

Summary of session on “Links between Micro and Macro Data I”

Chair: Aurel Schubert¹

Paula Menezes (Banco de Portugal) “Pre-conditions for integrating micro-databases”

In order to cope with the insufficiencies of multiple isolated systems, in some cases legacy systems, built with the sole purpose of addressing specific needs the BdP decided to develop a business intelligence (BI) architecture, to be used as reference in all future IS/IT developments in the statistical area and capable of promoting efficient data analysis. The framework is built upon three pillars: (i) a reference data management centre, (ii) a data warehouse (DW) and (iii) a common IT platform. The centralised reference database, developed on the basis of the already existing Reference Information Sharing System, provides the connecting elements of statistical data from different sources and, ultimately, is the main guarantee of the possibility of integrating the information, enabling cross-linking information from different sources and systems. The DW guarantees a central access point to every statistical data, independently of the input source or the production process; a common technological infrastructure across multiple information systems makes it easier to integrate and reuse components and promotes data access efficiency and transparency to final users. According to the BdP experience the recommended strategy in developing a BI architecture includes an incremental development of the individual projects as a way to reduce risk and achieve rapid results, joint project monitoring by IT and Statistics Department, shared responsibilities with the IT Department (i.e. benefiting from its specific technical knowledge and, by the same token, securing the degree of autonomy necessary to meet the changing requirements and business rules) and adequate post-implementation support on the part of the IT Department.

Ivette Fernández (Banco Central de Chile) “Use of tax micro-data for the compilation of the Chilean financial accounts”

In National Accounts or other statistics tax records are frequently used in case of incomplete information on the measured macroeconomic variables. In Chile aggregated (i.e. non-confidential) fiscal data are used as provided by the Internal Revenue Service with a monthly or annual frequency. However, it is crucial to analyse the information through statistical analysis and by comparing it with the detailed information of other sources and surveys, before utilising it. More precisely tax data is used to measure different macroeconomic variables, for both National Accounts and Financial stability, such as monthly indicator of economic activity, production and sector accounts, distributions of the profitability of enterprises; indexes of housing prices, real estate statement and various (internal) economic and financial studies. Currently the Banco Central de Chile is working on a medium-term project, which attempts to integrate different statistical-financial micro data sets, including tax data, financial statements, credit databases, securities-by-securities

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databases and real estate databases with the objective to integrate these databases in a data warehouse. In addition, it is foreseen to use business intelligence tools to visualize, analyze, aggregate and link information of different micro-data sets.

Johannes Turner (OeNB) "Micro-data – the Austrian concept with more granularity as a lesson learned from the financial crises"

The financial crisis has shown that any tailor-made aggregated reporting forms are eventually not flexible enough to cover new data requirements. Instead only micro-data and a suitable analytical framework can answer today's questions. This motivated the OeNB to start a joint project with the reporting banks to build up a flexible and harmonised data collection system.

A key element of the new forthcoming data collection system is the so-called **basic cube** that provides an exact, standardised, unique and hence unambiguous definition of individual business transactions and their attributes. While not being enforced by any legal obligation this basic cube is supposed to describe the entirety of a bank's information basis and has been modelled jointly by banks and the OeNB. Based on this basic cube, banks aggregate or calculate and report (most of them with a jointly developed software) the second key element of the new system, the – legally obligated – multi-dimensional **smart cubes**. These cubes allow the compilers and analysts in the OeNB to use the collected data in a consistent and flexible way. Examples of these micro data cubes would be ISIN cube or loan cube.

In particular the SSM opens a window for introducing a single, granular micro data model with harmonised and consistent data. These micro data allow, for instance, analysing individual banks and risks in an efficient and flexible way.

Saban Murat Cakir (Türkiye Cumhuriyet Merkez Bankası) "From data to information and from information to policy-making – the story of the Integrated Company and Industry Analysis Platform"

The final case study was the example of the big project to completely redesign the Turkish Company Accounts and Financial Ratios which illustrated the challenges of the introduction of new compilation and analysis technologies, such as the change management, psychological issues of users and stakeholders, promotion and marketing of new solutions and other financial and institutional constraints.