

# **Problems with the Irish National Accounts and Possible Solutions**

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## 1. Introduction

This note considers some of the problems arising for users of the national accounts, especially problems due to the move to the ESA 2010 accounting standard. However, there were already serious problems arising from the effects of globalisation, which made even the ESA 1995 accounting standard seriously deficient for users in providing an understanding of what was really going on in individual economies. While this note concentrates on the problems using data for Ireland, many of the problems may affect users of national accounts for other economies, albeit to a lesser extent.

In the case of Ireland, the problems with the national accounts, especially the shift to ESA 2010, have manifested themselves in a particularly remarkable way, giving rise to a growth in GDP in 2015 that is considered “incredible”. The GDP data are fully consistent with the ESA 2010, and the “incredible” result arises from a correct implementation of the accounting standard. The fact that it is incredible reflects a problem with the underlying accounting framework, not with a failure to apply the appropriate standards.

National accounts were developed to meet a range of perceived needs by policy-makers in managing a modern economy. For example, national accounting data are required by those responsible for fiscal policy to understand what is happening on the domestic labour market and also the level of utilisation of physical capital located in Ireland. This is important in choosing the appropriate fiscal stance. We also need to know how much of the output in Ireland represents a benefit to the citizens of Ireland. (In the early 1980s the failure to take account of the outflow of profits from foreign MNEs operating in Ireland contributed to major policy mistakes.)

A very important aggregate in the national accounts has been the development of net factor income from abroad (or paid abroad). Since the early 1980s this includes the accrued profits of foreign MNEs operating in Ireland. When this outflow of profits (and the other items in net factor income) is deducted from GDP, the resulting aggregate GNP (and GNI) represents the output and income produced in Ireland which is available to benefit those living in Ireland. However, recent developments have made even this key aggregate an unreliable indicator of what is happening to domestic welfare.

While the EU has standardised on the latest ESA 2010 (SNA 2008), the US and China have not fully implemented it. Their failure to implement the latest SNA means that these countries are not affected by the latest developments in the accounts for Ireland. This lack of consistency poses problems for international comparisons outside the EU and it will also give rise to problems for those modelling the world economy. (Some of the large increase in Irish (and EU) output will also appear in Asian output, giving rise to double counting.)

There are also special problems faced in interpreting the current account of the balance of payments that also need to be addressed. These problems arise both from the unfolding of the globalisation process, but also from the approach taken in ESA 2010.

The current account of the balance of payments is a key indicator of the sustainability of the current level of economic activity in an economy, but the revised treatment under ESA 2010 renders it totally ineffective as an indicator for a country such as Ireland.

In seeking to find a solution to the Irish problems the best approach would be to modify the ESA / SNA to ensure that it provided appropriate data for policy-makers in all jurisdictions. However, this is clearly not going to happen. Instead Ireland will have to persevere in producing an appropriate supplementary framework of accounts that provides a sensible depiction of what is happening in the Irish economy. While most external users will continue to use GDP for international comparisons, if suitably explained, an alternative Irish framework, providing more appropriate indicators of domestic economic activity, could at least be used by those interested in policy in Ireland and also by those abroad familiar with the Irish economy.

Where problems will arise will be with aggregates, such as Euro area GDP, which is going to suffer from a significant discontinuity through the effect of the change in Ireland. Policy-makers will need to find a way of adjusting for this discontinuity. For those doing research on the Euro area such as the ECB, DG Ecfm (AMECO) etc., they may need to reach an agreement as to how best to handle such discontinuities.

Section 2 discusses the needs of major users of national accounts. Section 3 describes the National Accounting significance of the legal structures used by MNEs in operating in different economies. Section 4 sets out some possible solutions to the problems identified.

## 2. What is the purpose of collecting national accounts?

The National Accounts are designed to present a picture of an economy that can be useful to those using the accounts. The way the accounts are defined and presented should take account of the needs of users and the purpose for which they will be used.

### 2.1 For fiscal and monetary policy purposes

Since the national accounting framework was first developed, the national accounts, in particular the key aggregates, have been an essential tool for those responsible for fiscal and monetary policy. In the case of fiscal policy, it is very important to understand whether an economy is producing at capacity, below capacity, or above capacity. Depending on the state of the cycle the budget should be stimulatory, deflationary, or neutral. There is ample evidence that a Budget that is inappropriate for the state of the economic cycle can cause serious subsequent damage to an economy. Thus knowing the state of the economic cycle is a key piece of information for policy.

