IMPACT OF GLOBALIZATION ON THE MACROECONOMIC INDICATORS: CASE OF IRELAND

Marek Rojíček[1]

Abstract

Globalization, as now understood, is a centuries old phenomenon of growing interaction between national economies. In recent decades, the phenomenon has gained a new momentum, because of political developments and progress in information and communication technology. The traditional interrelations, e.g. in closely connected financial markets, have grown considerably. At the same time there has been a deepening of globalization through, for example, international value added chains. This influenced the development of macroeconomic indicators especially in small open countries, but the greatest attention of economists and wider public was attracted by the revision of Irish national accounts and balance of payments in July 2016. Consistent application of new rules for capturing economic transactions in combination with movement of several global companies with the whole balance sheets to Ireland caused unprecedented increase of Irish GDP. It raised a lot of questions about the interpretation of the newly published figures.

Keywords

Globalization, National Accounts, Balance of Payments, Multinational Enterprises, GDP, Intellectual Property

I. Introduction

Globalization, as now understood, is a centuries old phenomenon of growing interaction between national economies. In recent decades, the phenomenon has gained a new momentum, because of political developments and progress in information and communication technology. The traditional interrelations, e.g. in closely connected financial markets, have grown considerably. At the same time there has been a deepening of globalization through international value added chains closely connected with the increased role of Multinational Enterprises (MNE). These developments had a positive impact on worldwide income and productivity. On the other hand, there are also significant risks of globalization associated with the growing interconnectedness of national economies (e.g. Arndt, 2001).

One of the effects of the globalization is also the impact on macroeconomic aggregates. There was key role of the revision of macroeconomic statistics standards – System of National Accounts and Balance of Payments Manual (SNA2008/ESA2010 and BPM6), which brought new methodology of capturing global transactions. In comparison of the previously used manuals the principle of ownership was emphasized, which could potentially lead to revision of data published in NA and BoP statistics. One of the major examples is the case of Ireland, where after revision of 2015 annual accounts GDP increased by more than one quarter and also other macroeconomic aggregates changed significantly.

The published Irish growth rates for 2015 have magnified concerns about the impact of globalization on our ability to accurately record economic transactions, particularly those of multi-national enterprises. Income and production associated with intellectual property products that are easily transferred across borders are a case in point where key macro-economic variables such as GDP and trade may be affected. While the statistical complications arising from globalization have

[1] University of Economics and Management, Nárožní 2600/9A, Praha 5, Czech Republic. E-mail: marek.rojicek@vsem.cz.

long been recognized and discussed, the Irish case has demonstrated that effects can be so large as to raise questions about the very meaning of GDP as a measure of domestic production and about its usability as an indicator for designing monetary, fiscal and structural policies.

II. Definition of the production process

Generally, production can be defined as the managed transformation of inputs (labor and capital) into outputs (goods and services)[2]. In a modern economy, many goods and services contain a significant share of "knowledge" in the form of R&D and design efforts that go into the functionality and appearance of products; in the form of marketing efforts to establish awareness about products among potential customers; or in the form of organizational know-how that shapes the internal working of enterprises. Other things being equal, product prices reflect a contribution from embodied knowledge along with the value of labor and physical capital services used in production. Once deductions are made for the value of materials and other intermediate inputs, the resulting figure constitutes a measure of value-added and therefore GDP.

With the introduction of new manual on national accounts (SNA2008/ESA2010) intellectual property products are recognized as assets in accounting terms to reflect their economic importance and contribution to production. Consequently, production is observed when services from labor, physical capital and intellectual property assets are transformed into output of goods and services.

One of these service outputs may be the right to use intellectual property products. For instance, when a software developing firm sells the license to use software for the operating system of a mobile phone to producers of mobile phones or when a pharmaceutical laboratory sells the right to use the molecular composition of a drug to a pharmaceutical producer, the revenues from the sale of licenses are registered with the unit having developed the original, and so are the associated wages and profits. Thus, managing and "renting out" the asset is recognized as a production of a service, against payment of rentals or royalties. Suppose that a certain number of persons are employed for the management of the asset, along with some physical capital (buildings, computers). Revenues are generated from selling licenses and value-added will accrue to the managing unit.

