2 Globalisation at work in statistics — Questions arising from the 'Irish case'

SILKE STAPEL-WEBER [1] AND JOHN VERRINDER [2]

Abstract: This is the first time — despite long conceptual discussions — that statisticians have been prompted by real economic events to take globalisation as seriously as it has to be taken, with major impacts for all kinds of economic statistics (national accounts, balance of payments, business, employment and trade). The Riga 2014 memorandum 'Towards Global Business Statistics' (European Statistical System (2014)) and the Sturgeon Report (Sturgeon (2013)) opened some doors, while the practical consequences for national and international production systems were actually quite limited. This will have to change now.

However, in the view of the authors, the key to understanding globalisation is not about changing the accounting methodologies, but (1) consistently implementing them over all countries, supported by further guidelines for accounting frameworks and primary statistics, (2) presenting the accounts in 'building' blocks that enable users to distinguish domestic and globalisation impacts, through (3) providing statisticians with the necessary information about the structure and transactions of multinational enterprises and (4) enhanced cross border statistical collaboration, including data exchange and enterprise profiling.

This paper is intended as a first, arguably provocative, reaction to the revisions implemented in Ireland. It can be expected — and encouraged — that this paper will prompt constructive reactions from compilers and users.

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[1] Eurostat, Director National accounts, prices, and key indicators.
[2] Eurostat, unit C1 National accounts methodology, indicators.

1. Introduction

On-shoring, off-shoring, producing where economies offer comparative advantages in terms of costs, paying taxes where the national governments allow the most favourable rates, selling the goods to global consumers and disseminating the profits: we have known for a long time that this pattern is used by large globally operating economic actors, and the consequences have been evident to compilers and expert users, which has led to considerable efforts to improve guidance and practical compilation. However it now clearly surfaces for the first time amongst general users and the public with all its numerical consequences, thanks to huge transactions involving a relatively small economy with a developed statistical system, following international accounting rules. Statisticians around the globe should be grateful for the Irish case; it will surely help to overcome some cognitive dissonances we retain in our cosy and fully consistent world of accounting frameworks. It may also help to discover and address some blind spots in the relation between primary statistics, namely, business and employment statistics, and the accounting frameworks, particularly in the trend to fully align them in methodological terms.

The challenge we face now (not only) in Ireland is that Gross Domestic Product (GDP) and Gross National income (GNI) no longer ([3]) really provide useful insights into the economic activity that is physically taking place in the national territory, as such domestic production can be dwarfed by globalisation activities. This raises concerns with regard to the actual value of those figures and the insights on the domestic economy that can be taken from them.

What makes the case very relevant for Europe, and the work of Eurostat, is that this could happen again any time as huge multinationals move their business around Europe and the globe. Indeed in the case that a move takes place between two EU Member States, then there must be an offsetting double effect — an increase in GDP in one and a matching decrease in the second. Moreover, there is high uncertainty concerning the current recording practice for multinational enterprises across Member States. For national accounts one could at least assume that comparability is ensured through common principles (enshrined in the European System of Accounts, 2010 (Eurostat (2013)) and quality control of compliance (e.g. through GNI verification). For business statistics there is at the moment no comparable set of European overarching common principles and guidelines covering in a coherent manner this issue for all business surveys. Consequently, the comparability of European (and international) statistics is questioned and at stake.

This paper does not provide any solutions. It intends to ask questions that need to be answered by the statistical community in order to continue to produce relevant and high quality macroeconomic (and business) statistics, addressing information and policy needs at national, European and global level. This necessarily includes the question if traditional (national) methods of data collection still provide a sufficient base for acquiring the necessary primary data and what could be done if this is not the case. The paper also has a new look at how these macroeconomic (and business) statistics could be presented and which additional indicators may complement GDP to explain the recording of complex processes to users. It also suggests better (European) rules on pro-actively communicating major statistical events and seeking ex-ante advice and peer intelligence on related methodological questions.

([3]) It may be noted that — in response to user requests — the 2008 System of National Accounts (United Nations (2009)) (and the ESA 2010) introduced clearer rules on recording globalised business models based on the principle of economic ownership, and also capitalised research and development expenditure. The interaction of these two conceptual developments is particularly noticeable in the Irish case.

Box 1: The Irish revision

Worldwide and European national accounts rules deal specifically with the criteria for the country of residency of a statistical unit, and follow the principle of economic ownership with regard to the recording of assets. The economic owner is defined as being able to claim the benefits associated with the use of an asset by virtue of accepting the associated risks. These benefits, and associated risks, can vary by type of asset and the UNECE Guide on measuring global production (UN Economic Commission for Europe (2015)) provides extensive practical guidance to follow, for both physical assets and intellectual property assets, and notably introduces guidance for so-called 'factoryless goods production' (sometime known as a 'contract manufacturing model'). The Eurostat Manual on measuring Research and Development in ESA 2010 (Eurostat (2014)) is also relevant.

