

## **PRISM WP5: Part 1; Feb 02**

### **The measurement of intangibles in macroeconomic statistics**

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#### **Proof of Concept Report: Introduction and Summary**

##### **Project Objectives**

1. To demonstrate why a new taxonomy is needed in macroeconomic measurement systems.
2. To illustrate what that taxonomy might look like – and why.

##### **Structure of work**

In this project we are interested in examining macroeconomic statistics' deficiencies in providing useful information with regard to investments made in Intangibles and their economic impact. We are focused on estimating the size and impact of those deficiencies, and in the possibilities for improving the situation. Accordingly we are pursuing three lines of work.

1. *We are revisiting some of the conceptual and definitional issues.* The objective of the review is to provide a base from which, during the life of the project, we will gradually devise a framework for the development and improvement of the data collected and presented in macroeconomic statistics. Such thoughts will form the heart of the third and final report in the series.

Jack Triplett<sup>1</sup> clearly outlined in Baruch Lev's recent book that part of the difficulty in measuring intangibles starts with the difficulties in defining them, in agreeing what should be included. Without clear definitions and lists as with tangibles, he says, collecting statistics is riven with problems at the outset.

2. *We are building a numerical picture of the macroeconomic scene;* in particular, we are focused on data which provides insights on the significance and impact of so-called intangibles within the economy. This statistical review should do two things. First, it should show there are significant investment flows which are not being conveyed to the end user and which are of sufficient scale as to materially misrepresent trends within economies. This should in effect underline our case that macroeconomic statistics needs revision and attention from a broad range of people to improve the relevance, accuracy and utility of the information it is providing. Second, it should pinpoint where the deficiencies are. This will provide further input for the development of the "new" framework in the third report of the series.

The overriding objective of the collection of empirical evidence is to make a contribution to breaking the vicious circle Baruch Lev argues has formed around improving how we account for, and report on, intangibles within the economy. Lev argued that policy-makers will not grasp the baton, take hold of the issue and stimulate the necessary regulatory change to improve information provision on intangibles at the micro level until macro data demonstrates the scale

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<sup>1</sup> Jack Triplett is a visiting fellow in the economic studies program at Brookings

and the implications of the deficient information systems. Yet the paradox is that macro data is constrained by the very deficiencies at the micro level which we are trying to solve. This is a case of needing data first to decide how you are then going to collect that data.

3. *We are devising a new framework for collecting and classifying data on so-called intangibles.* This will draw heavily on the inadequacies of the status quo and the needs of the users, as identified in the first two parts to the report.

## **Progress Report**

For the purposes of “proof of concept”, we have produced three documents for each of the three lines of work described above. A brief summary on each one is provided below.

### **Revisiting Intangibles – a misnomer?**

There are a number of different views, definitions and practices in circulation when it comes to understanding what we mean by “intangible assets”. It is important for the reader of our work to be clear what *we* mean by the term in our study of the measurement of intangibles in macroeconomic statistics. This report provides an overview of the range of concepts, definitions and practical treatments of intangibles in current circulation. We have concentrated this investigation on the most relevant interest groups, in particular the national and business accountants, but have also looked at the ideas generated by a selection of leading thinkers’ and organizations’ work in this field.

We have three major observations on current practices within the national accounting system:

- Firstly, there are some anomalies and inconsistencies in the current fixed asset threshold. The door to the club has been opened, but only a few members admitted.
- Secondly, a number of restrictive criteria for asset recognition exist which may not be wholly appropriate or justifiable
- Thirdly, one has to consider whether our fixation on providing a financial valuation on everything impedes the provision of the most useful information. Where we find flows of investments in intangibles hard or inappropriate to convert into stock figures, does that preclude disclosure of the information in any format?

Our review of business accounting conventions and practices reveals some significant differences between national accounting standards – both in their principles and in their application. What this means is that, to the extent that business accounts feed macroeconomic data, national statisticians are going to be limited in the quality and quantity of output on intangibles which they can provide policy makers and the like without major progress in this regard

And yet, whilst the linkages between macro and micro are clear, consideration must also be given to the differences, in particular to how assets might be conceived (or even measured) in different ways. Whereas the future benefits of individual research and development projects, for example, are indeed hard to estimate (certainly with much reliability), this is arguably not true at the aggregate level. The power of big numbers and portfolio characteristics would seem to allow an opportunity for more reliable data at the macro level – so long as the expenditures and other pertinent information was disclosed.

