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Comment

Michael Connolly

This is a very interesting and stimulating chapter, particularly in light of globalization events in the recent past. It is a good addition to the literature on the subject of economic ownership, and research and development (R&D). The conceptual debate in the first half of the chapter concerning R&D in the public domain is particularly interesting, as are the case studies in the final section of the chapter.

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R&D in the Public Domain

One of the debates that took place in the lead into the 2008 SNA and ESA 2010 dealt with the treatment of R&D in the public domain. Three different examples are presented in the chapter as the authors revisit the decisions taken and the associated recommendations included in the 2008 SNA for capitalizing government or public domain R&D activities.

At the outset the authors outline the challenges in applying the concepts of a tangible capital asset to intangible assets, such as the nature of depreciation, which is not related to wear and tear but instead to obsolescence. Also a clear distinction is made between tacit knowledge related to human capital, which is not considered an asset in the current SNA, and codified knowledge, such as a patent or an intellectual property product, which is to be considered as an asset.

In this context the authors define the characteristics of an R&D asset in order to determine if it should be capitalized:

- The asset is subject to economic ownership and the owner receives a stream of future benefits.
- There is a degree of exclusivity, and the asset is protected through a patent or otherwise kept secret.

The three examples of government or public domain R&D are then considered to see if they really meet these requirements to be considered assets and be capitalized:

1. Areas where R&D could be capitalized and the recommended approach supported are government scientific research that can have an impact either in improving crop yields or environmentally, where a cleaner approach to agricultural production is developed. In these cases, a stream of future income would result from the research, and this R&D asset could potentially be sold by government.
2. Where a government carries out research into defense, the activity takes place in secret and the outcomes of this R&D are not available to the general public. On account of the limited access to the research, the authors support the decision to capitalize this type of R&D.
3. When the authors get to assess the 2008 SNA recommendations on scientific research that is reported in academic journals, there is not a meeting of minds. This activity is considered to lead to the creation of R&D assets in the 2008 SNA and is capitalized. In the authors' opinion this is a pure public good accessible to all and without any tangible evidence of an owner or a future stream of benefits as a basis for capitalizing the activity.

The guidance in SNA 2008 is that publicly available R&D is to be considered as a capital asset because it generates benefits for society as a whole. Nevertheless, the authors' position, as outlined above, is justified, as there

is no clear benefit that can be measured or imputed in relation to this particular example of the creation of a public good, and therefore no basis for estimating the value of this R&D asset in terms of the future income stream or asset life. Ultimately, it appears as if these particular recommendations in 2008 SNA really represent a pragmatic solution; in reality, distinguishing the time spent by postdoctoral students on university campus working for companies where assets are regularly created from R&D activities from the time spent writing academic articles is practically impossible. The nature of these calculations are that the specifics of every student cannot be individually considered, and it is practically impossible to allocate time between research activities leading to the creation of R&D assets and other research leading to the creation of public goods. In reality certain generalizations are applied with the result that this particular aspect of public research is included within what is considered the creation of R&D assets, most likely because to exclude them would be a difficult task in practice. In this respect, it must be clear to the reader that this is a concept paper, so the practical difficulties associated with the implementation of the authors' recommendations are not fully explored. In reality, we cannot overlook such implementation challenges.

R&D in Multinational Enterprises (MNEs)

Following on from the public domain R&D discussion the authors then consider the ownership of R&D assets that are the result of research and development in an MNE group. The main argument of the authors is that on account of globalization and the fragmentation of the physical transformation process, it is difficult to assess where the value of the intellectual property (IP) enters the production cycle and also who in the MNE is the economic owner of the IP. This dislocation between the development and use of intellectual property products (IPPs) is to be expected and is probably inevitable in MNEs, given their size and global reach, which is illustrated with the Samsung example in the chapter.

National accountants need to answer the following questions:

- Which entities in the MNE are investing in R&D?
- Which entities are consuming these R&D services?
- In which country production account are the R&D assets being depreciated?
- How do R&D activities and IP assets contribute to output and KLEMS productivity on a country-by-country basis?

However, as the authors explain, these can be difficult questions to answer.

Economic ownership of IP assets in MNE groups receives considerable attention. The recommendations of the Task Force on Global Production in relation to economic ownership of IP are referenced. In fact the UNECE

Guide to Measuring Global Production (UNECE 2015) contains the following decision-tree-style recommendations:

- IPP producers are also the owners of IPP,
  - unless a sale of the original to parent or subsidiary has occurred;
  - unless no IP-related turnover is generated—control by parent.
- Without conclusive evidence, assign ownership to the IP producer.
- Rerouting of ownership away from SPE /royalty companies is not recommended:
  - assign economic ownership to these units;
  - recognize a separate institutional unit that de facto becomes the owner of the IP assets—case of non-resident SPE;
  - record these SPE-related transactions separately.

However, the authors argue that these recommendations are not complete and require further consideration. In fact, assigning ownership of IP to the parent or the enterprise group is recommended as the only viable solution after having considered the consequences of the status quo where there is no clear association between the production and the benefits accruing from R&D investment. They maintain that in effect R&D activities are centrally controlled in an MNE group and accordingly the R&D assets should be also assigned to a central position. The alternatives for the location of economic ownership in the MNE group of R&D assets are either at the headquarters, at the level of enterprise group, or simply across the group in line with the current treatment. The authors favor the former alternative. Significantly, they say that "*assigning economic ownership to headquarters on behalf of the MNE requires . . . a careful examination of cross-border R&D flows as they are reported in the international trade in services statistics. R&D conducted by foreign affiliated entities may or may not be (partly) funded by headquarters (or by sister companies) or may even have been purchased. This means that the practicalities of such an approach need to be carefully thought through. . . .*" In the concluding part of this section the authors say, "*The choice of considering R&D as genuine corporate property seems attractive. However . . . the practicalities of such a choice should be carefully considered.*"

Although the chapter is a conceptual one, it is clear that the authors are aware of the practical difficulties that result from imputing ownership of R&D to the center or headquarters of an MNE, away from the point of observation. Or in other words moving away from the "follow the money" approach. This approach which is recommended by the authors requires a high degree of international coordination and of course data exchange between the statistical compilers of all the countries involved and may even ultimately involve the central collection of MNE data either regionally (EU, OECD, etc.) or internationally.