In addition, in preparing a Budget governments need to understand, not just the overall level of output, but also what is happening on a range of other important national accounting aggregates. This is essential in assessing tax revenue for the coming year, and also in understanding the pressures on expenditure.

In the case of monetary policy it is also necessary to understand the state of the economic cycle as this will have a very important medium-term impact on inflation.

Both for fiscal policy and for monetary policy it is, therefore, necessary to have at least one or two key aggregates which represent the level of real activity in the domestic economy – **the economy for which the policy-makers are responsible**.

To fulfil this role **the National accounting aggregate (or aggregates) must be consistent over time**. Discontinuities, for whatever reason, make it impossible to determine the growth rate at the point of discontinuity. In addition, to understand the behaviour of the economy and to calibrate policy

interventions correctly, it is essential to have consistent time series for the national accounts that can be used for research and related modelling.

A second requirement for **the national accounts aggregates is that they reflect the level of physical activity in the economy being regulated** by the fiscal or monetary policy authorities. The data must reflect developments in the domestic labour market and the domestic market for physical capital. The data could well prove misleading if they cover physical activity that takes place in other economies, for example in Asia. Similarly, if a significant part of the output produced, for example, in China with Chinese labour and physical capital, is classified as output in another country, then the Chinese National Accounts, if using SNA 2008 will be defective for policy-making in China.

The old ESA/SNA to some extent met the second of these requirements. However, because of the movement to an ownership basis for accounting, ESA 2010 does not ensure that the output covered by the key aggregates, such as GDP, is appropriately aligned with the jurisdiction of individual fiscal or monetary policy authorities.

The problem of discontinuities, such as that affecting the Irish accounts for 2014/2015, might have had some effect on major aggregates under the old ESA, but the effect, if any, would have been more limited.

Finally, because of globalisation, neither the ESA 1995 nor the ESA 2010 accounts provide appropriate information to properly understand the behaviour of the Irish economy.

## 2.2 Broader Economic Policies

A second major role for the national accounts is to provide appropriate information to governments on how an economy is behaving, where growth is coming from, where output is being sold etc. This information is needed to support the appropriate authorities in developing policy across a wide range of different fields.

To fulfil this role the accounts must be **consistent over time**. As is the case for fiscal and monetary authorities, major discontinuities may make it difficult to fully understand what is going on in an economy.

As with fiscal and monetary policy, policy makers using national accounts for broader economic policy purposes are **primarily concerned with output and activity physically located in the country over which they have jurisdiction**. If a significant part of the output is produced in Asia with Asian labour and physical capital, this will be of little concern to domestic policy makers. It is only in so far as the activities of such businesses directly affects those who are living in the country for which the accounts are prepared, that the accounts will be useful.

The accounts prepared under ESA 2010 do not meet either of these two requirements. The movement to counting output on an ownership basis rather than on the basis of where the benefits of that output accrue, renders them much less suitable than the accounts under the old ESA.

However, **even under the old ESA the national accounts were not well designed to meet policy maker's needs** in an economy as globalised as Ireland. In Ireland the problem arises in trying to identify what part of the activity being measured in the accounts directly benefits those living in Ireland.

In principle, GNI should meet this need. However, in practise it suffers from a range of defects.

- Even under the old ESA, while GNI provided an appropriate single measure of activity, much more information was needed by policy-makers as to what was contributing to change in this item. With a large amount of activity by MNEs, it was not obvious in which sectors growth was occurring when measured on an output basis. This gap in understanding was very important even before the switch to ESA 2010.
- Under ESA 2010 the accounts are seriously affected by the switch to measuring activity on an ownership basis. For example, depreciation on assets owned in Ireland and held abroad (IP) by foreign MNEs located in Ireland seriously affects the number: the relocation of activity caused a shift in depreciation resulting in a major discontinuity.
- There is a problem in the asymmetry with which activities of different MNEs operating in Ireland are handled in the accounts. If an MNE in, for example, the manufacturing sector makes a profit but does not immediately remit it to its owners, that profit is still accrued and it flows out as factor income (and on the current account of the BOP). However, for certain MNEs engaged in financial activity (redomiciled plcs.), which do not do any activity in Ireland but just receive profits in Ireland, the treatment is different. Their unremitted profits are not accrued and do not flow back out as factor income. This distorts both the GNI figure and the BOP. It is hard to see why the accrued profits are treated so differently depending on the type of MNE involved. (The retained profits appear as an increase in foreign owned assets on the financial account of the BOP.) This problem arises under the old ESA 1995 and ESA 2010.

