Figure 2.7: Macroeconomic risks are tilted to the downside

Sources: Department of Finance, SPU 2020; and Fiscal Council workings.
Note: Size of arrows indicates subjectively assessed combined impacts and likelihoods.

The Council has previously noted that Ireland's external trade variables have been difficult to forecast accurately, given the distortions caused by multinational firms. The consequences of this issue are further developed in Box E, which notes that the composition of gross domestic product (GDP) and gross national product (GNP) result in headline economic growth rates that are often overstated relative to a more relevant measure of aggregate demand, such as modified gross national income (GNI*). The issue arises due to the overweighting of net exports.

Box E: Forecasting real GNI* growth rates in place of GDP and GNP

Despite well-documented distortions to Ireland's gross domestic and national product (GDP and GNP), described by the Economic Statistics Review Group (ESRG, 2016) and in previous Council publications, growth rates in GDP and GNP remain widely used as the main forecast variables for the Irish economy for both domestic and international forecasters.

GNI* is more relevant as a measure of the incomes and activity of Irish people and better reflects the domestic tax base. The Central Bank, Department of Finance and Fiscal Council have placed greater emphasis on GNI*, in line with the ESRG recommendations—although *SPU 2020* puts more emphasis on GDP in calculating fiscal ratios.

Since 1996, GDP and GNP growth rates have been higher than GNI* growth rates in all but six years.[17] This was especially evident during the global financial crisis (2007–2012), when cumulative falls in GDP and GNP were 7 and 12 per cent respectively, whereas GNI* fell by 19 per cent.

[17] For 1995–2012, real GNI* can be approximated by deflating nominal GNI* with the GNP deflator. This correlates closely to the GNI* deflator for data that are published (2013–2018), and the CSO has advised that is also indicative for earlier years.

This difference is due to the distorted net exports component. In the absence of published series for adjusted exports and imports that are consistent with GNI*, this box provides an overview of a methodology for forecasting GNI* for 2019–2021 based on approximations of GNI*-based exports and imports.[18] This approach finds that whereas the import content of multinationals' activity in the Irish economy is very high, it is much lower for domestic activity.

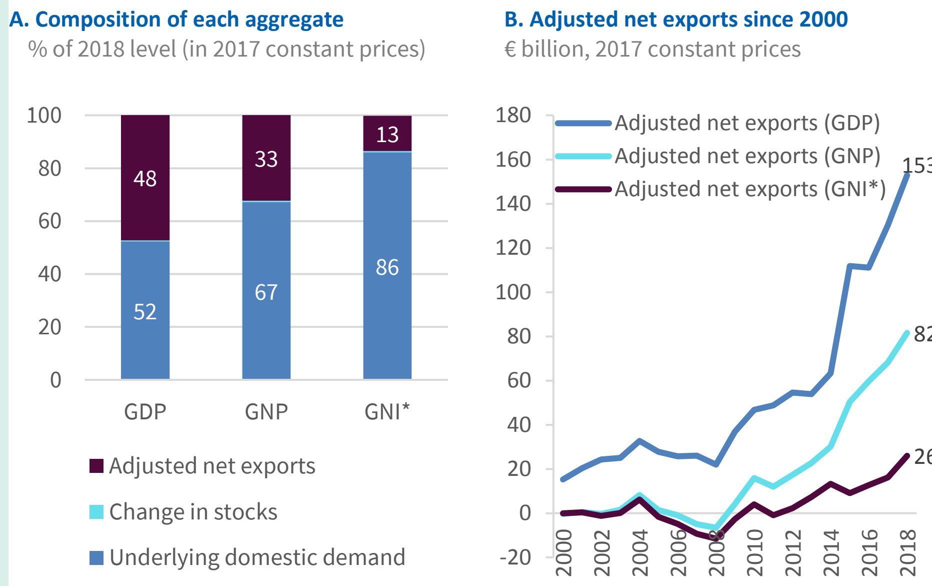
Domestic demand has a high share of aggregate demand when using GNI*

Expenditure on GDP and GNP each comprise final domestic demand (C+G+I), changes in stocks, and net exports—exports net of imports for GDP, less net factor income for GNP.

Ireland's net exports included in GDP and GNP are heavily impacted by undistributed profits of multinationals.[19] As a consequence, it is useful to focus on underlying domestic demand. This excludes import-heavy aircraft and intangibles from investment as they are mainly related to foreign-owned multinational entities, and provides a relevant measure of domestic demand (Fiscal Council, 2018e).

One implication is that measured GDP and GNP both understate the domestic demand share in output compared to GNI*. As shown in Figure E.1A, the underlying domestic demand share is far higher for GNI*.