The proposals, in addressing one set of challenges and managing existing risks in the compilation system, do have the potential to introduce another series of risks. One risk is that a type of "spaghetti junction" is created with all of the rerouting and imputations of transactions associated with the IP viz. restated balance sheet positions in equity, intercompany loans and other balance sheet items, rerouted profits, services, IP assets, etc. from compiling countries where the transactions are reported to the headquarters of the MNE and so on. The opportunity to verify economic transactions through the actual accounts of the entities in the MNE would be lost in this scenario, and the continuity over time of balanced balance sheet positions would also be lost. This is before considering the impact of these imputations on the balance of payments and other key statistics. The symmetrical treatment by all national compilers involved is critical for the authors' proposals to work in practice. Indeed there is always the risk of some of these MNE entities not being observed at all by one of the national statistical compilers involved—for these proposals to work the level of international coordination required to avoid such scenarios would need to be comprehensive.

Tax Planning Case Studies

The final part of the chapter deals with two case studies relating to the location of intellectual property (IP) and tax planning in MNE groups. The case studies relate to particular structures established in Google and Nike. In these cases the authors use publicly sourced information to develop their understanding of tax planning, thus avoiding any confidentiality constraints.

The first case study illustrates how revenues are shifted from high to low tax locations through the charging for royalties against turnover or sales in affiliates in a high tax country. The corresponding income from the royalty or license charges is earned by an affiliate in a low tax economy, in this case Bermuda. This is described as "*creating an artificial reality as opposed to the true production linked economic reality*" by the authors. The authors explain that these scenarios could apply also to highly mobile tangible assets such as aircraft, in addition to R&D-type intangible assets.

In the case of Google, the so-called double Irish with a Dutch sandwich structure is discussed. The key question relating to this arrangement is the following: who is the economic owner of the intellectual property that the royalties and licenses are leveraged on:

- The unit in the Netherlands is little more than a conduit—and an SPE-type structure.
- The unit in Bermuda is an SPE-type structure.
- As with all MNEs, the "real" ultimate owner and beneficiary is the parent in the United States.

It is also interesting that the authors say it is defendable that Statistics Netherlands record these royalty flows in the financial accounts. Clearly, if other countries involved as counterparts to these transactions record the royalties as imports of services, there will be significant asymmetries at EU level in addition to the country asymmetries.

The discussion in the case study argues that the royalty income earned in Bermuda doesn't appear to be included in reported Bermuda GDP and is therefore lost to the international system of measurement and world GDP, although the profits earned in Bermuda of course do return to the United States as reinvested earnings and are thus recorded in US GNI.

The second case study relates to Nike Innovate C.V. in Netherlands. These C.V. companies are "fiscally transparent entities,"[1] meaning that the entity is considered a US resident from the Netherlands perspective and considered a Netherlands resident from the US perspective. This setup is quite similar to the double Irish sandwich, where the Google entity is considered a Bermudan resident by the Irish authorities and considered an Irish resident by the US authorities. However Nike Innovate C.V. is effectively a stateless entity, whereas the Google Ireland Unlimited is a Bermudan resident.

The consequence of these arrangements from a national accounts point of view is that GDP being generated by these activities is being lost to world GDP. The authors have investigated the level and trends in Bermudan GDP and also the counterpart recording of value added between Netherlands and the United States for Nike, and in both cases there are gaps in the recording of these activities. To remedy this situation the authors consider stricter implementation of economic ownership as it applies to IP. A consequence of this arrangement would be that IP located in Bermuda and the Dutch C.V. company would be attributed directly to the parent in the United States. However this would entail a considerable number of imputations as outlined earlier. The SNA however discourages imputation, and additionally the UNECE *Guide to Measuring Global Production* in paragraph 4.44 encourages compilers to remain close to statistical observation, even in clear cases where legal ownership does not match with the SNA principles of economic ownership. The consequence of the level of imputation or rerouting of transactions suggested by the authors would be that the risk of asymmetries becomes substantial.

There are of course other issues to consider. Firstly, following the adoption by most OECD countries of the recommendations of the OECD Base Erosion and Profit Shifting (BEPS), many of the tax optimization arrangements are being ceased. For example, the Double Irish sandwich

1. Fiscally transparent entities (FTEs) are entities wherein the owners and investors are taxed for the income earned by the entities and not the entities themselves. The income flows through to the investors and owners of the entities. These entities are considered as non-entities for tax purposes, because all the burden of taxation is borne by owners and investors. Common forms of FTEs are partnerships, Limited Partnerships, and LLPs.

is being completely phased out in 2020, and stateless entities in Ireland are now assigned Irish residency (taxation and registration) if such a scenario arises after 2015. There are also many similar legal changes to the national tax codes that may well end the C.V. preferential arrangements in Netherlands and elsewhere. In this case it seems best to await the outcome of these changes before making radical changes to the SNA.

Of course in the meantime the MNE accountants and tax advisers will probably devise other ways of structuring their activities that will be BEPS compliant but still pose other measurement challenges for national accountants and statisticians.