

# ESRI SPECIAL ARTICLE

## *Understanding the Irish economy*

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John FitzGerald

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# UNDERSTANDING THE IRISH ECONOMY

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**John FitzGerald<sup>1</sup>**

## **ABSTRACT**

The CSO Institutional Sector Accounts allow a decomposition of the separate contributions to the Irish economy since 2013 from the Multinational Enterprise (MNE) sector and the domestic sector. The share of national income arising from the MNE sector in 2021 amounted to 29 per cent, up from 22 per cent in 2013. By 2021 a third of the wages paid in the Irish economy came from MNEs. Using these data, the growth rate in real income over the period 2013 to 2021 at 4.4 per cent a year, is much higher than that experienced by other EU countries of 1.5 per cent. Using GNI\* as a measure of national income, Ireland appears to have an above-average standard of living while, on the basis of household and public consumption, Ireland has somewhat lower standard of living, partly because of the high rate of saving in Ireland.

## **1. INTRODUCTION**

Interpreting what is happening in the Irish economy has long been a challenge due to the growing role of foreign multinational enterprises (MNEs). As the profits of foreign MNEs arising in Ireland accrue to foreign owners, these profits are not available to finance consumption or investment by Irish households or the government. Using traditional national accounting measures, it has become ever more difficult to quantify the undoubted benefits accruing to those living in Ireland from the output of the economy, including the benefits from the operations of foreign MNEs.

Problems first surfaced in the early 1980s when it was realised that the National Accounts were not capturing MNEs' profit outflows, where the profits were temporarily retained in their Irish subsidiaries. While this lacuna was readily handled by including accrued profits in the outflows, more recent developments have proved much more difficult to understand. In particular, the movement to Ireland in 2015 of very large amounts of Intellectual Property (IP) owned by MNEs resulted in a massive increase in GDP, while having a limited impact on the economic welfare of those living in Ireland. Given the headline role played by GDP

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in international comparisons of standards of living and economic growth, this has made it very difficult to understand what is going on in the Irish economy for those unfamiliar with the complexities of the Irish National Accounts.

As discussed in an earlier Article in the *Quarterly Economic Commentary* (FitzGerald, 2020), since 2015, to deal with these problems, the CSO has provided detailed Institutional Sector Accounts that provide a much clearer explanation of recent developments in the Irish economy. In particular, these accounts now include additional data distinguishing between foreign MNEs and domestic firms.

This paper updates and extends FitzGerald, 2020. Section 2 describes how the information in the Institutional Sector Accounts is used, together with the traditional National Accounts, to build up a comprehensive picture of the output side of the Irish economy. Section 3 uses these data to examine the changing structure of the Irish economy in recent years, and the relative contribution to output of foreign MNEs and the domestic sector. Section 4 analyses the growth rate over the period of economic recovery from the financial crisis, 2013-2021, and the contribution to rising living standards from different industrial sectors and from foreign MNEs and domestic firms. Section 5 looks at the development of the standard of living in Ireland in a comparative international context, using the improved insights available from the more extensive national accounting data available for Ireland. Section 6 concludes.

A separate paper, FitzGerald, 2023, looks at the new challenges for National Accounts arising from the growing importance of intellectual property and the increasing complexity of international supply chains.

## **2. DATA**

This Article makes extensive use of the Annual National Accounts and the Institutional Sector Accounts produced by the CSO. Data used in Section 5 on Purchasing Power Standard (PPS) are taken from Eurostat.

Because of the ready availability in the past of timely data on trade and consumption, much attention in economic forecasting was focused on the expenditure side of the National Accounts. However this Article concentrates on the output and income side of the National Accounts. This reflects the fact that,

ultimately, the productive capacity rather than national expenditure of an economy drives its standard of living.<sup>2</sup>

New data sources are also illuminating the most recent developments on the output and income side of the National Accounts in a timelier manner, allowing more up-to-date forecasts of output. Meanwhile, the complexities of the trade and investment data make interpreting the current indicators of what is happening on the expenditure side of the National Accounts increasingly difficult. In response to recommendations in a report published by the CSO in 2017, the CSO developed the modified Gross National Income (GNI\*) aggregate to provide more relevant information on developments in the Irish economy than is provided by GDP. However, it is only available at an annual frequency published six months after the end of a year, leaving a significant lacuna in our understanding of current economic developments.

The way the very comprehensive data are presented in the CSO Institutional Accounts makes it difficult to identify the precise role of foreign MNEs.<sup>3</sup> This Article rearranges the data to paint a clearer picture of the Irish economy, separately identifying the contribution of foreign MNEs. The resulting analysis is consistent with the published National Accounts aggregates.

With some limited additional imputation, it is now possible to decompose the output and income of the Irish economy at current prices by industrial sector and by ownership. This makes it possible to estimate the growth in the welfare of those living in Ireland, as measured by Net National Product (NNP), and identify the industrial sectors where that growth is occurring. NNP is preferred over GNI because it excludes depreciation, which has been responsible for a significant part of the distortions in the National Accounts. It is also preferred to GNI\* because the contributions to NNP by individual industrial sectors can be separately identified, and it is also, increasingly, being published for other economies. More detailed information on how this analysis is undertaken is given in FitzGerald (2020).

The latest issue of the Institutional Sector Accounts for Ireland, consistent with the Annual National Accounts, 2021,<sup>4</sup> contains important information for both the financial and the non-financial corporations sectors, broken down by foreign-owned MNEs and domestic firms. In addition, the CSO includes data on Gross Value

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<sup>2</sup> See, for example, Bergin et al., 2017.

<sup>3</sup> This paper uses the CSO's classification of firms into foreign MNEs and domestic. They use a different classification system than the Revenue Commissioners, so the two sets of data are not directly comparable.

<sup>4</sup> The publication was previously known as National Income and Expenditure.

Added (GVA), compensation of employees (COE) and Gross Operating Surplus (GOS) for each industrial sector, also cross-classified by institutional sector. All of these data are available for the period 2013 to 2021.

As described in FitzGerald, 2020, the analysis undertaken here requires some imputation, breaking down depreciation and corporation tax for each industrial sector into the part attributable to foreign MNEs and domestic firms.<sup>5</sup> In the case of corporation tax, there is a further complication as the Institutional Sector Accounts appear to attribute too high a share of corporation tax revenue to the financial sector,<sup>6</sup> resulting in an underestimate of corporation tax paid by the rest of the industrial sectors. This must be taken into account when interpreting the results.

This paper focuses on NNP arising in the different industrial sectors, as this allows a full understanding of the importance of different sectors to the economy. It also allows the contribution of the foreign MNE firms to be properly accounted for in terms of their contribution to NNP and, ultimately, GNI\*.