There is, thus, a vital need to understand the behaviour of the economy, separating the activity that is beneficial for those living in Ireland from the activity that benefits the owners of the foreign MNEs operating in Ireland. In turn, this requires suitable consistent time series data to allow the necessary research to be undertaken. The time series must elucidate what is physically happening in an individual economy rather than what is happening to companies located in a particular country. It must also be available at a sufficiently detailed sectoral level to provide real understanding of the sectors where growth is, or is not, occurring.

The current account of the BOP was one of the key indicators showing that the growth in activity in Ireland (and a number of other EU economies) was unsustainable in the last decade. However, today, because of two important factors, the current account of the BOP no longer signals the gap between savings and investment of Irish agents. The fact that depreciation on foreign assets of Irish resident foreign MNEs is included in the current account has produced a massive surplus in the latest accounts.

In addition, there is the problem of the undistributed profits of redomiciled plcs., which have served to massively increase the Irish current account surplus since 2008.

These two issues have resulted in an apparent very large surplus for 2015 (and 2016) whereas, in fact, there could even be a small deficit when these factors are adjusted for, which would indicate that domestic investment was greater than savings by Irish agents. This means that the current account balance of the BOP, as published, is no longer a useful indicator of potential domestic imbalances.

Blanchard and others emphasised the importance of this indicator in managing Euro area economies even before the crisis. It is even clearer today that such an indicator is essential to the safe management of a modern economy and, as a result, it is included in the standard EU “scoreboard” of indicators.

### **2.3 Informing citizens and companies in the economy about what is happening**

The considerations here are very similar to those for other policy makers. Citizens and companies need information on what is happening in an economy in so far as it will affect them. In an economy with large MNE activity this means that the attention should be more focussed on GNI and NNI than GDP.

For this broader audience it is even more important that the development of the economy, as manifested in the accounts, is clearly explained. There will also be a need to concentrate on one or two key aggregates when communicating with a very wide audience.

### **2.4 Tax base**

The national accounts data, in particular GNI, is used as a tax base in calculating Budgetary Contributions to the EU. For this purpose it should include activity that benefits those living in a country, even if much of the related activity does not take place in that country. For this purpose ESA 2010 is more appropriate. The old SNA would not have captured (or possibly only partially captured) the shift of activity by a number of MNEs to Ireland in 2015. As this shift in activity to Ireland by some MNEs has resulted in major tax revenue for Ireland, it is appropriate that it should be included in GNI when it is used as a basis for taxation. For this purpose ESA 2010 is more appropriate than the old ESA.

### **2.5 International comparability**

A further very important use of national accounts data is to provide international comparisons between economies. For this purpose it is essential that the data are prepared on the same accounting basis across countries. Currently all EU countries and Eurostat use ESA 2010, which makes this possible for comparisons within the EU. However, because countries are affected in different ways by the process of globalisation, if there are anomalies in how the accounting standards treat certain items, it may affect the usefulness of the data for comparative purposes. Because SNA 2008 (ESA 2010 ) is not fully implemented in other non-EU countries this makes international comparisons with non-EU countries more difficult.

### **2.6 Conclusions**

While there are, no doubt, many good arguments for moving to an ownership basis in ESA 2010 for accounting for MNE activity, in practise it makes the national accounts less suitable for use by many of the traditional users.

## **3. Moving to an Ownership Basis – Legal Distinctions Matter**

The new approach in ESA 2010 poses problems for many users in understanding why it is applied in a particular way for certain companies with large IP and in a different way for companies with large physical capital.

A key issue in how it affects the treatment of MNEs is the nature of the legal relationship between the MNE and the producer located in a different country. If the producer is a wholly owned

subsidiary of an MNE it is treated as a separate legal entity. Thus for a German car manufacturer with a subsidiary in the US producing cars, the ownership of the cars, until they are sold, resides with the local subsidiary. Hence the output under ESA 2010 is treated as output where the cars are produced – in this case the US. The profits from the subsidiary are, of course, ultimately remitted to the MNE in its home country classified as factor income.