Our review concludes with three preliminary thoughts:

- **Tangible-Intangible – is this dimension too limiting?**

It seems to us that the definitional difficulties which have arisen in the intangibles field are partly a result of the terminology and classifications employed. Use of the term, Intangible, and its frequent definition as anything that is not tangible, conceivably sets the wrong thought pattern. In our survey of writings about intangibles, we have found examples of so-called intangibles which actually have little in common with tangibles. They are woven into the fabric of organizations and are not readily definable, separable or tradeable. On the other hand, there are intangibles which have everything in common with so-called tangibles. Intellectual property is produced just as much as a factory.

- **Fixed Asset or Expense – is this a restrictive pattern of thinking?**

We are initially tempted to get away from some aspects of current thinking as they lead, in accountancy and information disclosure terms, to arbitrary distinctions being drawn between fixed assets and current expenses. These produce end results which, arguably, help nobody. In general, the accountancy profession takes the view that if expenditures do not lead to assets which are clearly identified, delineated and easily quantified in financial value terms by reference to a market, then such expenditures are not investments. Under current practice they not only do not lead to assets, but, worse still, they are not even disclosed. This fixation on financially valuing everything is arguably impeding the provision and disclosure of useful and relevant information. As argued by the Roos, information on flows is highly valuable.

- **Micro and Macro are closely linked – but not rigidly so**

Different things will be relevant at the two different levels. Some assets which are excluded at micro level on the basis of lack of control might be considered assets at a national level or where spillovers might occur. Any sensible information system must take into account these ideas.

We believe macro statistics can part from micro in some ways. We need to distinguish between macro's need for micro's data-feed and any such need to slavishly follow the same accounting conventions or management systems.

## **Intangibles – an empirical study of macro data**

In this report, we have collated as much data on intangibles as we have been able to find in the time available. Working within these constraints we have been able to collect information on some aspects of intangible “investments” made within a sample of 8 OECD countries, 7 of which are EU members.

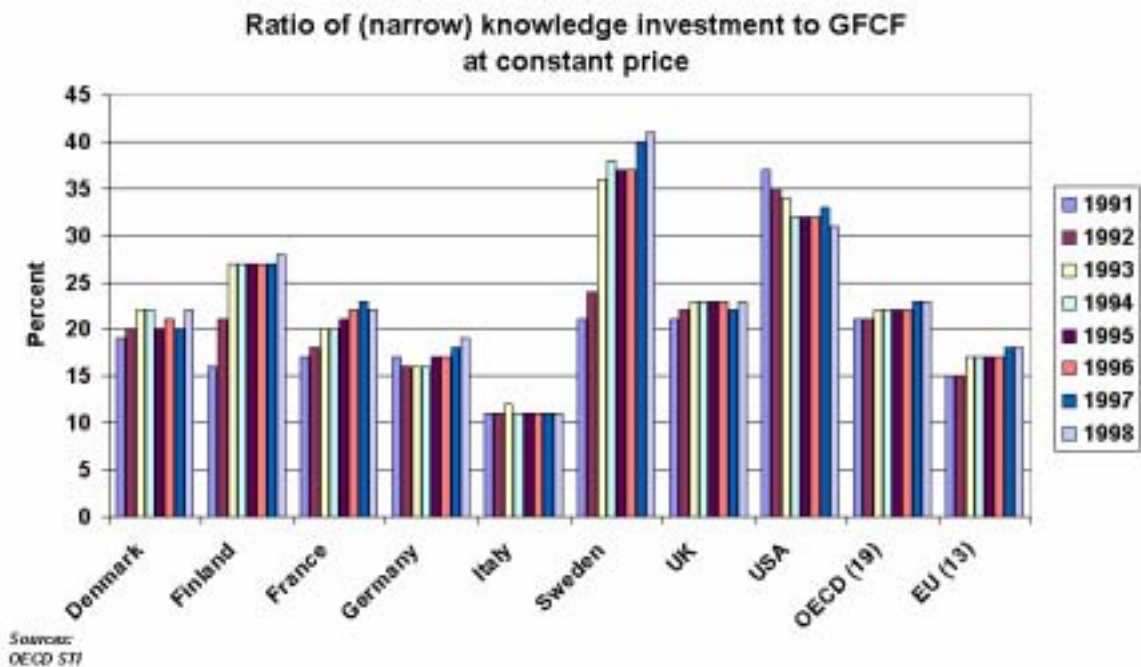
At this point we have started to build up a picture – but we are limited by the availability, quality and comparability of data. The data we are using is by no means perfect. There are a number of measurement and comparability issues which will be explained and outlined in more detail in a later version of this report. However, from the data we have unearthed thus far we are confident on one major point – namely, that the intangible investment numbers are statistically significant and deficiencies in their collation will create statistical bias.