The managing unit may be in a country different from where the development has taken place. Much of the current debate about the Irish case has been around the question whether the sole activity of managing an asset constitutes production. When there is a physical presence, when there is employment and when computers, structures and equipment are used in the management of knowledge assets, and when the unit accepts risks and rewards for managing the knowledge asset, the case for concluding that there is no production is difficult, even when these units are subsidiaries of foreign firms and even when the suspected reason for moving the asset management to a different country is tax minimization. In national accounts terms, the question about production has been couched in terms of whether there is "economic ownership" of the knowledge asset by the unit managing it or whether there is pure "legal ownership". Economic ownership entails in accepting the economic and operating risks involved in exploiting the asset in return for receiving the benefits by using it in a productive activity.

III. Changing models of trade and manufacturing

In the traditional model of external trade there is simple link of exporters and importers. The buyer delivers the goods to the seller and at the same time or shortly before or after delivery of the shipment money is transferred from buyer's to seller's bank account. It is the fundamental principle of economic statistics for the compilation of national accounts and balance of payments, that cross-border transactions are based on economic ownership. In this simple case, the goods are moved from B to A, and simultaneously a flow of money in the opposite direction. The exact time of the

[2] See UN (2009)

change of ownership between A and B depends on the contract and payment agreement. Economic statistics uses a border crossing as an approximation of the point where a change of ownership of the goods is done.

In the real world, it is never so simple; most transactions are conducted through intermediaries. Goods often cross borders, but do not change its owner. A classic example is the so-called inward processing, where the goods (components) are exported from one country to another, there are processed and then re-exported. A similar is becoming increasingly applicable as an increasing proportion of transactions are carried out within a multinational group (intra-firm trade). In this case, in addition there is a distortion of accounting data, depending on the contractual prices and service fees for use of the allocation of earnings with respect to the tax burden. Individual "players" in the whole process of production and marketing are located in different countries and in those cases the influence of foreign trade statistics.

Simply said, globalization brought into the international trade separation of the physical transfer of goods and the change of ownership. There are two opposite types of trade where the physical flow and ownership are separated – merchanting and goods for processing. Processing involves a movement of goods across the frontier but no change of ownership, whereas merchanting involves a change of ownership but no movement of goods across the frontier of the compiling economy.

The changing scheme of trading is closely connected with abandoning of the traditional model of manufacturing. The **traditional** (or integrated) manufacturer uses capital, labor, and energy to transform material inputs into a product to be sold (see UNECE, 2016). Integrated manufacturers typically own rights to the intellectual property or design of the final manufactured product. They also own the production facilities and input materials and the final product which they sell.

The manufacturing service provider provides contract manufacturing services, transforming material inputs to contract specifications. **Contract manufacturers** typically neither own or control the intellectual property or design of the final product, nor own and sell the final product. They are only owners of production facilities and may or may not own input materials depending on the contract specifications. On the other side of the contract is **factoryless goods producer**, which outsources the manufacturing process, but undertakes all the entrepreneurial steps and arranges the availability of the capital, labor, and material inputs required to make a good. Factoryless producers own rights to the intellectual property or design as well as the final product, but do not own the production capacities. The most typical for factoryless production is electronics industry and the most famous factoryless producer is Apple.

