The 12th OECD-NBS Workshop on National Accounts   October 2008

Research on Real Value-added Measure of the Finance Industry in China (LU Feng, NBS)

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The measurement of the output of the finance industry is one of the most difficult areas in national accounting and this has been the case for many years. Measurement issues along with structural changes in the industry, product evolution and rapidly changing technology in the industry add to the measurement challenges. Evidence of these challenges can be seen in the evolution of international standards since the 1968 SNA. The notion of FISIM was introduced in the 1993 SNA but its allocation to institutional sectors was optional. With SNA 2008, more specific recommendations were forthcoming on the allocation of FISIM and on the treatment of "own funds". Similarly, measuring insurance output has evolved over the last couple of decades.

Banking Industry

Value added is estimated by NBS as the sum of compensation of employees, taxes less subsidies on production, consumption of fixed capital and operating surplus. Operating surplus, if constructed from financial reports of banks, may contain dividends and capital gains/losses which, in principle, should be excluded.

Nominal output at the NBS is divided into three parts:

- Interest receivable less interest payable
- Inter-bank transactions receivable less inter-bank transactions payable
- Other output of the banking industry (measured by explicit charges)

This leaves intermediate purchases, which is equal to output less value added, as a residual. Alternatively, intermediate inputs could be estimated and then given the measure of output, surplus could be derived residually.

The reference rate approach is not currently used to calculate FISIM as it is estimated as the difference between interest receivable and interest payable. However, the paper mentions that NBS will research the reference rate method.

NBS deflates each of the banking output components noted above separately. Interest receivable is deflated by the growth of the one-year loan rate. Interest payable is deflated by the one-year deposit rate. The NBS acknowledges that the annual mean interest rate should be determined by a weighted average method where other loan and deposit terms are considered. Inter-bank transactions are deflated by the inter-bank offered rate and other output is deflated with the CPI.

At Statistics Canada our approach recognizes that financial services provided by banks and other financial institutions consist of explicit and implicit service charges. Explicit services charges refer to fees which are extracted directly from the financial statements of the financial institutions and include fees for currency exchanges, estate planning, mortgage fees etc. Implicit service charges represent charges for deposits and loans which are paid for indirectly through variations in deposit and borrowing rates. Our approach in imputing a nominal value for these implicit service charges is by taking the difference between the property income receipts of financial institutions minus the property income paid and adjusting for the income that has been earned by the financial institution from its own funds. Property income is presently defined as interest only and excludes dividends received and holding gains and losses.

Eventhough the international community has only recently agreed on a sector allocation of FISIM, the Canadian national accounts had adopted this method quite some time ago. The Canadian accounts have used a reference rate that is the average of the loan rate and the deposit rate. We are planning on revisiting this practice in light of international discussions.

As mentioned earlier, banking services are composed of explicit and implicit charges. The explicit services provided by banks are deflated using average earnings in the financial industry. As for the implicit service charges, a volume indicator is constructed by multiplying the base year FISIM value by the inflation-adjusted financial assets and liabilities. The assets and liabilities are deflated by the overall CPI. This procedure provides a volume indicator of the constant dollar growth rate in assets and liabilities. Dividing the nominal value of FISIM by the volume series yields an implicit price index.

NBS could consider this approach which is also followed by many European countries.

While the growth in the volume of assets and liabilities is a reasonable proxy for real growth in output, more research is required in this area. Some of our data users have argued that productivity growth in the banking industry has not been growing in line with the technological and product innovations that we have seen in this industry. For this reason, Statistics Canada is developing a bank service producer price index which recognizes the various types of banking services such as risk monitoring and risk management, liquidity, information processing, payment services, safe-keeping and asset transformation. These services are often bundled into a variety of financial products. Our proposed approach is to price the various types of bundled services, e.g. chequing accounts, residential mortgages by attempting to estimate an average price for a homogeneous set of services while keeping quality fixed.

Insurance Industry

Nominal output at the NBS is estimated as premiums less claims. It is suggested in the paper that if expected claims were used that this would produce a smoother series and one that is more intuitively correct. It is not clear from the paper whether output of insurance includes premium supplements.

SNA 2008 suggests using expected claims rather than actual claims. In addition, expected premium supplements (expected investment income) should also be included in the measurement of nominal insurance output. For national accounts both production and consumption of insurance services should be invariant to the volatility of claims incurred by the industry. The paper mentions that China had experienced many natural disasters which have affected claims payable.

The NBS appears to be using a weighted average of the CPI and IPI as a deflator for insurance output. An alternative would be to use deflated premiums as a projector for the volume of insurance output. The NBS could deflate nominal premiums by the CPI for insurance premiums if these data are available. Another alternative for a volume measure would be a combination of the number of policies in force and deflated invested assets.

At Statistics Canada nominal output is estimated separately for life and non-life insurance components. For life insurance output is derived as:
Total actual premiums written
Plus total premium supplements (income from investments)
Less total claims due
Less changes in actuarial reserves and reserves for with-profits insurance

Volume estimates are based on the double deflation method with the output projected on a combination of the number of people insured and deflated invested assets.

For non-life insurance, nominal output is based on premiums earned plus premium supplements less claims incurred. Commodity output is further subdivided into four sub-components, namely auto, property, accident and sickness and miscellaneous. Related CPI's e.g. CPI for private and public auto insurance are used to deflate premiums in each of these categories and these become the volume indicators for the outputs for non-life insurance. In other words the volume measure for non-life insurance is based on deflated premiums. To complete the estimation of real output for the industry, inputs are subsequently deflated and real output becomes the difference between real outputs and real inputs.

Security Industry

The NBS notes that the strong nominal growth in the security industry partly reflects the rapid increase in stock prices. For this reason the NBS concludes that the weighted average of the CPI and IPI is no longer an appropriate deflator. A deflator that reflects stock price increases such as the Shanghai Stock Exchange Composite Index is one possibility to improve the deflator. Another alternative, one that we use in Canada, would be to use a volume projector such as the number of stocks traded.