The growth in the volume of NNP is built up from estimates of the growth in real output by industrial sector. The deflator for each industrial sector is derived from the National Accounts. In each case the deflator for NNP implicit in the National Accounts<sup>7</sup> is used to deflate the output of both the foreign MNE and the domestic sector output. As discussed later, the CSO has the detailed data to do this at the individual firm level, giving rise to more accurate data at constant prices.<sup>8</sup> Also, as discussed in Section 4, when the estimates for each industrial sector of the volume of output at constant prices are aggregated, the implied overall growth rate for NNP is rather different from that shown in the National Accounts for individual years. However, when averaged over the period 2013-2021, the results are very similar.

A range of national accounting identities is used in this Article and the definitions are shown in Box A.

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<sup>5</sup> It would be helpful if the CSO could estimate the depreciation and corporation tax directly in the accounts.

<sup>6</sup> This is reflected in an exceptionally high average corporation tax rate for the financial sector shown in the accounts, which is not consistent with the headline rate of 12.5 per cent. The Revenue Commissioners' data attribute an even bigger share of tax revenue to the financial sector.

<sup>7</sup> For each industrial sector the value of GVA, less depreciation, is divided by the volume of GVA, less the volume of depreciation, to arrive at a sectoral deflator for NVA.

<sup>8</sup> As an alternative, the implicit deflator for GVA in each industrial sector is also used but it does not dramatically change the rate of growth at the economy level.

$\text{GNP at market prices} = \text{GDP at market prices} - \text{Factor income}$

$\text{GNI at market prices} = \text{GDP at market prices} - \text{Factor income} - \text{EU subsidies} + \text{EU taxes}$

$\text{GNI}^* \text{ at market prices} = \text{GNI at market prices} - \text{Depreciation on R\&D service imports and trade in Intellectual Property and aircraft leasing} - \text{Factor income of redomiciled companies}$

$\text{NNI at market prices} = \text{GNI at market prices} - \text{depreciation}$

$\text{NNP at factor cost} = \text{NNI at market prices} - \text{National indirect taxes} + \text{national subsidies}$

$\text{NVA at factor cost} = \text{NNP at factor cost} + \text{Factor income (net outflows)}$

$\text{GVA} = \text{Net Value Added (NVA)} + \text{depreciation}$

The different aggregates can also be expressed at 'basic prices', 'factor cost' and 'market prices'

$\text{Market prices} = \text{Factor cost} + \text{national indirect taxes} - \text{national subsidies}$

$\text{Market prices} = \text{Basic prices} + \text{Product taxes} - \text{Product subsidies}$

### 3. STRUCTURE OF THE ECONOMY

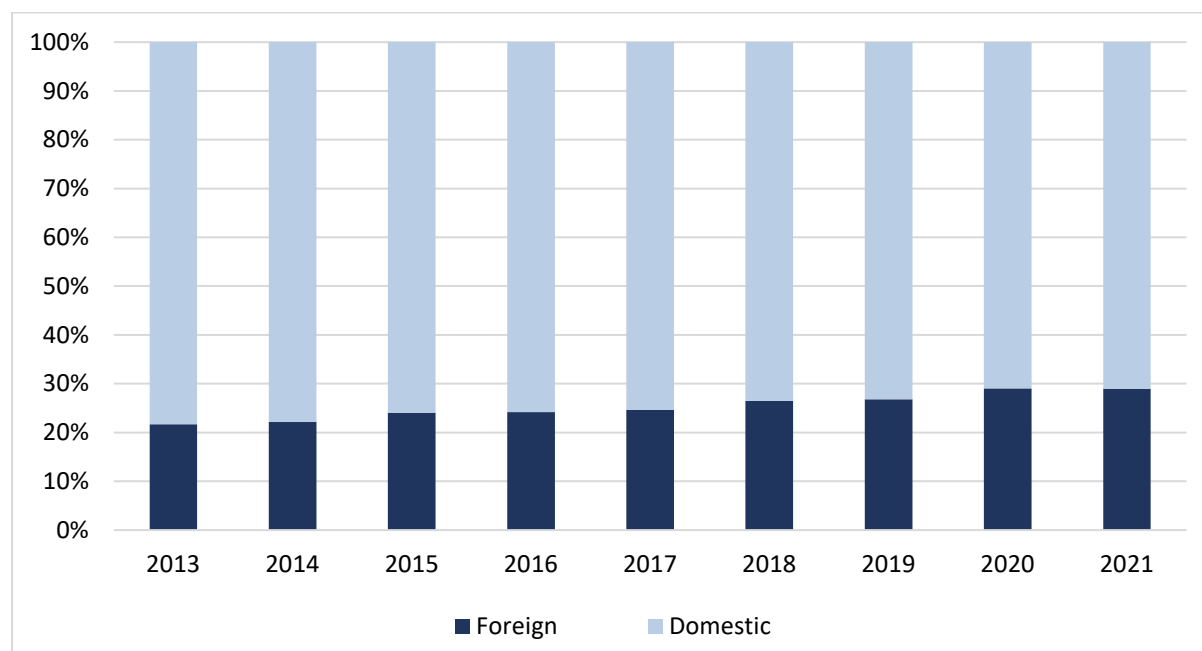
Using the data from the Institutional Sector Accounts, the contribution to NNP for the economy from the different industrial sectors is also broken down by foreign MNEs and domestic firms. These data are available for the years 2013 to 2021 for an 11-way industrial sector breakdown.

For domestic firms, the contribution to NNP arising in the sector is identical to Net Value Added (NVA), that is Gross Value Added (GVA) after deducting depreciation.<sup>9</sup> Net Value Added is made up of the net operating surplus (NOS) or profits of firms in the sector, and the wage bill. For foreign MNEs the contribution to NNP is the wage bill and the corporation tax paid by firms in the sector out of their net operating surplus. For foreign MNE firms the rest of the profits (NOS), after tax, flow out of the country as factor income.

<sup>9</sup> Domestic firms also receive profits from abroad, which are included in net factor income. However, in the analysis in this paper these profits received from abroad are not attributed to individual industrial sectors but are added back in to reach the national total for NNI.

Figure 1 shows how the breakdown of NNP between domestic and foreign MNE sectors has evolved over that time period, and the detailed composition by industrial sectors is shown for the first and last years of the period in Table 1.<sup>10</sup>

**FIGURE 1 DOMESTIC AND FOREIGN FIRMS, SHARE OF NNP AT CURRENT PRICES,%**



Source: Institutional Sector Accounts.