Earlier versions of the SNA and BPM did not mention global manufacturing. Capturing of globalization effect was one of the main reasons for revision of the macroeconomic statistics standards in the last decade. In the 2008 SNA, the term is used only in connection with merchanting[3]. In this case the goods are already in a finished state when the parent MNE buys them. BPM6 gives global manufacturing a much fuller treatment (see IMF, 2013). Paragraph 10.42 indicates that the merchant (as principal in the global manufacturing process) may provide planning, management, patents and other know-how, marketing, and financing. For example, an enterprise may contract the assembly of a good among one or more contractors, such that the goods are acquired by this enterprise and resold without passing through the territory of the owner. If the physical form of the goods is changed during the period the goods are owned as a result of manufacturing services performed by other entities, then the goods transactions are recorded under general merchandise rather than merchanting. This is key for explanation, what happened in the

[3] Paragraph 14.73 repeats the prescribed treatment of merchanting activity as a negative export (when the merchant – here an entity engaged in global manufacturing – acquires the goods) and a positive export when they are subsequently sold, without having entered the country in which the merchant is resident. Elsewhere (paragraph 26.21) the 2008 SNA says that, under merchanting, the goods themselves should be sold on in the same condition (UN, 2009).

case of Ireland national accounts revision in 2016. GDP and other related macroeconomic indicators rapidly increased although no significant change happened in the production capacities of the domestic economy.

IV. Specifics of Irish economy

The Ireland's success in attracting FDI's started in early 90's, but the conditions were created much earlier. The dramatic increase in demand for electronics products in Europe in 80's coincided with the implementation of the directives of the Single European Act of 1986, which brought a truly borderless economic areal for 340 million inhabitants in 1991. Those factors lead to expansion of production facilities of MNE within the European Union and Ireland was the country with the right location-specific advantages at that particular juncture. According to Paus (2005), "Ireland could offer a well-educated, English-speaking and relatively cheap labor force, a sufficiently developed national infrastructure, macroeconomic and political stability and stable capital-labor relations, a proactive government with highly effective institutional capacity, and grants and low taxes." The significant role in attracting FDIs was played by the agglomeration economies: one major brand name corporations (e.g. Intel, Xerox, HP) had invested in Ireland, other followed. We can talk about the "snowball" effect. Except ICT sector these companies recruited from two other major manufacturing sectors: medical and dental instruments and chemicals and pharmaceuticals.

It is difficult to distinguish relative importance of individual factors; some indicator can be found in Forfas (2001). According to survey from 2001, the most important factors for FDI inflow were appropriate skills, favorable tax regime and motivation and loyalty of the staff. The relative importance of each of the factors also varies by sector. Low taxes are especially important for the pharmaceutical industry, while the availability of a highly technically skilled labor force is particularly significant in the IT sector.

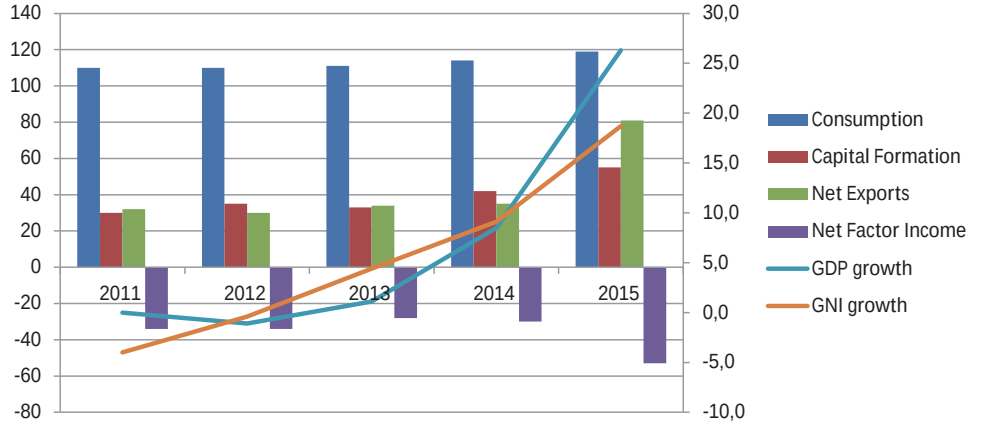
It is also connected with fact that some of the location-specific comparative advantages weakened during the time. Skilled labor, which used to be relatively cheap, has become substantially more expensive in comparison with other countries competing for the production of standardized high-tech MNE production. New low-cost latecomers have emerged on the global scene bringing attractive conditions for high-tech FDIs. The most important ones are China and India, where very low wages for unskilled as well as technically skilled workers