Because the subsidiaries in the different countries are separate legal entities, all the operations of the subsidiary in the country in which they reside are included in the national accounts for that country. Thus for a car manufacturing plant in Slovakia owned by a German MNE, the wage bill, the capital stock and investment, the profits and the depreciation associated with that plant are included in Slovakian GDP. The profits, however, flow out as a factor flow. This is the situation with most MNEs in Europe and for most MNEs who have plants in Ireland; it is also true for most Irish owned MNEs with plants abroad.

Where the new ESA 2010 rules have had a big impact on the national accounts is for MNEs who, instead of setting up a subsidiary, have their products produced for them on contract in another country. While this approach is not the usual one for MNEs operating globally, it is normal for some MNEs having products produced in China and certain other Asian economies. In particular, where important intellectual property is involved in the production of the product, the MNE may be unwilling to transfer that IP to a local subsidiary because of concerns about property rights. Also, some economies may be difficult for MNEs to operate in: instead it may be easier to have a local company that knows the local operating environment, undertake the manufacturing on behalf of the MNE.

This is particularly the case for firms having IT equipment, such as computers or phones, produced in economies such as China. In such cases the Chinese factory produces the equipment on contract for the MNE. At all stages the MNE owns the equipment being produced for it in the foreign location. This contrasts with the situation where the MNE has a local subsidiary which “owns” the goods being manufactured.

The result of this change is that output produced for US (or EU) MNEs on contract in China, or some other East Asian economies, is owned by the MNEs from the time that the production process begins. This means that that output produced with, for example, Chinese labour and Chinese capital but foreign Intellectual Property (IP), is now classified as output in the economy where the MNE resides, not where the goods are manufactured. Thus, if a US MNE has output made for it in China, under the new SNA / ESA the output should be attributed to US GDP.<sup>1</sup> In the Irish case, if a subsidiary of foreign MNE located in Ireland uses its IP (owned by the Irish subsidiary) to produce its goods in China, then the output of the Chinese manufacturing plant, undertaken on contract for the MNE in Ireland, is treated as Irish output.

Because this use of contract manufacturing, rather than the use of legal subsidiaries, is generally only adopted for MNEs in countries such as China, it does not result in a change in treatment of the activities of most MNEs based in Europe. However, because this model particularly affects firms in

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<sup>1</sup> A case that has gained notoriety in the US Presidential election is that where Mr Trump had ties manufactured for him in China. However, in national accounting terms, because they were made for him on contract, the output would be classified as US GDP under ESA 2010.

the IT sector it has potential implications for US GDP (if they adopt the new SNA) and for countries, such as Ireland, in which such firms are an important part of the local economy.

The fact that the distinction between manufacture by a subsidiary and manufacture on contract makes a big difference to the national accounting treatment of MNE activity leaves open the possibility of future big discontinuities. If the legal framework changed to make establishing a subsidiary preferable in certain major Asian economies, the MNEs currently operating contract arrangements could suddenly change the legal form. This could result in output in Ireland or elsewhere suddenly being repatriated in the national accounts to Asia. Alternatively, a shift to a country, such as India, where establishment of subsidiaries is preferred, could also see a major change in output in the country where the MNE's head office is located.

While this approach, if applied across the world, will consistently record world GDP, it poses many problems for the key users of the data. It also leaves open the possibility of future major discontinuities in national data.

#### 4. Solutions

Both Eurostat and the CSO will, as the law requires, continue to produce the national accounts on the ESA 2010 basis. This means that the headline GDP figure will not be amended but will continue to be affected by the actions of MNEs that are resident in Ireland. However, while the law requires accounts to be produced on this basis, and these accounts must be used for certain administrative purposes, there is no restriction on the CSO (or Eurostat) from producing additional "satellite" accounts, which could better meet the needs of most users of national accounting data.

Additional "indicators" are not enough to meet the needs of users identified above. What is required is a consistent set of data or a framework that represents the economy as it is understood for fiscal policy, monetary policy and other purposes.

As discussed above, what is needed is an additional framework of accounts and indicators that are:

- Consistent over time
- That reflect real domestic economic activity.
- That can be published: they are not affected by the need to protect the confidentiality of data from individual firms.
- They need to be robust: possible future changes in location by MNEs (or domestic firms) will not prevent the continuing publication of the series on confidentiality grounds.
- They should not be affected by changes by MNEs in the precise legal framework they use in the country where their goods or services are physically produced.
- The solution needs to deal with the problems affecting both the national accounts and the balance of payments

There is probably not a single solution to the problems identified above.