**TABLE 1 STRUCTURE OF ECONOMY, 2013 AND 2021, SHARE OF NNP AT CURRENT PRICES,%**

|  | 2013  |         |          | 2021  |         |          |
|--|-------|---------|----------|-------|---------|----------|
|  | Total | Foreign | Domestic | Total | Foreign | Domestic |
| <b>Agriculture</b>                     | 1     | 0       | 1        | 2     | 0       | 2        |
| <b>Manufacturing</b>                   | 11    | 6       | 6        | 13    | 8       | 5        |
| <b>Electricity, gas, and water</b>     | 2     | 0       | 2        | 1     | 0       | 1        |
| <b>Construction</b>                    | 3     | 0       | 3        | 5     | 1       | 4        |
| <b>Distribution, transport, etc.</b>   | 21    | 5       | 17       | 16    | 5       | 11       |
| <b>Information &amp; communication</b> | 6     | 3       | 3        | 9     | 6       | 3        |
| <b>Financial</b>                       | 10    | 5       | 5        | 8     | 4       | 4        |
| <b>Real estate</b>                     | 8     | 0       | 8        | 10    | 0       | 10       |
| <b>Professional, admin etc.</b>        | 10    | 2       | 8        | 15    | 4       | 11       |
| <b>Public Sector</b>                   | 24    | 0       | 24       | 20    | 0       | 20       |
| <b>Arts, etc.</b>                      | 3     | 0       | 3        | 2     | 0       | 2        |
| <b>Total</b>                           | 100   | 22      | 78       | 100   | 29      | 71       |

Source: Institutional Sector Accounts.

<sup>10</sup> The annual figures are available, on request, from the author.



In 2013, 78 per cent of NNP arose from activity in domestic businesses, including the public sector, with the remaining 22 per cent arising in foreign MNEs. However, by 2021, the foreign MNE share of NNP had risen to 29 per cent and the domestic share had fallen to 71 per cent. About half of the increase in the foreign share was due to the more rapid rise in the wage bill in that sector than in domestic firms, and the other half to the very rapid rise in corporation tax revenues. Overall, this indicates that the recovery benefited from very rapid growth in the output of foreign MNEs.

In 2021 five sectors accounted for almost all of the contribution of foreign MNEs to NNP. In manufacturing foreign MNEs accounted for two-thirds of the NNP in that sector – around 8 per cent of NNP in the economy as a whole. The next biggest sector, in terms of the foreign MNE contribution to NNP, was the information and communications sector, where foreign MNEs also accounted for two-thirds of the NNP arising in that sector, that is 6 per cent of NNP in the economy.

The other industrial sectors where foreign MNEs accounted for at least 4 per cent of the NNP arising in the economy were distribution, professional services, and financial services. In the case of the first two of these sectors, domestic firms still accounted for over two-thirds of NNP in 2021. In the financial services sector these data suggest that foreign firms accounted for half of NNP. However, as mentioned earlier, this may be an overestimate because of the attribution of an exceptional share of corporation tax to the financial sector in the Institutional Sector Accounts. The contribution to NNP for the economy from foreign MNEs in the financial services sector actually fell between 2013 and 2021, despite the movement of quite a number of firms from London to Dublin as a result of Brexit. This suggests that, while the number of individual firms relocating was significant, individually they did not bring major value added to the Irish economy.

Table 2 shows that the wage bill in foreign MNEs accounted for 27 per cent of total wages in the economy in 2013. However, by 2021 this had risen to 33 per cent. This is a higher share than that of the NNP attributable to foreign owned MNEs in 2021 of 29 per cent, shown in Table 1. The bigger share of the wage bill arising in foreign MNEs is partly due to the fact that average pay rates in foreign MNEs are well above rates elsewhere in the economy.

**TABLE 2 SHARE OF WAGE BILL BY INDUSTRIAL SECTOR, 2013 AND 2021, %**

|  | 2013  |         |          | 2021  |         |          |
|--|-------|---------|----------|-------|---------|----------|
|  | Total | Foreign | Domestic | Total | Foreign | Domestic |
| <b>Agriculture, forestry and fishing</b>               | 0.9   | 0.1     | 0.8      | 0.8   | 0.1     | 0.7      |
| <b>Manufacturing</b>                                   | 11.9  | 6.5     | 5.5      | 12.7  | 8.3     | 4.5      |
| <b>Electricity, gas, and water</b>                     | 1.3   | 0.1     | 1.2      | 1.2   | 0.2     | 1.1      |
| <b>Construction</b>                                    | 2.9   | 0.5     | 2.4      | 4.2   | 0.8     | 3.5      |
| <b>Distribution, transport, hotels and restaurants</b> | 20.8  | 6.3     | 14.5     | 17.4  | 5.7     | 11.7     |
| <b>Information and communication</b>                   | 6.4   | 3.5     | 2.9      | 9.7   | 7.1     | 2.6      |
| <b>Financial and insurance activities</b>              | 9.8   | 5.9     | 3.9      | 8.2   | 5.1     | 3.1      |
| <b>Real estate activities</b>                          | 0.7   | 0.2     | 0.5      | 0.9   | 0.3     | 0.6      |
| <b>Professional, admin and support services</b>        | 10.1  | 3.4     | 6.6      | 13.7  | 5.0     | 8.7      |
| <b>Public admin, education and health</b>              | 32.7  | 0.5     | 32.2     | 29.3  | 0.7     | 28.6     |
| <b>Arts, entertainment and other services</b>          | 2.5   | 0.3     | 2.1      | 1.9   | 0.2     | 1.7      |
| <b>Total</b>   | 100.0 | 27.3    | 72.7     | 100.0 | 33.4    | 66.6     |

Source: Institutional Sector Accounts

Unfortunately, employment data, on a comparable basis to the wage bill data from the Institutional Sector Accounts, are not available.<sup>11</sup> However, for the economy as a whole, average earnings in 2020 were €52,000 while Eurostat data<sup>12</sup> indicate that average earnings in foreign MNE firms were €56,000, and over €73,000 in US-owned firms. The same data source suggests that over the period 2012 to 2020<sup>13</sup> wage rates in US-owned firms rose slightly slower than in the economy as a whole. This indicates that the primary reason for the growth in the MNE wage bill over that period was a more rapid increase in employment than in the economy as a whole.<sup>14</sup> This highlights the importance of the growth of foreign-owned MNEs in the economic recovery from the financial crisis.

An important factor in the higher wages paid in foreign-owned firms is that a much bigger share of their workforce has third-level qualifications than for the economy as a whole.<sup>15</sup> Given that the public sector also has a high share of graduate employment, the lower pay in domestic firms can be partly attributed to the lower qualifications of their workforce.