Due to the facts described above Ireland became moved on the higher level of the global production chain. Instead of "plant of the EU", Ireland became the headquarter of European activities of many global companies. It had consequences for the macroeconomic aggregates, especially in the context of revised macroeconomic statistics standards. The main reason for the particularly high Irish GDP growth rates lies in the fact that in recent years, attracted in large part by low corporation tax rates, many large multinational corporations have relocated their economic activities, and more specifically their underlying intellectual property, to Ireland (see OECD, 2016). As a result, sales (production) generated from the use of intellectual property now contribute to Irish GDP rather than to other countries' GDP. Given the size of these companies, the boost to GDP growth has been correspondingly large.

V. Revision of Irish macroeconomic indicators

During 2015, the development of Irish GDP according to quarterly national accounts was in the range expected by macroeconomic analysts. The estimate of GDP growth was 7,8 %. In the July release of annual National Income and Expenditure (NIE) Accounts results for 2015 and prior years was based on the newest tranche of data sources, including corporation tax data, structural statistics and commodity flow validated data (see CSO, 2016) According to newly published figures, GDP for 2015 increased by 26,3 % compared to the previous year and gross national income (GNI) by 18,7 % (see Figure 1).

Figure 1 Growth of GDP and GNI components in Ireland (2011 – 2015)



Source: Central Statistics Office (2016)

The revisions related to the annual benchmarking exercise of NIE 2015 and are explained by two main factors. There was an increase in the number of new aircraft imports into Ireland for international leasing activities. The second one was corporate restructuring both through imports of individual assets and reclassifications of entire balance sheets in 2015, which meant that the level of capital assets in Ireland increased dramatically compared to 2014. These additional assets add to the productive capacity of Ireland and impact the accounts for 2015 in the following ways:

- Exports and imports of goods and services have increased;
- Operating surplus (profits) have increased;
- Consumption of fixed capital (depreciation) has substantially increased.

You can see in Table 1 that the y-o-y increase of Gross Value Added amounted 49,5 bln. EUR, of which 40 bln. in Industry (manufacturing). According to 2014 data more than one half of the GVA in manufacturing sector was composed by three sub-sectors with strong participation of foreign capital: chemicals and pharmaceuticals, computers and instrument engineering and medical and dental instruments & supplies (see Table 1). For 2015 data for these activities are not available due to confidentiality reasons. It can be expected that the revision of GVA happened dominantly at these sub-sectors and that they increased their share on total value added.

Table 1 Industrial structure of Gross Value Added in Ireland (mln. EUR)

Year	2011	2012	2013	2014	2015
Agriculture, forestry and fishing	4 109	3 960	3 651	4 154	4 585
Industry	41 643	40 834	38 511	41 121	81 355
of which					
Chemicals and pharmaceuticals	*17 688*	*16 481*	*14 956*	*16 056*	*n/a*
Computers and Instrument engineering	*3 295*	*3 613*	*2 933*	*2 886*	*n/a*
Medical and dental instruments & supplies	*2 048*	*1 986*	*1 803*	*2 953*	*n/a*
Building and construction	4 895	4 560	4 938	5 405	5 789
Distribution, transport, software and communication	41 823	41 519	44 123	47 107	50 727
Public administration and defense	7 592	7 420	7 160	7 161	7 571
Other services	64 170	63 579	64 918	71 825	76 023
Statistical discrepancy	-	-	-	-1 913	-1 677
Gross Value Added total	**163 173**	**161 093**	**161 897**	**174 860**	**224 372**

Note: Sub-sector detail within the Industry Sector of Origin is suppressed for 2015 for confidentiality reasons.
Source: Central Statistics Office (2016)

This huge revision of macroeconomic accounts raised number of questions, which focused on more or less one issue: is GDP still the right indicator reflecting the economic performance of the country and hence approximation of the living standard of its citizens?