Figure E.1: GDP and GNP understate the share of domestic demand in total output



Sources: CSO; and Fiscal Council workings.
Note: Adjusted net exports for GDP includes underlying net exports. For GNP, it is reduced by net factor income from abroad; this is equivalent to the current account with aircraft and intangibles investments added back in (since they are excluded from underlying domestic demand). For GNI*, adjusted net exports is further reduced by net factor income of redomiciled PLCs, and depreciation on aircraft leasing, R&D services imports and trade in IP. An additional category covering the statistical discrepancy (and subsidies less taxes for GNI*) has been omitted from panel A.

Ireland's measured exports have exceeded GDP since 2011, and they have long been dominated by sales of multinational firms. The impact of exports on GDP is partly offset by the

[18] Although full-year data for 2019 are available for GDP and GNP, there is as of yet no CSO outturn available for GNI*. This will be published in the *National Income and Expenditure 2019* report.

[19] A rapid increase in "contract manufacturing" since 2015 caused a level-shift in net exports, and onshoring of IP has also artificially inflated both GDP and GNP—see Connolly (2017) for details.

import content of exports, including royalties (services) and intermediate inputs, e.g. chemicals and computer parts (goods).

GNI* further adjusts for the direct impact of multinationals; adjusted net exports amounted to just €26 billion in 2018, below €82 billion for GNP and €153 billion for GDP (Figure E.1B).

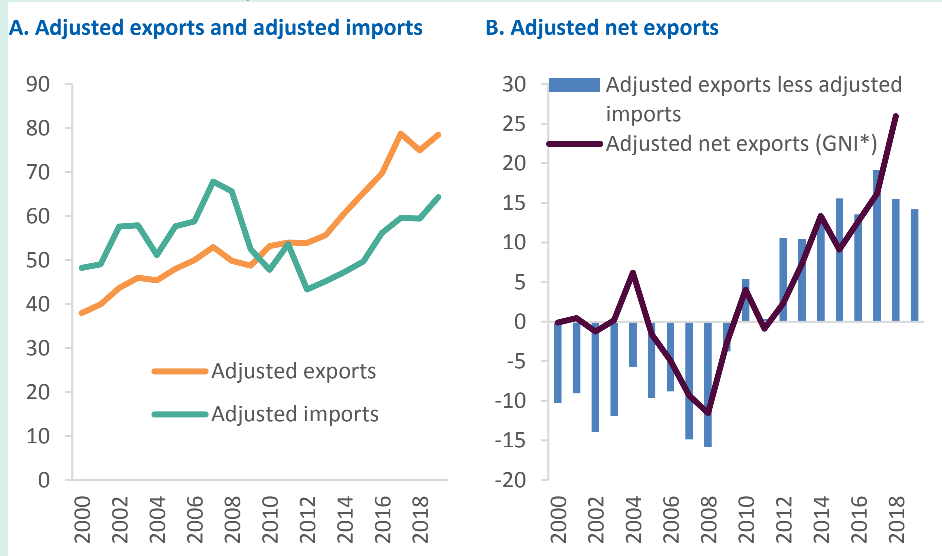
Forecasting real GNI* with adjusted exports and adjusted imports

The Council has previously forecast nominal GNI* using a GNP forecast and assuming that a constant depreciation share of new investments in intangibles and aircraft are subtracted as factor income of multinational firms (Fiscal Council, 2019c). Real GNI* can then be obtained by deflating with a forecast of the GNP deflator. *SPU 2020* forecasts apply a similar approach in forecasting nominal GNI*, and combined with the GNP deflator, this implies real GNI* growth in 2019 of 2.1 per cent, falling to –16.1 per cent in 2020, and recovering to 7.1 per cent in 2020.

An alternative approach involves approximating historical series for adjusted exports and imports that are consistent with adjusted net exports in GNI*. These series can be used to estimate the adjusted-imports content of final demand under GNI*. Adjusted exports on the same basis can also be forecast using its relationship with explanatory variables such as the demand for imports in Ireland's main trading partners, and the real effective exchange rate (Conroy and Casey, 2017).

Figure E.2: Adjusted exports less adjusted imports evolves similarly to adjusted net exports in GNI*

€ billion, 2017 constant prices



Sources: CSO; and Fiscal Council workings.
Note: Adjusted exports and adjusted imports exclude categories of goods and services that are considered to be dominated by multinational firms.

To approximate historical series for adjusted exports and imports that are consistent with GNI*, firstly underlying imports (excluding aircraft and intangibles) can be combined with net factor income from abroad. Next, external trade in goods and services that is likely to be

dominated by multinational firms is excluded.[20] The rationale for this is that such activities are likely to have high broad-import contents, whether due to costly raw materials or large royalties or profit remittances; i.e. multinationals' profits should have less bearing on GNI* than GNP or GDP.[21]