<sup>11</sup> While the Revenue Commissioners do give a figure for employment in foreign MNEs, the data are not comparable to the classifications used by the CSO.

<sup>12</sup> Eurostat Structural Business Statistics.

<sup>13</sup> Data are not available for 2013 and 2021.

<sup>14</sup> The Eurostat data suggest that employment in foreign MNEs rose by 7.4 per cent a year between 2012 and 2020 whereas employment growth in the economy as a whole averaged 2.3 per cent a year. For US-owned firms the average annual increase was 5.7 per cent.

<sup>15</sup> CSO: Census 2016.

Between 2013 and 2021 receipts of corporation tax from domestic firms doubled from around €1.3 billion to €3 billion in 2021. In 2022 they were €3.1 billion. However, the rise in corporation tax receipts from foreign MNEs was much more dramatic, increasing from around €3 billion in 2013 to over €12 billion in 2021 and €19.6 billion in 2022. As indicated earlier, this has been an important factor in the increased contribution to NNP from foreign MNEs over the period 2013-2021. The Department of Finance estimates that that up to €11 billion of the over €23 billion in corporation tax revenue in 2022 was ‘revenue-at-risk’ (Department of Finance, 2023, p. 3). This implies that over half of the rise in corporation tax revenue since 2012, that has contributed significantly to growth, could be put at risk by unexpected developments in the foreign MNE sector or in US legislation on corporation tax.<sup>16</sup>

#### **4. MEASURING REAL GROWTH IN THE ECONOMY**

In understanding what is happening in the economy it is vital to be able to measure the real growth in output (and expenditure) which benefits those living in Ireland, rather than the growth in profits (or depreciation) accruing to the benefit of the foreign owners of MNEs. The growth in real national income is a key indicator of the resources permanently available to meet the needs of the population. To deal with the distortions in the National Accounts, the CSO has developed two measures of real growth (at constant prices) that provide an appropriate and consistent treatment of the activity of MNEs – modified Gross National Income (GNI\*) and Net National Income (NNI).

The growth in real value added in individual industrial sectors is determined by subtracting the volume of inputs from the volume of gross output. This is straightforward in the case of some businesses. For example, for a firm producing butter the volume of output of butter is easily measured by weight, and the milk used as an input can also be determined by volume. The deflator is then obtained by dividing the value of both output and inputs by the relevant volume measures.

However, measuring the volume or, alternatively, the price of outputs and inputs, can be much more difficult in many other sectors, especially service sectors such as healthcare and IT services. Nonetheless, this is the procedure implemented in determining the volume of GVA, and hence of GDP, on the output side of the National Accounts.

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<sup>16</sup> The bulk of this revenue comes from US-owned firms, as shown by country-by-country reporting. There is also significant concentration risk as the proportion of Corporation Tax paid by the top ten firms has risen from 36 per cent in 2013 to 57 per cent in 2022. <https://revenue.ie/en/corporate/documents/research/ct-analysis-2023.pdf>.

In principle, the volume of GDP on the expenditure side of the accounts is determined in a consistent manner by subtracting the volume of imports – the inputs from abroad into the economy – from total expenditure.<sup>17</sup> Because of the difficulties in determining deflators for the very large trade flows, especially trade in services, ensuring consistency between the output and the expenditure side measures is not easy. Subject to a statistical discrepancy this is implemented by the CSO in the National Accounts.

The result on the output side of the National Accounts is a measure of the volume of GVA by industrial sector. To derive NNP by industrial sector at constant prices from GVA, depreciation must be subtracted, reflecting the capital stock used up in the production of output in an individual year. The deflator for depreciation in each industrial sector is different from the deflator for GVA in that sector, reflecting the price of the capital stock used up in producing the output. In turn, when the depreciation at constant prices is subtracted from the GVA, a measure of the industrial sector's contribution to the growth in NNP is derived, and from that the implicit deflator for NNP arising in a particular sector is determined.

In this paper the value added in domestic firms' output and in foreign MNE firms' output is deflated by the aggregate deflator for NNP in each individual industrial sector, as described above (including both foreign-owned MNEs and Irish owned firms). This differs from the approach used by the CSO, where specific deflators are used for individual firms, be they foreign MNEs or domestic. This may give rise to some difference from the CSO measure of the growth in the volume of NNI if the deflators are very different for foreign and domestic firms.

This paper also deflates the profits repatriated by foreign MNEs by the same deflator for NNP arising in the relevant industrial sector. This ensures consistency between the volume measure of the profits included in the sector's NVA and the outflow of the same profits.

However, the CSO adopt a different treatment, deflating the outflow of profits by an implied price index for exports of goods and non-factor services (CSO, 2014). This means that the volume of the profits flowing out of the country is generally different from the volume of the same profits when they are included in GVA. This does not appear consistent. Because of the size of these profit outflows, this could

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<sup>17</sup> In principle flows from one Irish-based firm to another should net out.

give rise to significant differences in the resulting measure of NNI and GNI\* for the economy.

Table 3 compares the growth rate for NNP and NNI derived from the analysis in this paper with the published growth rates from the CSO National Accounts for a range of aggregates. When the growth rates are averaged over the eight years 2014-2021, the estimate for real NNI derived from the analysis in this paper of 4.4 per cent is very close to that shown by the CSO in National Income and Expenditure, 2021 for NNI of 4.2 per cent. In turn, the CSO estimate for the average growth in GNI\* is also very similar at 4.1 per cent.

**TABLE 3 ANNUAL GROWTH RATE OF DIFFERENT MEASURES OF NATIONAL INCOME AT CONSTANT PRICES, %**

|   | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Average Annual<br>2013-2021 |
|---|------|------|------|------|------|------|------|------|-----------------------------|
| <b>Source: this Paper</b>                         |      |      |      |      |      |      |      |      |                             |
| <b>NNP before other factor income</b>             | 3.8  | 2.7  | 4.8  | 2.9  | 6.5  | 4.8  | -2.9 | 9.3  | 3.9                         |
| <b>NNI</b>  | 7.4  | 2.1  | 5.2  | 0.8  | 7.1  | 5.0  | -8.3 | 17.5 | 4.4                         |
| <b>Source: CSO Annual National Accounts (ANA)</b> |      |      |      |      |      |      |      |      |                             |
| <b>NNI from ANA</b>                               | 9.3  | -4.5 | 5.2  | 3.7  | 4.5  | 2.5  | -5.6 | 20.4 | 4.2                         |
| <b>GNI* from ANA</b>                              | 8.7  | -1.8 | 4.8  | 4.7  | 4.4  | 2.8  | -4.6 | 15.4 | 4.1                         |
| <b>GNI from ANA</b>                               | 8.8  | 12.7 | 7.3  | 6.0  | 6.0  | 5.2  | 2.7  | 14.6 | 7.8                         |
| <b>GDP from ANA</b>                               | 8.6  | 24.4 | 2.0  | 9.0  | 8.5  | 5.4  | 6.2  | 13.6 | 9.5                         |
| <b>Modified Total Domestic Demand</b>             | 6.2  | 5.5  | 5.6  | 2.9  | 2.8  | 3.4  | -4.7 | 6.2  | 3.4                         |
| <b>Employment</b>                                 | 2.6  | 3.4  | 3.7  | 2.8  | 2.8  | 2.9  | -2.8 | 6.0  | 2.7                         |

Sources: Author's calculations and Central Statistics Office (Annual National Accounts).