The Irish Central Statistical Office (CSO) has explained that the multinational companies concerned — which are largely classified in the manufacturing branch and clearly have substantial Irish resident units — now base their assets in Ireland, and their extensive analysis — based on the guidance in the UNECE Guide on measuring global production — has confirmed that the economic ownership of the assets rests in Ireland. This is part of an 'on-shoring' trend that has been observed (and recorded in the accounts) for several years, but was particularly large in 2015.

The transfer of the (extremely large) capital stock of assets to Ireland is recorded by the CSO as an 'other economic flow' since it is viewed as a restructuring operation and not as a transaction (the Irish resident units have not 'purchased' the assets). This means that data on domestic investment (gross fixed capital formation) and import flows are unaffected by the transfer of the stock in 2015. However the overall stock of assets (balance sheet) in the Irish economy is now higher by the amount of transferred assets, which also has a major impact on depreciation (consumption of fixed capital).

The result of this is that the goods (and the services arising from intellectual property) provided from the companies' assets are recorded as output of the Irish economy and — where appropriate — as exports from Ireland. Furthermore the new assets created by these companies (i.e. after the transfer of the balance sheet to Ireland) are recorded as investment in Ireland. All of this adds to Irish GDP, and will continue to do so in the coming years (i.e. this is a level shift).

The upward revision in GNI is smaller than for GDP because there are additional outward income flows relating to the companies' activities. Nevertheless the rise in GNI is still very substantial because the additional income flows of the companies (interest and dividends) concerned are considerably smaller than the value added of their activities. The calculation of outward flows of 'reinvested earnings' from these companies is also relatively small because the level of depreciation on the assets (which reduces reinvested earnings) is very high.

2. The Irish facts

On July 12th 2016 the Central Statistical Office (CSO) of Ireland published a level shift for its GDP and GNI, significantly revising the growth rates for 2015 upwards to 26.3 % and 18.7 %, respectively, on a constant prices basis (see CSO Ireland (2016)). Corresponding revisions have been made to the Balance of Payments (BOP) and the industrial production index. These revisions are attributable to the globalisation activities of a very small number of multinational companies, namely bringing their balance sheets from 'off-shore' locations into Ireland, and are based on data collected directly from these companies (see Box 1). Based on the preliminary information provided by the CSO, including data, and a Eurostat visit, Eurostat considered the revision as plausible and the data were endorsed by the EU's GNI Committee. Eurostat, therefore, published the new data and used them for euro area (EA) and European Union (EU) aggregates. Eurostat examines the methodology used in this revision as part of the regular GNI verification procedure which applies to all Member States.

This upwards revision to GDP has an impact on any indicator which is presented as a ratio to GDP. In the absence of any other changes, such ratios will fall as a simple mathematical result of an increase in GDP. The exact changes to the value of any specific indicator will depend not only on the change in GDP (the denominator), but also on possible changes in the numerator. It is also acknowledged that the upward revisions to GNI will also have upward implications for the amount of Irish contributions to the EU budget.

3. The model

To discuss the questions raised above, the following simple model ([4]) has been developed. It is not intended to depict the Irish case specifically, but to provide a generic framework in which to understand how a combination of application of the principle of economic ownership, together with capitalisation of research and development, can have major consequences on a country's national accounts and balance of payments.

In Figure 1 the observed (physical) flows ([5]) are shown as black arrows, whilst the imputed flows after recording on an economic ownership basis are shown as purple arrows.

The world consists of only 4 countries (A, B, C, D). Countries C and D are members of the EU, A and B are outside Europe. There is only one multi-national enterprise (MNE) that moves its headquarters (HQ) and its complete balance sheet (100 % intellectual property rights, IP ([6])) from A to C. It is assumed that before the move all criteria for residency and economic ownership are fulfilled in A, and after the move they are so fulfilled in C. After the move the former HQ remains in A as a residual Unit A1, whereas in C the HQ is formed from a former affiliate unit (C1).