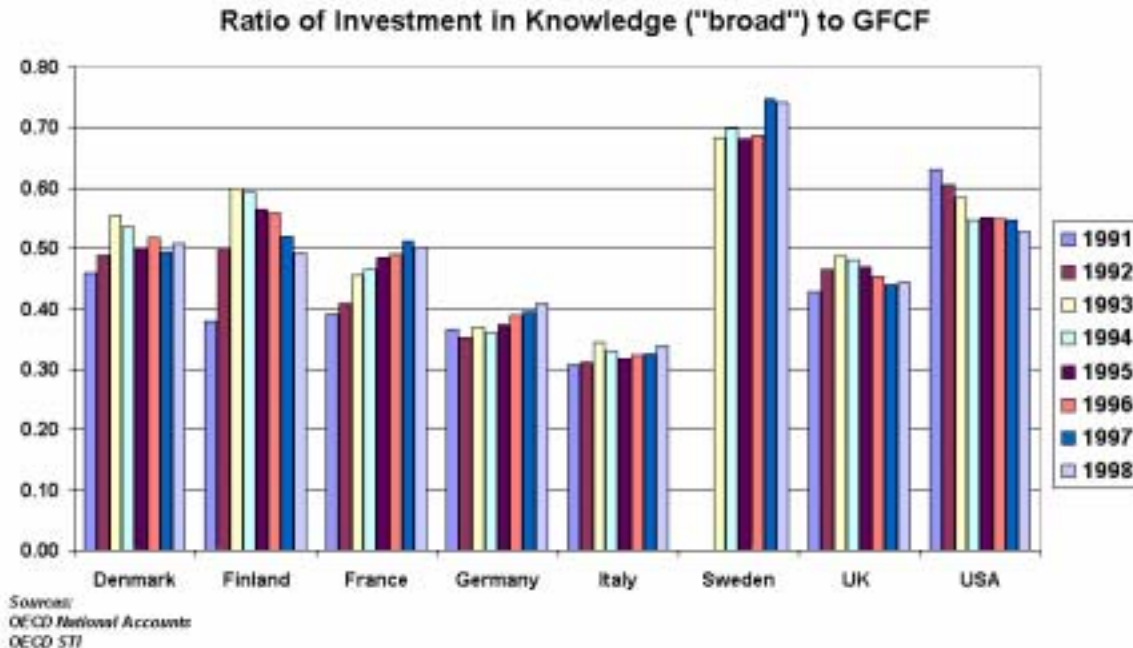
This underlines the relevance of this project’s concept – that a new taxonomy needs to be developed if macroeconomics statistics and national accounts is going to provide the best estimates it can of the realities of the 21<sup>st</sup> century.

We have drawn on data used by the OECD in its recent “Investment in Knowledge” paper. The OECD calculated investment in knowledge as the sum of expenditure on R&D, on education (from both public and private sources), and on software. Two views of the total investment in knowledge are presented, one which includes all education expenditures (the “broad” definition) and one that only includes higher education (the “narrow” definition). These have been compared with national account’s Gross Fixed Capital Formation which is largely, but not wholly, an aggregate of investments in physical assets.

There are three clear messages of substance which have emerged thus far from our collation of the numerical evidence:

1. The intangible investment numbers are sufficiently large as to warrant greater attention to improving their reliability and their separate and clear disclosure.
2. Investment in intangibles has been growing relative to investments in tangibles for most countries. Depending on the definitions used, knowledge investment may be as much as a half that of investments in tangibles.
3. Rates vary across countries. The collation of reliable and comparable data will make interesting benchmarking for the future. Our preliminary data search has suggested some fundamental structural differences between economies.