These estimates for the average growth in the volume of NNI and GNI\* look much more realistic than the growth rates for unadjusted GNI and GDP, giving a better representation of the experience of the growth in the economy for those living in Ireland. The growth in Modified Domestic Demand was somewhat slower at 3.4 per cent a year. As Lennon (2022) shows, the difference between the Modified Domestic Demand and the GNI\* measures of output reflects the growing current account surplus in the modified Balance of Payments.

In Table 3, the growth rates for individual years, derived in this paper, are compared with the growth rates for individual years from the CSO Annual National Accounts. The fall in output in 2015 in the CSO measures looks really surprising, given the very high rate of growth in employment and Modified Domestic Demand

for that year.<sup>18</sup> By contrast, while still low relative to these other measures, the growth rate for NNI in 2015 of 2.1 per cent, derived in this paper, looks more realistic. However, the estimated growth in NNI in 2017 in this paper of 0.8 per cent looks low relative to the growth in employment and Modified Domestic Demand, and is lower than the CSO estimate of 3.7 per cent.

Thus, while the average growth rate for NNI over the eight years, derived from the analysis in this paper, is very similar to that using published CSO figures, there are significant differences in the growth rate for individual years. It is not clear whether this is due to the CSO using more detailed deflators at a firm level, or whether it is due to the adoption in this paper of a consistent approach to deflating profits of foreign MNEs: the same deflator is used when they are included in NVA and when they flow out of the country in factor income. Preliminary analysis suggests a significant part of the difference is due to the alternative approaches to deflating profit outflows.

As can be seen from Table 4, while the volume of NNP arising in the foreign MNE sector rose by an average of 8 per cent a year, that in the domestic sector rose by only 2.6 per cent, highlighting the important contribution of the foreign sector to the overall success of the economy.

The most rapid growth was experienced in the information and communication sector. While the foreign MNE firms in the sector grew at an exceptional rate of 15.9 per cent a year, the NNP arising in domestic firms in the sector also grew rapidly at 5.6 per cent a year, showing that domestic firms in that sector remain a significant contributor to growth in the economy.

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<sup>18</sup> GVA at constant prices in the domestic sector also grew by almost 6 per cent in 2015.

**TABLE 4 AVERAGE ANNUAL GROWTH RATE BY INDUSTRIAL SECTOR, CONSTANT PRICES, 2013-2021, %**

|  | All Sectors | Foreign MNEs | Domestic |
|--|-------------|--------------|----------|
| <b>Agriculture, forestry and fishing</b>               | 11.1        | 4.3          | 11.4     |
| <b>Manufacturing</b>                                   | 5.5         | 8.4          | 1.8      |
| <b>Electricity, gas, and water</b>                     | 3.4         | 16.3         | 2.4      |
| <b>Construction</b>                                    | 3.4         | 2.8          | 3.5      |
| <b>Distribution, transport, hotels and restaurants</b> | 2.2         | 7.1          | 0.4      |
| <b>Information and communication</b>                   | 11.8        | 15.9         | 5.6      |
| <b>Financial and insurance activities</b>              | -0.5        | 0.2          | -1.2     |
| <b>Real estate activities</b>                          | 2.2         | 2.3          | 2.2      |
| <b>Professional, admin and support services</b>        | 8.0         | 10.9         | 7.1      |
| <b>Public Admin, Education and Health</b>              | 2.4         | 8.5          | 2.3      |
| <b>Arts, entertainment and other services</b>          | 1.4         | -1.5         | 1.7      |
| <b>Total</b>   | 3.9         | 7.9          | 2.6      |

Source: Institutional Sector Accounts and author's analysis.

The other two sectors, which grew very rapidly over the eight years, were agriculture and the professional and admin sectors. In the case of agriculture, the ending of the milk quota regime in 2015 allowed the sector to expand, though the sector remains a small contributor to national value added. In the case of the professional and admin sector, the rapid growth was experienced by both foreign and domestic firms. In manufacturing, which grew at 5.5 per cent a year, it was the foreign sector that grew rapidly, with domestic firms growing at only 1.8 per cent a year on average.

Table 5 shows the contribution to the overall growth in the economy by industrial sector, consistent with the data shown in Table 4. Half the growth in the economy over the period 2013-2021 was attributable to foreign owned MNEs. The three industrial sectors that accounted for almost 60 per cent of the growth in the economy were manufacturing (primarily the foreign owned firms), information and communication, and professional and admin services. While still recovering from the financial crisis, the public sector contributed under an eighth of the growth in the economy, highlighting the importance of the contribution from the private sector.

**TABLE 5 CONTRIBUTION TO GROWTH, BY INDUSTRIAL SECTOR, CONSTANT PRICES 2013-2021, %**

|  | Total | Foreign | Domestic |
|--|-------|---------|----------|
| <b>Agriculture, forestry and fishing</b>               | 2.8   | 0.0     | 2.8      |
| <b>Manufacturing</b>                                   | 16.4  | 14.0    | 2.3      |
| <b>Electricity, gas, and water</b>                     | 1.0   | 0.3     | 0.7      |
| <b>Construction</b>                                    | 3.5   | 0.3     | 3.1      |
| <b>Distribution, transport, hotels and restaurants</b> | 8.1   | 6.8     | 1.2      |
| <b>Information and communication</b>                   | 18.5  | 15.2    | 3.3      |
| <b>Financial and insurance activities</b>              | -1.2  | 0.2     | -1.4     |
| <b>Real estate activities</b>                          | 5.2   | 0.1     | 5.1      |
| <b>Professional, admin and support services</b>        | 23.5  | 8.1     | 15.4     |
| <b>Public admin, education and health</b>              | 11.8  | 0.8     | 11.1     |
| <b>Arts, entertainment and other services</b>          | 0.7   | 0.0     | 0.7      |
| <b>Total</b>   | 90.3  | 46.0    | 44.3     |
| <b>Other Factor Income</b>                             | -9.7  | -2.9    | -6.8     |
| <b>NNP</b>   | 100.0 | 48.9    | 51.1     |

Source: Institutional Sector Accounts and author's analysis.