Units B1 and D1 are affiliated with the MNE, before and after the move. B1 is the main producer in the MNE, whereas D1 provides inputs to B1. Under the principle of economic

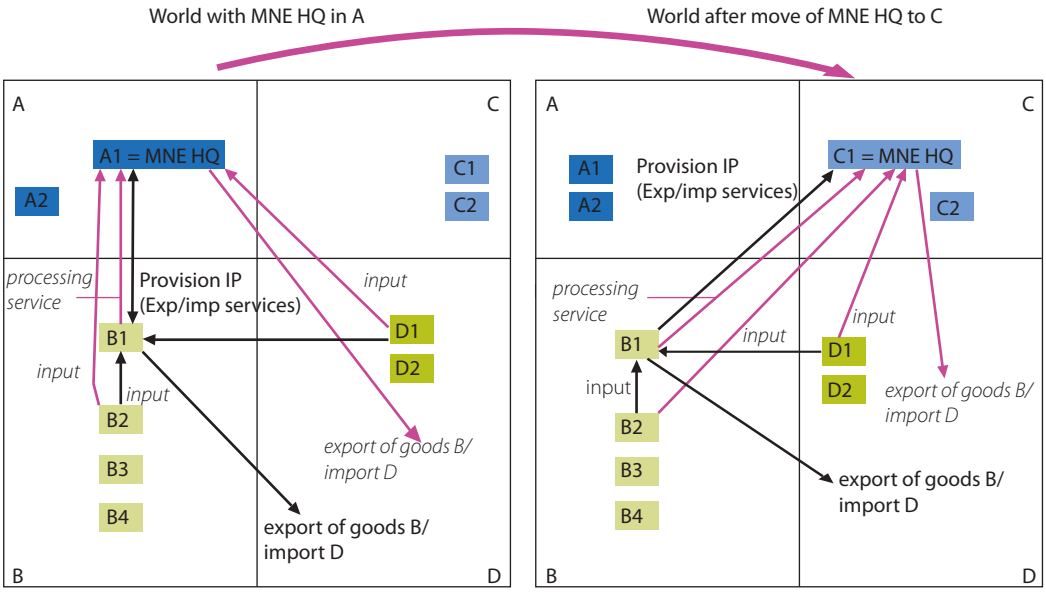
([4]) The model could be extended to deal with financial relationships etc, but has been kept focused on non-financial flows for the purposes of this paper.

([5]) The term 'observed' is properly applicable to primary data sources such as trade statistics, but its use is extended in this paper to hypothetical measures for aggregates such as GDP. The black arrows would be observed in statistics for trade in goods.

([6]) One should note that, in the absence of a straightforward indicator of economic ownership, the UNECE Guide on measuring global production relies on legal ownership. It is assumed here that there is sufficient evidence for statisticians that a change of economic ownership has been identified.

ownership, the HQ provides the IP to B1 and receives a fee in return ([7]). The HQ also pays processing fees to B1. B2 is an unaffiliated contractor to the MNE, providing inputs to B1.

Figure 1: The model



Nothing changes in the economic structure and outsourcing arrangements of the MNE after the move of HQ.

All goods produced by B1 are physically exported to D and consumed there.

There are five other independent producers (A2, B3, B4, C2, D2). All their goods and services are produced and consumed domestically only in their respective countries.

Application of the principle of economic ownership requires the imputation of a number of flows and stocks (i.e. moving away from the observed flows marked as black lines in the diagram, towards imputed flows marked as purple lines in the diagram). The main imputations to be made relate to cross-border flows of finished goods (considered as exports from the country where economic ownership is located), flows of intermediate goods and services (considered as imports to the country where economic ownership is located) and flows of assets (notably imports of intellectual property to the country where economic ownership is located).

Under those model conditions, assumptions have been made for output, intermediate consumption, exports and imports of goods and services, number and compensation of employees (CoE). Net taxes on production have been set to be zero to simplify calculations. These assumptions have been made for three cases:

1. Situation before the move of the MNE from A to C, information that is directly observable (i.e. it relates to physical production or flows) on the respective domestic territories;

([7]) Although in practice this fee may not be present, depending on the MNE's internal arrangements.

2. Situation before the move of the MNE from A to C, with application of the principle of economic ownership for recording (as described in Box 1);

3. Situation after the move of the MNE from A to C, with application of the principle of economic ownership for recording.

The assumed values and the derived value added (VA), GDP, labour productivity and unit labour cost (ULC) are provided in Annex 1 for each of the 3 cases and for each of the production units, countries and regions, where appropriate.

The number of employees recorded in each unit is assumed not to be impacted by the application of the principle of economic ownership, as the employees of B1 continue to provide processing services in B. However this assumption can certainly be further discussed.

Table 1 summarises for the four countries, the EU, the rest of the world (ROW) and the world, the GDP and selected main components and indicators for each of the three cases.