This note sets out a simple set of indicators that could usefully be developed to provide limited additional information for users. It then considers how a further disaggregation of the ESA 2010 accounts could provide a useful framework for understanding the Irish economy. Finally this note



suggests an alternative more detailed presentation of the data, especially on the output side, which could deal with the long-standing gaps in our knowledge of how the economy is performing.

#### 4.1 Limited Set of Indicators

Even within the current ESA 2010 data, Net National Income, NNI (and Product NNP), is less affected by the problems that surfaced with the national accounts for 2015 than is the case for GDP. The bulk of the activity of the MNEs that shifted to Ireland is effectively excluded from these aggregates, including the huge effect on depreciation.

NNI has, until now, only been available on a current price basis. At the press conference for the release of the Q2 data for Ireland the CSO published a year on year growth rate for NNP on a constant price basis for Q2 2016. In principle, this series could be published on an annual basis back to 1995. This would require the depreciation for each sector to be deflated by the deflator for GVA in that sector. Because the MNEs shifting to Ireland in 2015 are all handled by the Large Cases unit already, the volume and value of GVA of the firms are included in GDP on a current and constant price basis.

Already the profits repatriated (or accrued) by these MNEs flows back out as factor income. Presumably this is deflated by the GVA deflator for the sector or firms. By deflating the depreciation for these firms by the GVA deflator the net effect of these firms location to Ireland on a current and constant price basis would be reduced to the wage bill and the corporation tax paid, deflated by the GVA deflator for the sector.

In addition, the unremitted profits of redomiciled plcs. should be deducted from NNI to arrive at a true measure of the income and output available to those living in Ireland. This item should be suitably deflated consistent with the approach currently adopted in the national accounts to arrive at constant price data.

These changes would result in a growth rate in a suitably adjusted real NNI that reflected the growth in real output or income available to those living in Ireland. This could provide an appropriate benchmark for policy purposes and an appropriate headline number for the wider public.

The second essential indicator that is required is one for the balance on current account of the BOP. The problem with the current measure is that, since 2008, it has included substantial unremitted profits of redomiciled plcs. The data for these profits are currently made available and can be excluded from the balance in order to arrive at a more appropriate measure of the difference between domestic savings and investment.<sup>2</sup>

However, for 2015 and subsequent years there is a major problem with the depreciation on IP that is a foreign asset of MNEs that have located in Ireland. Under ESA 2010 the net exports of these firms are included as part of the current account of the BOP. However, the value to these firms of the net exports is less than the gross operating surplus they receive from exporting because of the depreciation. This means that the outflow of profits of these firms (net operating surplus less corporation tax paid) is substantially less than the value of the net exports. The result is the inclusion of depreciation on foreign assets as a positive contribution to the current account balance.

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<sup>2</sup> The ESRI in the past has adjusted the current account BOP balance to exclude these unremitted profits.

If the assets owned by the MNE were physical capital and were, in turn, owned by a subsidiary of the MNE, the depreciation would appear in the accounts for the country in which the physical capital was located.

The solution is to publish as an indicator the current balance of the BOP excluding the profits of redomiciled plcs. and also excluding the depreciation of MNEs on their foreign IP assets.

A third useful innovation would be to publish an alternative monthly index of output for as many sectors as provide data to the CSO. This alternative index would weight each firm by the contribution it makes to GNI. For domestically owned firms the weight would, as today, be the value of GVA in the firm. For foreign firms it would be the wage bill plus the corporation tax paid. This index would provide a good indicator of what was happening to GNI.

The ESRI have in the past published an alternative output index using published data, reweighting by the wage bill as they did not have detailed information on ownership. This went some way to dealing with the problem of the current index which has a massive weight attached to MNEs with very large profits (which are repatriated) and depreciation on IP. The CSO have the full information needed to produce a proper index along these lines, weighted by contribution to GNI.

#### **4.2 Alternative Framework showing difference between ESA 1995 and ESA 2010**

A second approach, which should be adopted, is to take the current ESA 2010 based accounts and provide details of the effects of the contract manufacturing on all items of the national accounts and on flows related to IP. This would allow the user to derive the national accounts aggregates on an ESA 1995 basis. Eurostat have made a suggestion along these lines. Already the CSO have prepared numbers on this basis (though they have not been published) so it would not prove onerous.