Over the eight years 2013 to 2021, NNP (before other factor income) rose by around 4.4 per cent a year, while employment grew by 2.7 per cent a year. This implies a growth in productivity of around 1.7 per cent a year. While lower than in the Celtic Tiger years, this growth in productivity has sustained a significant increase in real incomes in Ireland over the period.

In the Stability Programme Update, the Department of Finance estimates that around half of the corporation tax revenue in 2022, amounting to 4 per cent of GNI\*, is 'exceptional' and could prove to be ephemeral. For 2021 the 'exceptional' revenue was estimated at around 2 per cent of GNI\*. This growth in exceptional corporation tax revenue has occurred since 2013, especially since 2015, with the relocation of foreign-owned IP to Ireland. If this growth in exceptional tax revenue had not occurred, the growth rate of the economy, as shown by the measures in Table 5, would have been lower, averaging 4.1 per cent a year. In turn, the growth in productivity would have been closer to 1.4 per cent a year.<sup>19</sup> This is very similar to the growth in productivity assumed in the Department of Finance *Stability Programme Update* for the period 2025-2030 when the corporation tax 'bonus' for growth is likely to have run out, even if the current exceptional revenue is sustained. Thus, if this rate of productivity growth were to persist, it would be

<sup>19</sup> CSO estimates that productivity during this period was 1.1 per cent per annum for Domestic Companies <https://www.cso.ie/en/releasesandpublications/ep/p-pii/productivityinireland2021/labourproductivity/sourcesoflabourproductivitygrowth/>.



broadly consistent with the medium-term growth in the economy that the Department of Finance currently anticipates.

## **5. RELATIVE STANDARD OF LIVING**

Comparing the standard of living across countries using National Accounts data is, of necessity, an imprecise art. To undertake this task, it is first necessary to establish the price of identical products and services across countries, and then the analysis must take account of differences in national consumer preferences to establish how much of the desired goods and services national income per head can purchase. However, this is difficult to establish. Even with a fairly homogeneous product, like spaghetti, the brands differ across countries, as does the quality.

While it is possible, with some difficulty, to obtain representative prices for the bundle of goods and services that households buy, it is much more difficult to do this for investment, and especially for government expenditure on goods and services, where these goods and services are not freely traded on an open market. Finally, in determining a comparable price level for GDP, appropriate prices for exports and imports need to be established.

Having prepared a set of representative prices, account must then be taken of the differences in the composition of the bundle of goods and services that are bought in each country. For example, In Ireland the preference is for a higher share of clothing expenditure to go on relatively cheap clothes sold in stores like Penneys, Dunnes and H&M. By contrast, in France more expenditure goes on clothes sold in specialist shops, involving a higher retail margin (FitzGerald and Knipper, 1993). This difference in expenditure patterns probably reflects differences in preferences more than choices driven by differences in relative prices.

There are different approaches to comparing the standard of living in terms of the components of national income considered. One approach, advocated in Honohan (2021), and implemented for Ireland, Northern Ireland, and the UK by FitzGerald and Morgenroth (2020), compares consumption per head, including public consumption,<sup>20</sup> across countries. Bergin and McGuinness (2021) prefer a measure based on disposable income per head, as this includes household savings. Another approach, more frequently used in international comparisons, and also used by

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<sup>20</sup> Public consumption includes the provision of public services, such as health, education and security.

Bergin and McGuinness (2021), compares the level of GDP per head, adjusted for price differences.

The consumption-based approach gives a better approximation to the current standard of living at a point in time, concentrating on the goods and services being enjoyed by the population in a particular year. The GDP-wide measure includes investment and the current account of the Balance of Payments (excess or deficit in national savings), in addition to consumption. This gives a better measure of the sustainable standard of living in the longer term. If a country invests more per head (and saves more) than another country, the standard of living is likely to be higher in the longer term.

Of course, none of these measures takes account of the unpriced natural resources being consumed (biodiversity, raw materials etc.) or of the environmental costs, in particular in terms of climate change, that are associated with the level of economic activity in an economy. As a result, when comparing living standards, broadly defined, across countries it is appropriate to use a much wider range of indicators.

In the standardised approach to comparing living standards, implemented by Eurostat and national statistical agencies such as the CSO, the prices for a range of goods and services collected across EU members are weighted by the observed composition of final demand to arrive at a composite price adjustment for GDP. This single price-level adjustment is then applied to the different components of GDP. The adjusted components of GDP are aggregated to give a summary measure of GDP per head on a comparable price basis.

While this approach works for many other countries, the inappropriate nature of GDP as a measure of the standard of living in Ireland has been addressed earlier in this paper. As Lennon, 2022 shows, GNI\* can be decomposed into final consumption (of households and government), modified investment and the modified Balance of Payments.<sup>21</sup> In this paper these components are then deflated by the Eurostat deflator for GDP to adjust for PPS and this measure is compared to the figures for GDP per head for other countries, with appropriate adjustment for differences in price level.