It is because intellectual property can, in principle, be located anywhere that questions have been raised concerning the ability of the conceptual accounting framework used to define GDP to adequately reflect economic reality. Specifically, these questions revolve around the rules governing economic ownership that determine the location of capital and the corresponding value added it generates. In this sense, and to help frame the discussion around the notion of economic ownership, it is important to note that had the intangible assets, such as intellectual property, of the relocated firms been instead purchased outright by an independent entity already resident in Ireland, for use in subsequent production by that entity, the same increase in Irish GDP would have occurred. Note too that, had the relocated companies transferred physical and tangible capital used in production (ideally in combination with domestic labor), there would arguably be little contention about the revision to Irish GDP; this would also be the case, if for example an airplane leasing company were to relocate in Ireland.

GDP corresponds to the value added, i.e. the balance of total output and the intermediate use of goods and services related to this production, and consists of the remuneration for the input of labor, in the form of compensation of employees, and for the input of capital (both tangible and intangible), in the form of (gross) operating surplus. Up until the last few decades, there had not been any doubts about this definition, because intangible capital was largely used where it was produced. However, globalization, in particular the growing importance of global value chains, combined with the increasing importance of intangible assets used in production, has changed the production landscape.

Multinational enterprises, in particular, have sought to maximize profits and minimize costs by (re)allocating their economic activities across the world. These relocations include transfers of economic ownership of Intellectual Property Products (IPPs), with associated risks as well as benefits from their use, the latter in the form of income from the production of goods and services, including receipts from licenses and patents, accruing to the host economy. It is clear, from the

above, that the use of intangible assets in production can generate significant value added, and so the recording of value added through their use reflects one dimension of economic reality. But perhaps the key question is whether that economic reality (value added) is recorded in the correct place, whether the value added should be recorded in Ireland or elsewhere.

This is not a trivial question. To determine this, the SNA looks to economic ownership (as opposed to legal ownership). The SNA refers to the economic owner of an asset as being the entity that assumes the risks and gains the rewards of ownership, and stresses that the default position should not necessarily assume that legal and economic ownership align. In the Irish cases at hand, it is clear that the legal ownership has been transferred to Ireland, but it is important to stress that it does not immediately follow that economic ownership has also been transferred. However, decision making and control, two important criteria used in assessing economic ownership do appear to have been relocated to Ireland as well, justifying the inclusion of the associated value added leveraged from the use of the underlying intellectual property in Ireland.

What further complicates the understanding of the Irish case is the fact that often GDP is interpreted as an indicator of the purchasing power or the material well-being of a country. In this respect, it is important to state that GDP is primarily a gross measure of economic activities on the economic territory of a country, and the income generated through those activities. High levels of GDP thus do not necessarily mean high levels of the (net) income flowing to the residents of an economy. This is because some of the income generated by production may be repatriated to non-residents, for example in the case of income generated by affiliates of multinational enterprises. Another part may be needed to compensate for the additional depreciation costs. In the case of Ireland, Net National Income (NNI), which equals GDP plus net receipts of compensation of employees and property income (interest, dividends, reinvested earning of foreign direct investment, etc.) from the rest the world minus depreciation, shows a considerably lower growth rate. Whereas in 2015 GDP in current prices increased by 32,4%, growth of NNI was only 6,4% (see Table 1).