This would still leave some problems with inversions etc., where major MNEs move head office to Ireland. As a result there would still be potential discontinuities, though to a much lesser extent than in the current set of accounts. However, publication of a set of satellite accounts on the ESA 1995 basis would deal with one of the key problems with the current account of the balance of payments – the depreciation on the IP of MNEs.

#### **4.3 Alternative measures of output to better reflect activity in the Irish economy**

Even before the revision to the national accounts there were increasing problems in identifying where growth was arising in the Irish economy. While the MNE sector contributes hugely to exports and industrial output, the sector also has massive imports and the very large profits from the sector flow back out of the economy. Thus, while the contribution of the MNE sector to the economy is undoubtedly very positive, it is difficult to identify just how much of the growth in the real economy in recent years has come from this sector.

In principle, the contribution of the MNE sector to GNI is not the GVA but rather the wage bill, corporation tax paid and depreciation. For domestically owned firms it is GVA. For NNI the contribution of MNEs is the wage bill and corporation tax paid, excluding depreciation.

The number of net new jobs created by IDA supported companies in recent years has been less than 10,000 a year, while, since 2013, total employment has grown by around 40,000 a year. As the IDA supported firms largely cover the MNE sector, this is one indication of the importance of Irish-owned

firms in the recovery process. However, the contribution of domestic firms to the growth in NNI cannot be derived easily from the existing data.

It is essential that any alternative presentation of the national accounts can be implemented over a range of years to provide the kind of time series information needed to manage the economy, including undertaking relevant research. If possible the data need to be made available from 1995 onwards or at a minimum from 2000. It is only with a run of data for a number of years that the behaviour of the economy can be properly understood and the implications of the rate of growth in the economy today for the appropriate stance of fiscal policy can be assessed.

Any new presentation of national accounting data must ensure that confidential information on individual companies is not disclosed. This constraint is important in determining the appropriate level of sectoral detail to present. If the sectoral breakdown is too fine then individual large companies may be easily identified. However, if there is inadequate sectoral detail it will be very difficult to understand what is driving change in the economy.

Also, while a particular level of sectoral disaggregation may be possible today without disclosing confidential information, new companies, or closure of existing companies, may make such a level of sectoral detail impossible in the future. Thus in choosing the appropriate level of sectoral disaggregation to use it must be likely to prove robust to movement of companies in the future.

In the past, the CSO has failed to give sufficient attention to making the sectoral aggregations useful to users. For example, in the Census of Industrial Production, when the number of firms in the Tobacco sector fell, so the sector could not be published separately, it was aggregated with a number of miscellaneous sectors. This ignored the fact that back to the first Census of Industrial Production in 1926 Food Drink and Tobacco were all aggregated together. However, having chosen to publish a particular aggregation it would not be possible to change to a more useful approach using the traditional aggregation without disclosing company data.

The CSO already publish data on GVA arising in the MNE sector and the non-MNE sector. However, very limited sectoral data are given and it is not possible from the published data to derive the relative contribution of the two sectors to GNI.<sup>3</sup> This is because information is not available on the wage bill, depreciation, profits and corporation tax of the MNEs.<sup>4</sup> Nonetheless, if these published statistics were greatly expanded using additional data, much of which is already available, it should be possible to give a much better picture of where output that contributes to GNP/GNI is arising in the economy. Set out below is a framework for expanding the accounts for the output side of the national accounts to meet users' needs.

As discussed above, in order to understand what is happening in the domestic economy the sectoral composition of GNP/GNI needs to be measured and quantified and it needs to be broken down by domestic and MNE firms. (An alternative, though less satisfactory approach would be to make the breakdown by MNEs covered by the CSO Large Cases Unit and the rest.)

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<sup>3</sup> A crude estimate of the growth attributable to the non-MNE firms is given in <http://www.irishtimes.com/business/economy/john-fitzgerald-multinationals-are-not-as-important-as-cso-suggests-1.2397621>

<sup>4</sup> While the Revenue Commissioners do publish data on corporation tax by sector the classifications they use do not properly align with those used by the CSO.

For each sector value added needs to be broken down into the wage bill, the net operating surplus, corporation tax and depreciation, cross-classified by MNE and other (domestic) firms. The aggregate data for each sector are already available on this basis through the Eurostat web site. Some of the additional breakdown into MNE and “other” is also available from Eurostat, with a lag.<sup>5</sup> What would be needed would be to ensure that this breakdown by ownership was available for each sector where there was a mix of MNEs and other firms. If a sector was predominantly accounted for by MNEs or else by “other” (Irish owned) firms, then the breakdown would be unnecessary.<sup>6</sup>

GNI / GNP arising in a sector would then be the sum of the GVA in the “Other” domestically owned sub-sector and the wage bill, depreciation, and corporation tax paid by the MNE sector. NNI/NNP would exclude the depreciation.

