth across sectors. Construction, Information and Communications and Professional and Administrative sectors have particularly strong growth. Manufacturing wage growth was only slightly below its series average.

Figure 12: Euro area wages and salaries – sectoral growth rates

Source: Eurostat

If we look at the country-sector breakdown of growth, we note that 96 per cent of country-sector pairs saw positive wage growth in 2018 Q4 (Figure 12). This is the highest share observed in the series. The standard deviation rose toward the end of 2018 due to a small number of sectors having higher growth rates.

6. Conclusions

This Article looks across euro area countries and economic sectors to investigate whether the recent slowdown in headline growth is broad-based across countries and sectors, or is relatively contained.

Using GVA as an overall growth measure, we show that the manufacturing sector is the source of the largest decrease in growth. In particular, the manufacturing sector in Germany made a large, negative, contribution to euro area growth in the second half of 2018 and the first quarter of 2019.

There is some evidence that idiosyncratic factors, particularly relating to the German automobile industry, have played a large role in this recent slowdown. Whether there are more sustained negative dynamics in German manufacturing, and if these could spill over to other euro area countries and sectors, is an important area for ongoing research.

While the manufacturing sector has played a large part in the overall slowdown in euro area growth, it does not fully account for these developments. Rather, the slowdown is also accounted for, in part, by a smaller broad-based weakening in growth across countries and sectors of the euro area economy. While the share of country-sectors pairs that are growing remains near to the highest-recorded level, investigation of further slowing in growth rates, or spillovers from manufacturing, is warranted.

We further investigate the state of the euro area economy by examining the recent pattern in sectoral wage and employment growth. We find employment growth has remained robust, albeit at a slower rate than previously. The best performing sectors are mainly services-related. The proportion of country-sector pairs experiencing positive employment growth remains elevated, and there is no evidence of higher dispersion in growth rates.

From a wage perspective, growth is at its highest post-crisis level, with a high proportion of sectors experiencing positive wage growth. A small number of sectors are experiencing particularly high growth, leading to a marginally increased dispersion in growth rates. There is no evidence of weakening growth in manufacturing wages.

Taking wages and employment together, the euro area labour market appears to be relatively resilient. The labour market is thus providing support to consumption, domestic demand and ultimately to inflation dynamics. Developments in the labour market follow other developments in the economy with a lag, however. The risk thus remains that the slowdown in the manufacturing sector may spill over to the labour market, as well as to other sectors of the economy.

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