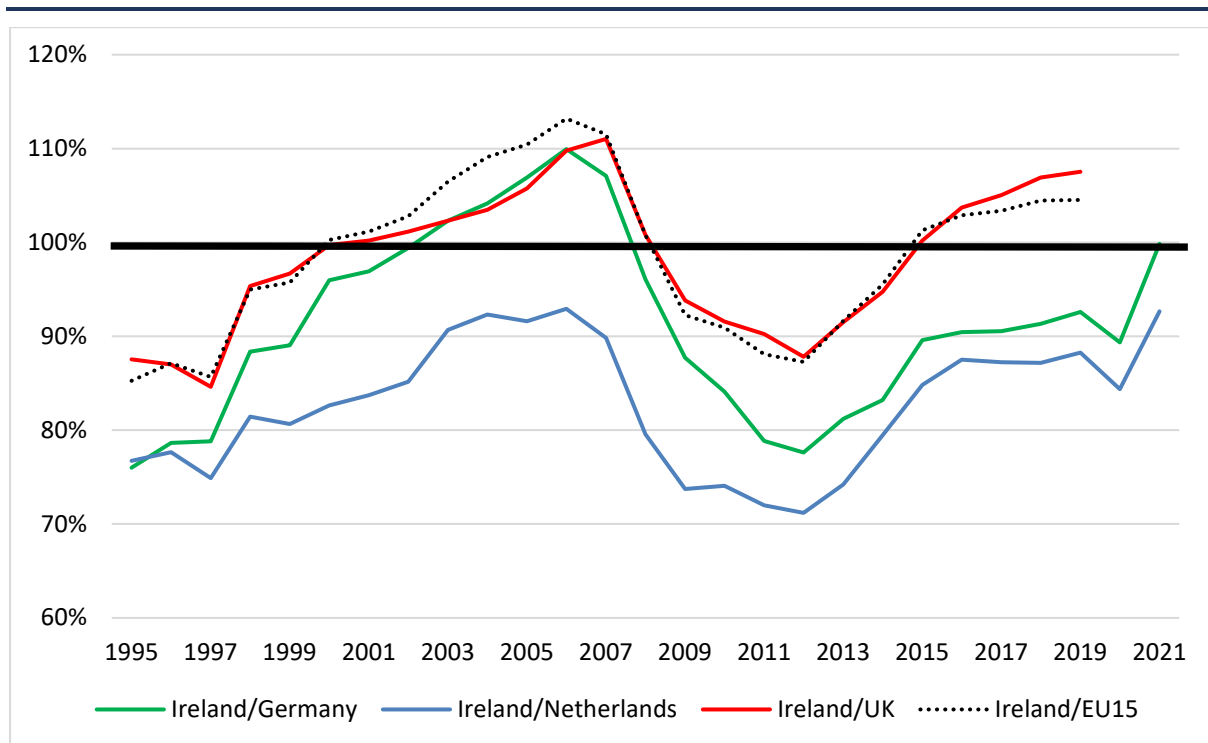
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<sup>21</sup> As Lennon sets out, net current transfers and the statistical discrepancy account for the remaining small difference between modified GNI, GNI\*, and its modified components.

A problem with this approach is that the PPS adjustment is based on the composition of Irish GDP, rather than the composition of GNI\*. While the CSO might be able to produce a suitably reweighted price adjustment for GNI\*, this is not currently available. Therefore we are comparing GNI\* per head, adjusted for PPS using the GDP PPS price, with GDP per head, suitably adjusted for prices, for a range of other countries.

Figure 2 shows that, based on GNI\* per head, the Irish standard of living approached that of Germany, the UK and the EU15 in the early 2000s. By 2007 the Irish standard of living was up to 10 per cent higher than in these countries, but the financial crash had a dramatic effect. By 2011 the Irish standard of living was 10 per cent below that of the UK and the EU15, and around 20 per cent below that of Germany. The economic recovery since 2012, documented earlier in this paper, reversed the effects of the financial crisis, so that these data suggest that by 2019 the Irish standard of living was 8 per cent above the UK, and by 2021 it had once again reached German levels, though still lower than in the Netherlands.

**FIGURE 2 IRISH GNI\* PER HEAD RELATIVE TO GDP PER HEAD FOR OTHER COUNTRIES, ADJUSTED FOR PPS**



Source: Eurostat and CSO.

Table 6 decomposes the difference in GNI\*/GDP per head between Ireland, the UK, Germany and the Netherlands into consumption (public and private), investment, and the Balance of Payments. As can be seen from the table, in Ireland

consumption per head is significantly lower than in the other three countries. While modified investment per head was significantly higher than investment in the UK in 2019, it was lower than in Germany and the Netherlands. However, it is the surplus on the current account of the modified Balance of Payments that makes a big difference compared to the UK, with a smaller difference compared to Germany.

**TABLE 6 EXPENDITURE PER HEAD, (000) EUROS ADJUSTED FOR PPS (EU27), 2019**

|                            | Ireland | UK   | Germany | Netherlands |
|----------------------------|---------|------|---------|-------------|
| <b>Consumption</b>         | 24.5    | 27.1 | 27.4    | 27.1        |
| <b>Investment</b>          | 7.3     | 6.0  | 8.4     | 8.8         |
| <b>Balance of Payments</b> | 3.3     | -0.4 | 2.1     | 3.9         |
| <b>GNI*/GDP</b>            | 35.1    | 32.6 | 37.9    | 39.7        |

Source: Eurostat and CSO.

Data for the UK post-Brexit are not available for 2021. The data for the other countries show that the gap in living standards between Ireland and Germany, measured using GNI\* and GDP, had closed because of some narrowing in the gap in consumption per head, but also because of the increase in the modified current account surplus for Ireland.

The pandemic saw the personal savings rate rise to exceptional levels across all developed countries, including among most EU members. However, the increase in the savings rate in Ireland was higher than in most other countries, and has remained high for much longer. Timoney (2022) questions whether this may be due to problems with the data, and suggests that the level of consumption may be higher than suggested by the preliminary CSO figures, an issue which will be clarified when the National Accounts figures for 2022 are published in July 2023.<sup>22</sup>

The Department of Finance considered the ‘revenue-at-risk’ from corporation tax in 2021 to amount to between €4 billion and €6 billion.<sup>23</sup> This accounted for only a small part of the modified current account surplus for the year of €26 billion. Even if some allowance were made for a possible overestimate of personal savings, as suggested by Timoney, 2022, the surplus still reflects a very high rate of domestic saving. It is this element which substantially accounts for the higher standard of

<sup>22</sup> These numbers will include revisions for earlier years taking account of additional information that has become available since the annual publication of *Annual National Accounts* last year.

<sup>23</sup> <https://www.gov.ie/en/publication/b838d-de-risking-the-public-finances-assessing-corporation-tax-receipts/>.

living in Ireland relative to the UK in 2021, and also for the catch-up on the German standard of living in 2021.

The approach advocated by Honohan (2021) and implemented in FitzGerald and Morgenroth (2020) considers consumption per head, adjusted for prices, across countries. The price level adjustment used in Figure 1 and Table 6 is the Eurostat price adjustment for GDP. However, they also estimate a separate price adjustment for final consumption, which is rather different from the GDP adjustment. Presumably this adjustment for the price of consumption is consistent with the GDP deflator, implying a different price adjustment for the rest of GDP/GNI\* than the aggregate adjustment used above for GDP.

In the Irish case the separate price adjustment for consumption is much bigger than that implied by the GDP adjustment, suggesting that consumption prices in Ireland are even higher relative to other countries than is the case for the rest of GNI\*, implying a different (lower) relative deflator for investment and the current account of the Balance of Payments.