In developing an alternative presentation of the output side of the national accounts a number of considerations must be taken into account.

Table 1: Alternative Presentation – Example of Manufacturing Sector

| 2012               |                         | Manufacturing   |           |           |
|--------------------|-------------------------|-----------------|-----------|-----------|
|                    |                         | Total           | Foreign   | Domestic  |
| Current prices     | GVA Factor cost         | 34203           | 28994     | 5208      |
|                    | Gross operating surplus | 25887           | 24194     | 1692      |
|                    | Wages                   | 8383            | 4800      | 3582      |
|                    | Stock adjustment        | -67             |           |           |
|                    | Depreciation            | 4920            | 4598      | 322       |
|                    | Net operating surplus   | 20967           |           |           |
|                    | Non-Product Taxes       | 284             | 0         | 284       |
|                    | GDP Basic prices        | 34487           | 28994     | 5493      |
|                    | Corporation Tax         | 2097            | 1960      | 137       |
|                    | GNP in sector           | 11968           | 6760      | 5208      |
|                    | NNP in Sector           | 7048            | 2161      | 4886      |
|                    | Deflator                | 0.9791309       | 0.9791309 | 0.9791309 |
|                    | Constant prices         | GVA Factor cost | 34932     | 29612     |
| Wages              |                         | 8562            | 4902      | 3658      |
| Depreciation       |                         | 5025            | 4696      | 329       |
| NDP at factor cost |                         | 29907           | 24916     | 4990      |
| GVA Basic prices   |                         | 35222           | 29612     | 5610      |
| Corporation Tax    |                         | 2141            | 2001      | 140       |
| GNP in sector      |                         | 12223           | 6904      | 5319      |

For illustrative purposes, I set out in Table 1 an example of how this approach might be applied to the manufacturing sector. Ideally it should be applied at a greater level of disaggregation but confidentiality problems might arise. For many of the aggregates data were readily available on the

<sup>5</sup> The CSO should publish these data themselves as soon as they become available.

<sup>6</sup> It could also prove problematic to publish such data for confidentiality reasons if there were only one or two MNEs or “other” firms in a sector.

Eurostat web site and from the CSO (unpublished) for 2012 which allowed a rough calibration of the approach to be undertaken.<sup>7</sup>

The cells in the Table highlighted in yellow have had to be imputed because published data are unavailable for these aggregates. However, the CSO would have access to this more detailed information. The other data, including, the data for GVA etc. by ownership, are available from the Eurostat web site for 2008 to 2012.

This breakdown, if applied on an annual basis would show the contribution to GNI / GNP from the manufacturing sector. If a similar approach was applied to all the other sectors in the economy, using a suitable level of disaggregation, this would allow the growth in GNI / GNP to be decomposed both by sector in which it occurs and also by whether it occurs in Irish owned firms and MNEs.

A possible sectoral disaggregation by NACE Section would be: A, B+C, D+E, F, G+H+I, J, K, L+M+N+R+S+T+U, O+P+Q. However, the sectoral disaggregation would depend on problems of confidentiality. Also, more disaggregation might be possible for domestic firms than for MNEs.

If confidentiality problems arose with the breakdown of depreciation of MNEs, especially depreciation on IP, the data could be aggregated across the different sectors for the MNEs. This would still allow the determination of where the growth in the economy was coming from and the relative contribution of domestic firms.

Table 2: Alternative Presentation of key aggregates – from GDP to NNI

|   | Foreign | Domestic | Total                 |
|---|---------|----------|-----------------------|
| GDP at factor cost                        | X       | Y        | X+Y                   |
| GDP at market prices                      | X1      | Y1       | X1+Y1                 |
| Net factor income attributable to sectors | X2      | 0        | X2                    |
| Sectoral GNP                              | X1-X2   | Y1       | X1-X2+Y1              |
| Other net factor income                   | 0       | 0        | Z                     |
| GNP                                       | -       | -        | X1-X2+Y1-Z            |
| Redomiciled Plcs                          | 0       | 0        | Z1                    |
| GNP adjusted                              | -       | -        | X1-X2+Y1-Z-Z1         |
| Depreciation                              | X3      | Y3       | X3+Y3                 |
| NNP adjusted                              | -       | -        | X1-X2+Y1-Z-Z1-(X3+Y3) |

While the CSO's method for deriving depreciation may currently not easily permit such a breakdown into MNEs and other firms, it would be quite adequate to use a simple imputation procedure to provide a workable breakdown. As what is proposed here is a satellite set of accounts, which would not have legal standing, use of approximation would be quite acceptable if it allowed a more meaningful presentation of the accounts.