Table 1: Summary of GDP and selected components and indicators for the model

Country/region		GDP	Exports		Imports		Number of employees	Compensation of employees	GDP/ employee	Unit labour cost
			Goods	Services	Goods	Services				
A	observed	15	0	0	0	0	110	6	0.14	0.20
	before	35	100	10	70	20	110	6	0.32	0.04
	after	15	0	0	0	0	100	4	0.14	0.20
B	observed	120	100	0	50	0	2600	58	0.05	0.11
	before	100	20	20	0	10	2600	58	0.04	0.13
	after	100	20	20	0	10	1000	20	0.04	0.13
C	observed	15	0	0	0	0	160	12	0.09	0.30
	before	15	0	0	0	0	160	12	0.09	0.30
	after	35	100	10	70	20	150	8	0.22	0.08
D	observed	120	50	0	100	0	1750	90	0.07	0.26
	before	120	50	0	100	0	1750	90	0.07	0.26
	after	120	50	0	100	0	1750	90	0.07	0.26
ROW	observed	120	50	0	100	0	1750	90	0.05	0.12
	before	135	120	30	70	30	2710	64	0.05	0.12
	after	125	20	20	0	10	2710	64	0.04	0.14
EU	observed	135	50	0	100	0	1910	102	0.07	0.26
	before	135	50	0	100	0	1910	102	0.07	0.26
	after	155	150	10	170	20	1910	102	0.08	0.20
World	observed	270	150	0	150	0	4620	166	0.06	0.18
	before	270	170	30	170	30	4620	166	0.06	0.17
	after	270	170	30	170	30	4620	166	0.06	0.17

With regard to GDP ([8]), the main impact of following the economic ownership approach to recording is that the GDP rises in the country where the HQ is located (A or C) and falls by the same amount in the country where physical production takes place (B). In the example, the fall in GDP in large country B is less noticeable than the huge rise in smaller countries A and C.

([8]) This paper does not explore a possible focus on Net Domestic Product (NDP; removing the impact of capital consumption), which would be considerably less impacted than GDP owing to the high level of capital consumption recorded for intellectual property assets. The use of net measures for presentational purposes has been growing in recent years, however there remain some concerns about the quality of the practical calculation of capital consumption.

With regard to productivity measures (here using GDP divided by employment), the fact that employment data remain unchanged (whilst value added moves towards countries A or C) means that measured productivity falls in country A and rises strongly in country C.

Corresponding movements can be observed for the EU and the ROW, as the on-shoring was assumed to happen from the ROW to the EU.

At world-level the noticeable difference between the directly observable values (those measured from physical merchandise flows, which will not all be based on the principle of economic ownership) and the application of the economic ownership principle are the totals for exports and imports of goods and services. The reason is that the goods and services flows appear on the basis of economic ownership, which includes services flows within the MNE which were not directly observable and which are now shown explicitly.

With regard to unit labour cost measures (here compensation of employees divided by total output), these rise in country A and fall strongly in country C. Because of the increase in global gross output (as cross-border service transactions are recorded), the global unit cost measure falls marginally when an economic ownership approach is adopted.

4. How to shed (statistical) light on globalisation and produce meaningful information for domestic economies?

Globalisation is a historic process of increasing interaction between national economies on a world-wide scale. While not new, interconnectedness has accelerated in recent years due to political developments and technical enablers, such as informatics and new communication tools. Statistical evidence for the globalisation phenomenon includes increasing exports and imports of goods and services and FDI as a share of GDP, as well as the share of foreign controlled enterprises in all activities of the national non-financial and financial corporations sector.

In methodological terms, in the most recent releases of the international standards for national accounts and BOP (2008 SNA (United Nations et al (2009), ESA 2010 (Eurostat (2013)), BPM6 (International Monetary Fund (2009))), globalisation phenomena such as 'goods sent abroad for processing' and 'merchanting' (where the recording of both has been changed compared to previous standards), 'special purpose entities' or 'other captive institutions' have been given more attention ([9]) and subsequently more detailed guidance has been developed, e.g. in the 'Guide to measuring Global Production' (UN Economic Commission for Europe (2015)) and the report of the international 'Task Force on Head Offices, Holding Companies and Special Purpose Entities (see European Central Bank, Eurostat and OECD (2013))' However, in the light of many issues impacting the allocation of value added and profits to national economies, such as:

- intra-MNE transactions crossing national borders;
- the valuation of these transactions ('transfer pricing');
- recording of the intra-MNE use of intangible assets (notably IP);
- development, recording and payments for the use of R&D;

([9]) See also e.g. OECD (2014) and chapter 16 of Lequiller and Blades (2014).

- reallocation of royalties, licence fees and profits;
- design of complex financial relationships (e.g. loan structures) with associated property income flows,

we have to admit that we are only at the very beginning of getting a grip on properly measuring globalisation in a systematic cross-country way. Moreover, many already existing provisions for providing relevant sector and other breakdowns are only on a voluntary basis, even in a European context.