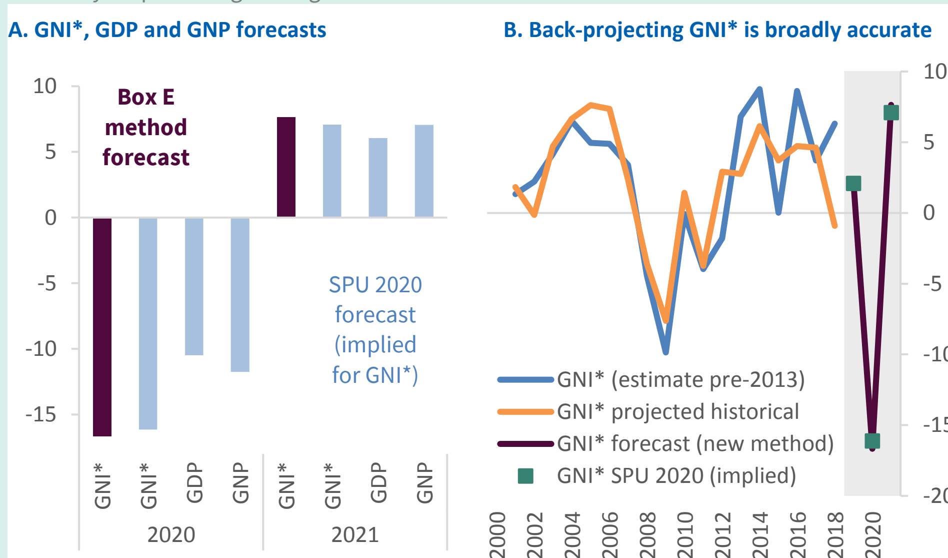
The remaining "non-multinational-firm" items are shown in Figure E.2A. As panel B shows that adjusted exports less adjusted imports and adjusted net exports included in GNI* have evolved similarly for 2000–2018, these adjusted exports and adjusted imports may be relevant to forecasting real GNI*.

The figures show a growing adjusted trade deficit prior to the global financial crisis, reflecting net borrowing from abroad. Since 2011, this has transformed into a persistent trade surplus—despite the severity of the Covid-19 shock, this trade surplus is not eliminated.

Although the approximations of adjusted exports and imports are inexact and exclude some activity that is included in GNI*, the share of adjusted net exports demand in GNI* will remain appropriately modest relative to aggregate demand using this approach. A further advantage is that unlike the Council's previous methodology, it does not depend at all on forecasts of aircraft or intangibles.

Figure E.3: GNI* growth is likely to underperform GDP and GNP growth in 2020

Year-on-year percentage change in volume



Sources: CSO; Department of Finance, *SPU 2020*; and Fiscal Council workings.
Note: The GNI* projection in panel B uses outturn data for underlying domestic demand, the change in stocks and statistical discrepancy, and projects adjusted net exports forward from 2000 using the change in adjusted net exports. The estimated historical series for adjusted net exports is shown in Figure E.2B.

[20] Using three-digit level Standard International Trade Classification groups for goods, and balance-of-payments categories for services, the following components can be excluded based on the likelihood that multinational firms dominate exports and imports. For merchandise: contract manufacturing, some chemicals and related products (SITC items 515, 541, 542, 551, and 598), some machinery and transport equipment (752, 759, 776, and 792), and professional, scientific and controlling apparatus (872). For services: insurance, financial services, computer services, royalties/licences, and business services other than R&D and operational leasing. R&D and operational leasing business services are not excluded here as intangibles investments have already been excluded from adjusted imports, and aircraft (792) have been excluded from both adjusted exports and adjusted imports. However, a more granular breakdown for services trade would be necessary to exclude less of the activities of domestic-owned firms in these sectors.

[21] Where nominal series are used, they are converted into volumes using relevant trade deflators.

For adjusted exports over 2001–2019, the elasticities with respect to imports by Ireland's main trading partners and the real effective exchange rate are 0.75 and –0.24, respectively. Taking adjusted imports as a share of final demand, the import content for 2000–2019 has been reasonably stable with an average of 0.27 and a standard deviation of 0.03. A final demand forecast multiplied by 0.27 equates to adjusted imports.

To maintain consistency with the historical GNI* series, the forecast change in adjusted net exports can be added to the previous year's adjusted net exports in GNI*. Applying this to the 2018 GNI* outturns, there are near-identical forecasts to those implied by *SPU 2020* for 2020 and 2021, as shown in Figure E.3A. Compared to the *SPU 2020* forecasts for GDP and GNP, both forecasts of GNI* in 2020 indicate a more severe contraction of around –16 per cent.

In Figure E.3B, the historical relationship between GNI* and a projection based on this methodology is shown. The projection begins in 2001 and uses outturns for underlying domestic demand, the change in stocks, and statistical discrepancy, but applies the change in adjusted exports less adjusted imports. Although the relationship was stronger prior to the global financial crisis, published real GNI* growth rates for 2013–2018 have been volatile. With the exception of 2018, which is an outlier due to weaker adjusted exports—although it is also a reflection of limitations in the methodology, especially with regard to services—the projected series provides a more plausible profile for recent economic growth in Ireland.