Table 2 Impact of NA revision on macroeconomic indicators in Ireland (Mln. EUR)

Year	GDP	Depreciation	Net Factor Flows	GNI	NNI
2014	193 160	30 891	-29 715	161 759	130 868
2015	255 815	61 558	-53 173	200 762	139 204
Difference	62 655	30 667	-23 458	39 003	8336
% change	32,4%			24,1%	6,4%

Source: Central Statistics Office (2016)

Going one step further, one could also look at household disposable income, a key measure of average material well-being of people. In 2015, Irish households experienced a growth of 5.3% in their disposable income. Adjusted for price changes, the growth rate was 4.6%. The international comparison of levels of various national accounts indicators across countries can also be quite illustrative in this respect. It shows that, while Irish GDP per capita is well above the OECD average, by 24 percentage points in 2014, Irish household disposable income per capita is 22 percentage points below the OECD average (see OECD, 2016). When looking at the economic performance of a country, it is therefore important not to focus solely on GDP. The system of national accounts is a complete and consistent framework for the description of an economy. From this system, a variety of indicators can be derived, depending on what exactly one wants to monitor or analyze.

VI. Can the Czech Republic be compared to Ireland?

In some aspects the situation in the Czech Republic and other Central European countries is similar to the one in Ireland at the end of 80's and beginning of 90's. These countries have attracted at the

beginning of the 21st century foreign direct investors thanks to the same factors as Ireland one or two decades ago. A cheap, well-educated labor force, many of whom speak English, proximity to major markets, political stability, moderate labor unions, relatively low taxes and developed infrastructure. Both the Czech Republic and Ireland have relatively high share of manufacturing on total value added and employment and well educated and qualified labor force. They have also high share of exports and FDI's on GDP. On the other hand, the Czech Republic gains its comparative advantage also from the geographical location with close links to Western Europe markets.

The Czech Republic also faces globalization problems, but these are of different kind than in Ireland. The most important impact can be seen on data about foreign trade. Significant part of exports and imports is declared by non-resident units (some of them located in Ireland). According to the VAT legislation harmonized across the EU, non-resident traders are obliged to register for VAT in any country where they realized any taxable transactions (i.e. trade). Most of these transactions take place between related companies and the motivation can be of various natures. There can be also logistical reasons, when the country has a geographically strategic location and serves as an import/export gateway to other countries. However, most of these transactions are motivated by the cost reduction and tax optimization.

The difference between the trade surplus declared in the foreign trade statistics in international methodology (including the margins of "VAT-only" residents which in fact are part of accounting in their domestic territory) and the trade surplus in national concept (adjusted by these margins) is more than 7% of GDP. This figure indicates the rate of under pricing of the Czech value added in comparison with hypothetical situation when all transaction would have been based on standard market relationships. The analysis of macroeconomic figures implies that the Czech Republic at present is not considered by MNE's as the most suitable location for moving in their residence. Nonetheless it can happen in the future and taking into account the size of the Czech economy it would have similar impacts as in the Irish case. Can we imagine that e.g. Volkswagen Group would move its residence with all the balance sheets including intellectual property to Prague (or Mladá Boleslav)?

IV. Conclusion

While the statistical complications arising from globalization have long been recognized and discussed, the recent Irish case has demonstrated that effects can be so large as to raise questions about the very meaning of GDP and its usability as an indicator for business cycle analysis and for designing monetary, fiscal and structural policies.

Globalization combined with a growing importance of intangible assets creates issues in relation to the appropriate allocation of production and value added to countries. The relocation of such activities within MNEs may have a significant impact on the levels and the growth rates of GDP. Although it represents a certain economic reality, it goes without saying that it makes it much harder to interpret economic developments appropriately. It also makes it much more important not to derive incorrect conclusions from the developments of GDP. One cannot put developments on (material) well-being on a par with economic growth. For this purpose, one should rely on other indicators from the system of national accounts and look at broader measures of well-being.

Concerning the comparison of Czech and Irish economies we can conclude, that from the point of view of the position in global value added chain the situation in the Czech Republic is inverse to the situation in Ireland. Whereas the value added in Ireland is overpriced by the margins of the MNE headquarters, the Czech producers obtain often only very low portion of the final product price covering their costs and small profit margin.

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