To shed light on globalisation, various tools have already been developed by statisticians and initiatives have been taken to go beyond GDP. The establishment of the EuroGroups Register ([10]) was an important step within Europe to foster collaboration between statistical offices.

Globalisation is closely related to activities by MNEs. Fragmented production processes span the whole world, exploiting comparative production advantages and tax competition between nations. This is also helped by the fact that increasingly a main component of many (particularly high tech) products is intellectual property — the know-how, the blue print. Exactly those intangible assets of an MNE, however, are extremely mobile. All it takes to move them around the globe from one host country to another is a registration in a business and tax register, a desk, a PC and an internet connection, obviously to exaggerate. Often they are also extremely huge assets, leading to the effects we now witness in Ireland.

The most developed tool to follow value creation by MNE around the globe is the trade in value added (TiVA) database and methodology, jointly developed by OECD and WTO ([11]). It is based on input-output modelling and Eurostat contributes consolidated EU and euro area tables to it, alongside the 28 national supply and use tables. TiVA addresses the issue of double counting implicit in gross trade flows. It explicitly shows the value that is added by a country in the production chain of a product that this country is exporting. One of the main uses is the calculation of more realistic trade balances between countries by taking out foreign content from exports. However one should note that some types of globalisation model (for example, factoryless goods production) are even disruptive for the TiVA data.

Given this background, users of the national accounts therefore ask if GDP should be replaced by another measure. This is not a new request, unique to globalisation. For example, the 'Beyond GDP initiative' acknowledged that economic indicators such as GDP were never designed to be comprehensive measures of prosperity and well-being. Based on the recommendations in the Stiglitz-Sen-Fitoussi report of 2009 (Stiglitz et al (2009)), this has helped to develop indicators that are as clear and appealing as GDP, but more inclusive of environmental and social aspects of progress, allowing to monitor global challenges of the 21st century such as climate change, poverty, resource depletion, health and quality of life. Particular emphasis was also given to the household sector and the distribution of income and wealth ([12]).

It is however important to understand that neither 'beyond GDP' nor TiVA adjust or challenge the main components of national accounts (and BOP). They complement them, help to provide additional insights and — in case of TiVA — allow deeper analysis of gross trade flows. However, these initiatives and tools are not sufficient to answer the main question globalisation is presenting to statisticians: Which parts of the production activities of MNEs are actually taking place in the domestic territory of any given country? Or in other words, how can we distinguish between movements in GDP or its components which are relevant for the domestic 'real

([10]) http://ec.europa.eu/eurostat/web/structural-business-statistics/structural-business-statistics/eurogroups-register.
([11]) http://www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm.
([12]) For example, see Eurostat's GDP and beyond site http://ec.europa.eu/eurostat/web/gdp-and-beyond.

economy' and those which are driven by the worldwide activities of multinational companies (and their statistical representation according to the international rules)?

In developing answers to those questions, it should be clear that there is an ESA 2010 definition of GDP ([13]) which is a European legislative requirement. Nevertheless the activities of multinationals have always been part of the Irish economic data and therefore analysis has always required a careful appreciation of where such multinationals impact on the data, both at national level but also in the framework of the European semester. The Irish CSO has developed and published additional analysis of impacts on domestic demand and imports, which are intended to help users in this analysis. Now, as the possible impact of globalisation on an economy has jumped into our face, it is about doing more in this direction, generalise the findings and develop guidance for all (EU) countries.

Points to be addressed, within the existing national accounts and BOP framework, are:

a. development and expansion of existing indicators;

b. identification of where additional detail would best help to provide insights;

c. the potential to develop new indicators;

d. whether new presentations of existing information would improve communication and understanding;

e. ways of having access to the necessary information about the MNE activities.

Efforts to single out globalisation activities and present them alongside purely domestic developments are very challenging, given that they require statisticians to isolate in balance sheets and flow accounts those positions and flows relating to the re-routing of profits. Access to intra-MNE information is therefore the most fundamental point. Already today many national statistical institutions have specific investigations of MNE in place, such as targeted surveys or 'profiling'. However, their attempts often end at the national border and there is no system in place to consistently record transactions in the counter-part countries world- or at least EU-wide. This leads to the conclusion that international comparability of at least national accounts, BOP and business statistics at a regional and worldwide level may be currently substantially hampered by missing values or double counting.

As a consequence, data collection can no longer be seen as a purely national exercise. Without an ambitious profiling approach and the use of detailed companies' data which included their activities abroad, the need for revision may not have been discovered by the Irish authorities. Nevertheless, the only thing known about the counterparts of the transactions is that they are outside the EU. This may ease life for Eurostat this time around, but causes headaches for worldwide agencies such as the IMF, OECD, World Bank and UN.