## **Recording and Classifying Intangibles: Towards a new asset boundary and a new taxonomy in the SNA**

In this final report, we have started the process of devising a new framework for national accounting. What we have tried to do in this draft of this paper is to outline the problems that need dealing with, rather than to suggest solutions, even tentative ones. We are at too early a stage for solutions. We have tried to give an SNA perspective and explain why some kinds of assets that otherwise we might be happy to lump together need to be separated for SNA purposes.

There are two major problems with the existing SNA asset classification:

1. The first is that, even if we accept the system's own criteria and definitions, there are entities that qualify as assets but are not being recorded as such. For example, R and D is generally accepted to be a productive activity in an SNA sense but its outputs are not recognized as assets. At the time of the 1993 revision of the SNA, many national statistical offices objected to capitalising R and D because they stated they could not implement such a treatment. However, the SNA is presented as being a conceptual system in which economic theory and principles take precedence. In general, difficulty of implementation is not accepted as sufficient reason for not doing something.
2. The second problem is that there are no human assets in the SNA. Educational services are treated as final consumption. Training provided by businesses is intermediate consumption. The treatment of human capital in national accounts is controversial. At the present time, knowledge is not treated as an asset in the SNA and does not figure anywhere in the existing asset classification even though in economics it is generally accepted that the knowledge and skills possessed by individuals are assets. On the other hand, the SNA does treat information, or at least some kinds of information, as an intangible asset: for example, the information obtained by mineral exploration. Knowledge possessed by people should be

distinguished from information, as information can exist and be stored independently of people in media such as paper, tapes or disks. The output of R and D is essentially new information and can be classified as a produced intangible asset within the SNA without introducing human capital into the System.

The concept of a non-produced intangible asset is not clear and not satisfactory in the SNA. Such assets may be created in some way but are not produced as outputs from processes of production. They are described as ‘constructs of society that are evidenced by legal or accounting actions’. This may be too restrictive even as a general description. The kinds of assets that could fall under the heading of non-produced intangibles are patents and copyrights, licences and franchises, and contracts and leases. Certain characteristics shared by the assets listed above may be noted. For example, most seem to have in common that they are related to property rights in one way or another. They may be intended to impose restrictions on the activities of actual or potential competitors by making it more difficult, or more expensive, for them to compete. They are not expected to increase productive efficiency but rather to make markets less perfect. The assets often involve relationships with third parties, either competitors or customers. In this respect, they have some similarities with financial assets and liabilities. Most of these kinds of assets do not even get a mention in the SNA.

## **Next Steps**

- The initial ideas on what definitional aspects of assets and intangibles might usefully be reviewed will be further refined and will provide the basis for the way forward. Reappraising these with a clear eye on what is useful to the user in indicating economic impact will lead us, in the third strand of our work, to a re-conceptualisation of so-called intangibles, and to proposing some classifications and categories for a new macro framework. This will link with the empirical report’s findings.
- There are three areas on which we are focused for transforming the preliminary empirical report into a finished article.

### **1. Unearthing more data**

We will continue to look out for relevant data-sets to build as complete a numerical picture as we can of intangibles within the macro-economy.

### **2. Outlining the weaknesses and problems with the current data sets**

We have alluded to some of the conceptual and measurement difficulties which exist with the data we have presented. In this preliminary paper we have chosen to ignore them. Later versions of this empirical report, however, will provide more detail on this and what, if any, efforts are being made to address them. We will also consider the statistical impact of missing (or mis-classified) data.

### **3. Pinpointing what data would be useful for the future**

Our work on the first two points will enable us to identify the key areas which need to be addressed going forward. To improve data availability we will need to find a solution in alignment with the sources of such information – at the micro level. We first need to define

what it is we need, and what framework and what classifications would offer the end user improved information.

- For the third part, the direction will partly be set up by the development of the first two parts. It is clear, though, that the project will have to work through the entire range of possible intangible produced and non-produced assets to see how they affect production and GDP and what kind of economic function they serve. These factors will be taken into account when classifying the assets in the SNA and not only the way the assets are perceived by individual firms concerned.