Table 2 shows how the results from individual sector could then be aggregated up to produce key national accounting aggregates.

<sup>7</sup> The data shown are not all from the same vintage and, as a result, the table should be seen as purely illustrative.

One advantage of this approach is that the problems arising from the move from ESA 1995 to ESA 2010 would become less important. By focusing on the impact on GNI / GNP and NNI and NNP, taking account of the lower benefit to the economy from GVA arising in MNEs, a more stable picture of the key trends in the economy could be established.

Obviously it would be desirable to also allow movement between ESA 1995 and ESA 2010 aggregates, as suggested in Section 4.2 above. However, if the approach suggested in table 1 were adopted, such a crossover might only be required for the aggregates appearing in Table 2. *This would need further consideration.*

#### **4.4 Alternative Approaches to the Expenditure Side of the National Accounts**

The expenditure side of the National Accounts under ESA 2010 is pretty impenetrable, in particular due to the huge gross flows related to the activity of MNEs operating in Ireland. While consumption, public and private, is largely unaffected by the operation of MNEs, the trade data and, more recently, investment are hugely distorted by massive gross flows related to MNE activity.

The inclusion of investment in IP and R&D, while having a strong basis in economic theory, seriously complicates things. One approach to dealing with this would be to provide further detail on related trade flows on IP and R&D.

Already the CSO makes available a breakdown of investment in IP and R&D and also in aircraft, as well as the other categories of assets. As the vast bulk of the former category of investment (IP) is undertaken by multinationals this simplifies things. Already data in current price terms is available from the trade statistics on imports of aircraft. If the imports (and exports) directly related to investment in IP was published then the combination of these two sets of imports could then be netted off investment to get a better idea of investment in physical capital used to produce domestic output. This residual investment (and related capital stock) would be the aggregate which would properly be related to domestic output. This measure of capital, together with employment, would be the appropriate variable to be used to model and understand the production process (production function) in Ireland.

In the case of aircraft a complication is that a substantial minority of the imports of aircraft is undertaken by two Irish owned airlines. As the aircraft bought by these firms (increasing the capital stock) are used to produce transport services exported by Ireland it is fully appropriate that they are included in the domestic capital stock.

In the case of aircraft leasing it is possible that future changes in financial accounting rules may mean that the aircraft leasing business will be treated as purely a banking business. In this case businesses in Ireland will be treated as lending money to companies to acquire planes and the transaction would be seen as involving a loan with a mortgage with the plane as collateral. In this case the national accounts would show it as an export of a financial service and there would be no imports of aircraft, no investment in aircraft in Ireland and no addition to the capital stock.

If this latter treatment is to be adopted, the sooner it is implemented (including retrospectively) for the Irish accounts the better.

The problem with the trade data is that there are massive gross flows. In recent decades globalisation has seen production processes being broken up into multiple stages occurring in many

countries. Thus the exports associated with the production of a car or a computer (including exports of parts) could end up being a multiple of the value of the final product. We have seen in the Irish input-output tables how the true domestic value added associated with exports, especially of services, has fallen over time.

This is not just an Irish problem. One approach suggested by economists in the CPB, and discussed in recent articles in the *American Economic Review*, would use input-output information to try and derive the domestic value added content in gross exports. If the data were readily available on a timely basis this might be a useful approach.

However, the hugely detailed data needed to adopt this approach are not available in a timely manner. If implemented it would involve using the latest available data to undertake the analysis but these would, inevitably, be quite out of date. However, as we have seen in Ireland, there have been very rapid changes in the structure of the economy over time which could render such an approach an approximation unreliable. In the world of National Accounting, where we rely on the output side of the accounts equalling the expenditure side, this might not be acceptable.

Nonetheless this approach canvassed by the CPB and others could be a useful tool for understanding what is happening in Ireland's economic relations with the rest of the world through trade.