Apart from confidentiality issues, this raises (again) sensitive questions concerning enhanced cross border cooperation amongst statistical authorities. Nevertheless, the price for not addressing them, to start with at least within the ESS, would be increasing irrelevance of our statistical products and growing bias and asymmetries between countries. Is it time to think about a European (and world-wide) MNE profiling capacity, working closely with national counterparts? Do we need to invest more in cross-country business registers — such as the EuroGroups Register — and unique identifiers ([14]), eventually with the globe in mind? The

([13]) ESA 2010 paragraph 8.89.

([14]) There are several initiatives under way to develop unique (European or global) identifiers for enterprises. Although they are not driven primarily by statistical needs, statisticians see strong potential for such indicators to improve the collection of data.

authors would clearly answer yes to these questions. The details and partially sensitive questions will have to be worked out in close cooperation with all ESS and international partners, building on first steps already taken.

The current statistical infrastructure has been developed when production processes ended at the national border and customs captured all movements across borderlines, at least for goods. Businesses now move around the globe with ease. Statisticians have to find a way to follow, if necessary supported by appropriate EU legal provisions.

5. A different presentation of the accounts to support communication

As shown by the Irish case indeed globalisation presents significant communications challenges. Particularly when smaller countries are involved the ability to fully explain the rationale behind the changes is hampered by the overriding need to protect the confidentiality of the contributing multinational companies. This leads to a substantial loss of detail (at national and European level) and has understandably been an issue for many users.

Economists and statisticians have already pointed to the fact that publishing core GDP will no longer suffice in the future. New presentations are needed to tell the story about the state of an economy, adding the globalisation, environmental and social dimension. However, just having different, extended indicator systems next to each other will not do. Data will have to be presented in relation to each other, explaining complex issues in an understandable way to users, and building on the broader satellite accounts approach which is already used. Since the IARIW/OECD conference on the future of SNA in April 2015 ([15]), there have been emerging suggestions for a four column presentation, adding the three dimensions listed above alongside core GDP. This may become too complex again, but will certainly be subject to further discussion.

Using our example, however, it is possible to develop the simple conceptually-based Table 2 ([16]) for country C and the EU after the on-shoring of the MNE, adding the necessary information about the 'impact of globalisation ([17])' on the domestic economy to core GDP.

Such a tabular-type presentation would provide the necessary 'building blocks' to answer different policy questions. If one has to devise and monitor e.g. national policies for economic development, infrastructure, environment, health, housing, education etc. one is interested in the development of that directly observable part of GDP that relates to the domestic territory (e.g. 15 in our example for C). It is for these purposes of little interest how much production is controlled and owned in the rest of the world by resident MNEs (e.g. 20 in our example for C). If one is, however, responsible for finance and taxation, the total income generated by resident MNEs in all parts of the globe is very relevant as it potentially provides a taxation basis (e.g. 35 in our example for C).

([15]) http://www.iariw.org/papers/2015/Summary.pdf.

([16]) This is not to say that the compilation of such a table in practice would be straightforward, particularly if the split presented goes beyond trade flows. The necessary source information, generated through a suitable statistical infrastructure, is a pre-requisite.

([17]) Implicitly the adjustments (imputations) that have to be made to move from observed flows in primary statistics to national accounts and balance of payments data which comply with the principle of economic ownership.

Table 2: Example showing the effect of globalisation

Country C	Output	Intermediate consumption	Value added	GDP	Trade balance	Number of employees
Observed	40	25	15	15	0	160
Globalisation effect	110	90	20	20	+ 20	0
SNA/ESA figures	150	115	35	35	+ 20	160
EU	**Output**	**Intermediate consumption**	**Value added**	**GDP**	**Trade balance**	**Number of employees**
Observed	390	255	135	135	– 50	1910
Globalisation effect	110	90	20	20	+ 20	0
SNA/ ESA figures	500	345	155	155	– 30	1910

Interesting insights could also be gained from the relation of the directly observable part of GDP to the globalisation effect. In our example the globalisation effect is higher than the directly observable part of GDP. This would indicate a very high exposure and vulnerability to changes in the globalisation arrangements of MNEs, at least with regard to the capacity to tax.

Similar reasoning applies to the EU as a whole in relation to C and the rest of the world.

It is important to address an observation from some national accountants that identifying observed/physical flows marks an attempt to return to a traditional 'pre-globalisation' model that is no longer valid. However many users, especially those which have used national accounts data for many years, seek greater transparency of the globalisation effects which impact on the accounts. And, as with other areas of the national accounts, improved transparency of compilation approaches can only be beneficial.