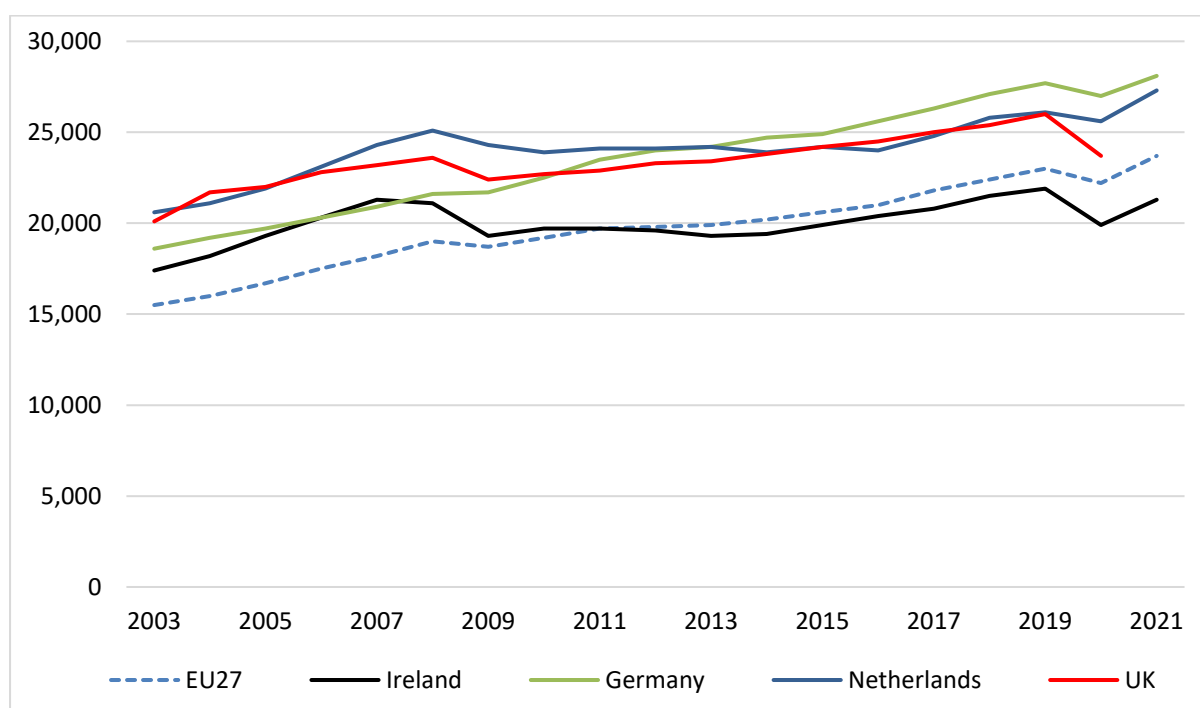
Using this approach, Figure 3 shows final consumption (public and private) per head for Ireland, the EU27 and a range of individual countries. Compared to Figure 1, this Figure uses the specific deflator for final consumption rather than the GDP deflator. These data suggest that, on the basis of final consumption per head, the living standard in Ireland in 2021 was below that for the EU27 and for the individual countries identified here.

However, Coffey, 2019, raises significant issues about the comparability of these data.<sup>24</sup> While Irish house prices are undoubtedly very high, for 2018 the Eurostat data implied that Ireland had the lowest consumption of housing services per head of any of the 28 EU members. This is despite the fact that the average number of rooms per person was among the highest and the rate of 'overcrowding' was also low.

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<sup>24</sup> <http://economic-incentives.blogspot.com/2019/06/does-ireland-really-have-lowest-per.html>.

**FIGURE 3** FINAL CONSUMPTION EXPENDITURE, REAL EXPENDITURE PER CAPITA (IN PPS EU27)



Source: Eurostat.

In line with the suggestion of Bergin and McGuinness (2020), if allowance were made for a higher savings rate in Ireland, and the standard of living were based on real personal disposable income per head, Ireland would be positioned above the EU average. It would still be significantly below Germany and the Netherlands, which also had a high personal savings rate in 2020 and 2021.

As Coffey suggests, the very much lower level of real consumption per head in Ireland relative to the countries identified here remains slightly surprising, and the full reasons for the size of the gap merit further research.

## 6. CONCLUSIONS

The analysis that is made possible by the additional data in the CSO Institutional Sector Accounts provides a much more coherent picture of developments in the Irish economy over the last decade than is possible from just using the standard National Accounts. Instead of exceptional and erratic growth rates, as seen in *Annual National Accounts*,<sup>25</sup> the pattern shown in this paper is smoother and more plausible. When averaged over the eight years 2013-2021, they suggest quite rapid growth in the economy, consistent with the CSO's measures, and also consistent with other data on developments in the economy, such as employment.

<sup>25</sup> Formerly known as *National Income and Expenditure*.

The contribution of the foreign MNE sector to the Irish economy rose from 22 per cent in 2013 to 29 per cent in 2021. A major reason for the increase was the growth in foreign MNE firms operating in the manufacturing and IT sectors. By 2021, 33 per cent of the wage bill in the economy was earned by those working for foreign MNEs. The magnitude of this contribution reflects both the rapid rise in employment in that sector and the fact that average earnings in the sector are much higher than elsewhere in the economy. The higher-than-average pay rates, in turn, partly reflect the higher levels of educational attainment of those employed by foreign firms.

The data indicate that around half of the growth in the economy over the period 2013-2021 of 4.4 per cent a year was due to the exceptional performance of the foreign MNE sector. However, the data also show significant growth in domestic enterprises over the same period. If the exceptional nature of a significant part of the rise in corporation tax revenue is excluded, the average growth rate was closer to 4.1 per cent a year. With employment growth averaging 2.7 per cent a year, this would suggest a growth in productivity of just over 1.4 per cent a year, lower than in the Celtic Tiger years but higher than in most of our European neighbours. A significant factor in this high rate of productivity growth has been the rising average educational attainment of the population (FitzGerald, 2019). However, over the coming decade this rise in average educational attainment is expected to slow.

When Ireland is compared with our European neighbours using GNI\*, and its appropriately modified components, it is clear that living standards, which had been very badly hit by the financial crisis, have recovered. On this measure Ireland has one of the highest levels of real income per head in the EU.

A significant factor in Ireland's above average standard of living is its current high level of savings. The fact that Irish savings are so high, reflected in the large (modified) current account surplus on the Balance of Payments, holds out the prospect of significant growth in the future, as these savings are suitably invested (or even consumed). Even if the exceptional corporation tax were to eventually disappear over the coming decade, it would still leave Ireland with a high standard of living. In the short term a better measure of living standards is consumption per head (public and private). On this measure Ireland may lie below a number of European neighbours, partly due to our current high level of savings.

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