Online Appendix C1 – A reminder on the national accounts and balance of payment

This appendix provides the rules for recording the distribution of companies' income (A) of foreign direct investment (B) and the difference between legal and economic ownership (C)

C1-A – The distribution of income by companies according to ESA (2010)

Two types of payment of companies play a key role in Irish accounts:

-The "distributed" part of profits that corresponds to dividends. The dividends are a form of property income to which shareholders who have made capital available to a corporation are entitled. The dividend is recorded when the share price starts to be quoted excluding the dividend.

-The "undistributed" part of the profits is reinvested within the capital of the company: it constitutes the "reinvested earnings". Depending on whether or not this is a direct investment, reinvested earnings are treated as distributed to foreign direct investors in proportion to their equity key in the company, and then reinvested by them by means of capital increases in the financial account. The reinvested earnings from foreign direct investment can be positive or negative. Finally, the retained earnings are net of charges for consumption of fixed capital since they are equal to the net operating surplus/deficit of the indirect investment + property income and current transfers - property income payable.

C1-B – Two methods of measuring Foreign Direct Investment

The two methods of presentation for FDI statistics are of special interest in the case of Ireland. The first method measures the value of FDI stocks by the location of a MNE subsidiary's immediate controlling parent company. The second method ("directional presentation") measures the value of FDI stocks by the location of a MNE's ultimate controlling parent. The ultimate controlling parent location is defined as where the final control of the MNE lies, typically the location of the group headquarters. The directional presentation separates the data between inward FDI and outward FDI. With this method, direct investment abroad by Irish MNEs is measured as outward FDI. Direct investment in Ireland by foreign resident companies is measured as inward FDI. With this method, the data are thus compiled on a net basis. As the Irish economy monitors large investments that pass through the country, the netting process is especially important in analyzing Ireland's FDI relationship with the rest of the world.

C1-C – Economic and legal ownership

National accounts distinguish between economic and legal ownership

The SNA (2008) distinguishes between legal and economic ownership:
(3.21) "The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities."
(3.26) "The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks."

The SNA (2008) §3.29 also provides a clarification on this notion of "advantage" common to both definitions:
(3.29) "The benefits inherent in financial assets and liabilities are seldom transferred from a legal owner to an economic owner in exactly the same state. They are usually transformed to new forms of financial assets and liabilities by the intermediation of a financial institution that assumes some of the risk and benefits while

passing the balance on to other units."

Beyond national accounts, legal ownership

Legal ownership is not an indivisible whole. The Civil law classically distinguishes three prerogatives that "make" the legal "owner" (within the meaning of the civil law) to varying degrees.
- *Fructus*, one of the elements of the right to enjoy the thing, is broken down into: *(i)* a substantive right (within the meaning of the right) to receive the proceeds of an object; *(ii)* a legal right to perform legal acts on the object.
- *Usus*, or right to use the thing, the other element of the right to enjoy the thing, corresponds to the possibility of using the thing materially.
- *Abusus* is the power to dispose of the thing in substance. This concept is divided into two capacities: *(i)* to alienate the thing by giving it away, destroying it. *(ii)* to dispose legally of the thing; in particular, to dismember its ownership.

Online Appendix C2 – Localising production, what contributions does economic theory make?

Production is the result of the combination of inputs such as labor, physical capital and intangible capital. Localising production means "allocating" a fraction of production to the territory where the inputs are located. This nevertheless raises two questions: *(a)* what fraction of the production is attributable to a particular input? *(b)* to which territories should mobile production factors such as intangible capital be linked? Should it be allocated to the country where the capital was originally conceived (i.e. R&D center), the territory where the capital is used, or the territory where the capital is legally registered?

With regard to the first point *(a)*, when the inputs necessary for production are located in the same territory, the production resulting from these inputs is allocated to the same territory. Beside, when inputs belong to different countries, breaking down output as a sum of input contributions would make it possible to allocate this output to the different countries of residence of the inputs. However, such an additive break down is only possible in the case of a linear production function (i.e. prefect substitutability of factors). Usual production functions such as the Cobb-Douglas do not allow an additive break down.

If the assumptions are strong to attribute to each of the factors its share in the production, they are less restrictive to break down the incomes resulting from the production. GDP is defined by national accountants according to three different approaches but the result is ultimately equivalent. The equivalence between these three approaches provides alternative distribution keys. Under assumptions about the production function, such as constant returns to scale, and competitive factor markets, production income is broken down by the *remuneration* of the different factors of production. Thus, if r is the marginal return on capital and w is the marginal productivity of labor, then the output in value pY is equal to: $pY = rK + wL$. Economic theory therefore provides a breakdown of income between the different factors of production, instead of a breakdown of production *per se*. However, the equivalence between the "income" and "production" approaches is not always perfect. If the return on intangible assets is overestimated at the expense of other factors of production that would be remunerated below their marginal productivity, the income allocated to the country to which the intangible assets are allocated will be overestimated in relation to its expected weight in production. Another polar case is that of a patent that falls into the public domain: while it does not stop contributing to production, its remuneration becomes zero (Blanchet *et al.*, 2018[a]).

In the end, the increase in Irish GDP in value may be rationalized by reference to points *(a)* and *(b)* such as the relocation of "floating" income and intangible capital in Ireland as it is legally registered there, without having an immediate knock-on effect on the volume of goods produced in Ireland, or employment.

[a] **Blanchet, D., Khder, M.-B., Leclair, M., Lee, R., Poncet, H. & Ragache, N. (2018).** La croissance est-elle sous-estimée ? Insee Références − *L'économie française* édition 2018, 59–79.
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