In summary, the key to understanding globalisation is in our view not about changing the accounting methodologies ([18]), but (1) consistently implementing them over all countries, supported by further guidelines for accounting frameworks and primary statistics, (2) presenting the accounts in 'building blocks' that enable users to distinguish domestic and globalisation impacts, through (3) providing statisticians with the necessary information about the structure and transactions of MNEs and (4) cross border collaboration of statisticians.

6. Consistency between business statistics and accounting frameworks

National accountants and BOP statisticians have been in the past almost imperialistic in trying to create a fully consistent world and encourage primary statistics to follow national accounts methodology. This systematic approach has many advantages and helps to overcome shortcomings in primary data, reconcile data and fill data gaps. However, the Irish case has taught us now that a monolithical system of economic statistics, completely aligned with national accounts, will most likely not be the right answer to globalisation. Macro- and micro-statistics must serve a number of diverging purposes and give answers to a multiplicity of questions.

([18]) Even if there is important work to be done in improving the clarity of guidance, based on experience and the proliferation of globalised business models, and this is ongoing in international groups.

On first sight it seems that business statistics lend themselves more to events on the domestic territory, and there is no requirement that business statistics must follow national accounts solutions, especially where users have a strongly domestic focus. The 'building block' approach suggested above for national accounts could as well be a solution here. Maybe it is time for a paradigm shift in the relation between accounting frameworks and underlying primary statistics?

However, statisticians have to step back and try to see the whole picture, before trying to solve the problem with quick fixes. This is particularly important as the current European guidance on globalisation for the system of business statistics is not yet well developed. A general objective should be a further development of the guidelines on globalisation in national accounts, BOP, business and trade statistics in the light of the recent events, before adapting corresponding individual legal prescriptions.

7. Early information from national statistical institutions and ex-ante advice

As outlined above, communication is key in explaining complex globalisation issues to users. This includes first and foremost communication to international organisations, peers and other statisticians to help them to understand, gain their support in communicating the methodological approach more broadly and explaining the reliability and quality of the figures.

In order to avoid last minute surprises, and as a matter of good practice, it is recommended that international organisations are notified as early as possible in the event of a significant upcoming revision to the recording of MNEs in the national accounts of countries, or where a new case is identified which will impact accounts significantly in the future. Whilst it is accepted that statisticians at national level have delicate ongoing bilateral discussions with MNEs on access to source data, which are a national responsibility, arrangements can be made to ensure that all correspondence/discussions are suitably anonymised. This could be combined — in cases of doubts over the conceptual approach — with recourse to an ex-ante advice function, which is described below, and to expert visits as needed.

As mentioned elsewhere in this paper, the recording of globalisation arrangements can be particularly challenging for NSIs, especially as these evolve over time and new or mixed forms of arrangement may emerge. Within a regional context in Europe, there is also the important cross-Member State dimension, where it is preferable that the same recording approach for an MNE is adopted across countries in which it operates, so as to prevent asymmetries.

The authors would therefore raise the idea of developing a centralised function in Eurostat to provide advice to European NSIs in their preparation of recording changes in MNE structures (i.e. an ex-ante advice function), which would also ensure appropriate liaison with other MSs concerned so that a common solution is developed ([19]), and involve business statisticians as necessary. The advice would be developed based on descriptions/material provided by the NSI(s), including a detailed analysis, and be grounded in national accounts rules and guidance. Statistical confidentiality would be fully respected. Should a transversal conceptual issue

([19]) One should not pretend that this would be a straightforward process, as a solution would rely on the willingness of national accountants, balance of payments compilers, and compilers of primary statistics to reach a common understanding of the case, exchange company-level data, and agree on the required adjustments to primary data. However it is a necessary process to reach consistent data.

be identified with an impact on recording of other MNEs, this could be brought (in a fully anonymised way) to the appropriate Working Group for discussion, perhaps preceded by a Task Force if particularly complex.

Following such an approach would also have the advantage that Eurostat would be fully supporting the data provided by the NSIs in question as soon as they surface, being able to use them without doubt for EU aggregates and would not have to engage in last minute validation under pressure. This way, Eurostat could also reassure other MSs, e.g. in the GNI context, that everything has been done consistently across Europe and according to the rules.

Looking further, beyond Europe, there have been a number of calls in past years for better global statistical cooperation on the globalisation phenomenon; MNEs are not confined to Europe and information on counterparties is a necessary part of ensuring consistency and completeness. Work has started on related projects and Europe is closely involved in providing inputs from its own projects, with further developments as described above adding to these inputs.

