

## **Extending the Asset Boundary to Research and Development**

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One of the main changes of the new SNA to be published in 2008 (called officially SNA 93 Rev 1, but that we dubbed here SNA 2008) will be the extension of the asset boundary to cover Research and Development (R&D).

The current situation with the SNA 93 is that R&D expenditures are not recognized as Gross Fixed Capital Formation (GFCF) despite the fact that the Manual recognizes that they are inherently investment in nature. The SNA 93 recognizes patents as assets (called “patented entities”) but they are not produced and thus appear, as a miracle, in the other change in volume account, and not through GFCF. Overall, the SNA 93 recognizes those assets created by R&D which generate a monetary flow between units (copyrights on patents), but denies their connection with R&D production, and does not recognize at all R&D assets whose services are consumed by their owners. However, the SNA 93 was a progress compared to the SNA 68 in the fact that monetary flows associated with patents are recorded in SNA 93 as income from sales of a service, rather than property income. Clearly, the authors of the 1993 SNA thought that patents were produced assets but backed from going to the end of the rationale. This prudence is explained in paragraph 6.163 where three reasons are given: need to have a clear criterion from delineating R&D activities from other activities; be able to identify and classify the assets produced; be able to value the assets and depreciate them.

The AEG (committee set to organize the review of the SNA 93) has decided in July 2005, in its Bangkok meeting, that the new SNA will recognize the output of R&D activities as produced assets. The AEG has however distinguished two separate types of R&D: the one not free and the one made freely available. In theory, the SNA 2008 will not recognize as assets the output of R&D which is made freely available to the public. It will recognize only the assets for which one must pay for. However, the SNA 2008 will also state that, because of practical difficulties of estimation of the breakdown between free and non free outputs, both will be in practice included in the value of R&D assets. This means that all expenditures on R&D will be treated as investment and no more as intermediate production.

The immediate implications are the following. Expenditures in R&D of business will be treated as own-account production of R&D assets. This will increase the level of the gross value added of the business sector, by increasing the level of gross operating surplus. Indeed, the production will be higher; while there will be no additional intermediate consumption or labor costs or other costs. Expenditures on R&D of Government (public research, universities) and of non profit institutions will also be treated as own account production of R&D assets. This will correspond to a substitution of GFCF to part of the final consumption of these sectors. Production of these sectors will be increased through the inclusion of more depreciation (of R&D assets), thus also an increase of their gross value added. Overall, the level of GDP of countries that have significant R&D expenditures (mainly OECD countries) will increase by between 1 to 4%, compared to countries that have little R&D (countries in development). This change should not however have any significant impact on Net Domestic product. One amazing feature will be that the R&D expenditures of software editing companies will be counted twice: as R&D asset, and as the value of the original software.

The discussion in the revision process went long three lines: (1) should all R&D expenditures be recorded as GFCF? (2) how will one measure R&D assets in practice?, (3) what will be the deflator and the depreciation?

1. The committee decided to include all expenditures because simply all R&D qualifies as capital formation because consumption is foregone for the sake of future benefits. Regarding basic public research, even those which may be undertaken without any specific economic goal in mind, in fact are undertaken in the belief that there will be future benefits. Regarding research made freely available, the committee decided not to include it, but agreed to accept that, in practice, it would be included. Thus all R&D expenditures will be capitalized in the SNA 2008.
2. The proposal to measure R&D in practice is to use expenditure data collected under the aegis of the "Frascati" manual. 89 countries have surveys using the concepts of Frascati.
3. The proposal is, in the absence of direct price indices, to deflate R&D expenditures using input price indices. Work is needed to propose acceptable depreciation rates.

This change of the SNA will certainly be, in the history of national accounts, the one associated with the SNA 2008. It is an ambitious change, but without ambition there is no progress. The OECD is planning to start, as soon as 2006, the drafting of an implementation manual in order to have an internationally comparable implementation of this change. It is not expected that the SNA 2008 will be implemented before 2012.