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Annex 1: Accounts for example

Table 1: Observations of physical processes

	Output		Intermediate consumption	Value added	Net taxes on production	GDP	Exports		Imports		Number of employees	Compensation of employees	GDP/employee	Unit labour cost
	Goods	Services					Goods	Services	Goods	Services				
A1		10	5	5	0	5					10	2	0.50	0.20
A2	20		10	10	0	10					100	4	0.10	0.20
A	20	10	15	15	0	15	0	0	0	0	110	6	0.14	0.20
B1	100		70	30	0	30	100		50		500	15	0.06	0.15
B2	20		10	10	0	10					100	3	0.10	0.15
B3		200	160	40	0	40					1000	20	0.04	0.10
B4	200		160	40	0	40					1000	20	0.04	0.10
B	320	200	400	120	0	120	100	0	50	0	2600	58	0.05	0.11
ROW	340	210	415	135	0	135	100	0	50	0	2710	64	0.05	0.12
C1		10	5	5	0	5					10	4	0.50	0.40
C2	30		20	10	0	10					150	8	0.07	0.27
C	30	10	25	15	0	15	0	0	0	0	160	12	0.09	0.30
D1	50		20	30	0	30	50		100		250	20	0.12	0.40
D2		300	210	90	0	90					1500	70	0.06	0.23
D	50	300	230	120	0	120	50	0	100	0	1750	90	0.07	0.26
EU	80	310	255	135	0	35	50	0	100	0	1910	102	0.07	0.26
World	420	520	670	270	0	270	150	0	150	0	4620	166	0.06	0.18

Table 2: National accounts before on-shoring, principal of economic ownership

	Output		Intermediate consumption	Value added	Net taxes on production	GDP	Exports		Imports		Number of employees	Compensation of employees	GDP/employee	Unit labour cost
	Goods	Services					Goods	Services	Goods	Services				
A1	100	20	95	25	0	25	100	10	70	20	10	2	2.50	0.02
A2	20		10	10	0	10					100	4	0.10	0.2
A	120	20	105	35	0	35	100	10	70	20	110	6	0.32	0.04
B1		20	10	10	0	10		20		10	500	15	0.02	0.75
B2	20		10	10	0	10	20				100	3	0.10	0.15
B3		200	160	40	0	40					1000	20	0.04	0.10
B4	200		160	40	0	40					1000	20	0.04	0.10
B	220	220	340	100	0	100	20	20	0	10	2600	58	0.04	0.13
ROW	340	240	445	135	0	135	120	30	70	30	2710	64	0.05	0.11
C1		10	5	5	0	5					10	4	0.50	0.40
C2	30		20	10	0	10					150	8	0.07	0.27
C	30	10	25	15	0	15	0	0	0	0	160	12	0.09	0.30
D1	50		20	30	0	30	50		100		250	20	0.12	0.40
D2		300	210	90	0	90					1500	70	0.06	0.23
D	50	300	230	120	0	130	50	0	100	0	1750	90	0.07	0.26
EU	80	310	255	135	0	135	50	0	100	0	1910	102	0.07	0.26
World	420	550	700	270	0	270	170	30	170	30	4620	166	0.06	0.17

Table 3 : National accounts after on-shoring,principal of economic ownership

	Output		Intermediate consumption	Value added	Net taxes on production	GDP	Exports		Imports		Number of employees	Compensation of employees	GDP/employee	Unit labour cost
	Goods	Services					Goods	Services	Goods	Services				
A1		10	5	5	0	5					10	2	0.50	0.20
A2	20		10	10	0	10					100	4	0.10	0.20
A	20	10	15	15	0	15	0	0	0	0	110	6	0.14	0.20
B1		20	10	10	0	10		20		10	500	15	0.02	0.75
B2	20		10	10	0	10	20				100	3	0.10	0.15
B3		200	160	40	0	40					1000	20	0.04	0.10
B4	200		160	40	0	40					1000	20	0.04	0.10
B	220	220	340	100	0	100	20	20	0	10	2600	58	0.04	0.13
ROW	240	230	355	115	0	115	20	20	0	10	2710	64	0.04	0.14
C1	100	20	95	25	0	25	100	10	70	20	10	4	2.50	0.03
C2	30		20	10	0	10					150	8	0.07	0.27
C	130	20	115	35	0	35	100	10	70	20	160	12	0.22	0.08
D1	50		20	30	0	30	50		100		250	20	0.12	0.40
D2		300	210	90	0	90					1500	70	0.06	0.23
D	50	300	230	120	0	120	50	0	100	0	1750	90	0.07	0.26
EU	180	320	345	155	0	155	150	10	170	20	1910	102	0.08	0.2
World	420	550	700	270	0	270	170	30	170	30	4620	166	0.06	0.17