A review of SPPI for Banking Services

Final Technical Implementation Report

Thomas Olsson
Service Producer Price Index, Price Statistics Unit, Statistics Sweden
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1 Summary

This report is a review of the Service Producer Price Index (SPPI) for banking services. The review was conducted because in 2007, the Price Statistics Unit at Statistics Sweden noted that the SPPI that was produced was not optimal.

The production within the banking sector is divided into two product groups: FISIM (Financial Intermediation Services Indirectly Measured) and direct banking services. FISIM includes those services that financial institutes produce in connection with deposits and lending, but do not directly charge for in the form of commissions or fees. The direct bank services are services for which an explicit fee or commission is charged, and are roughly divided into two equally large groups: Payment mediation commissions and securities commissions. Previously, only payment mediation commissions were measured in the SPPI.

During the review it was clear that if the National Accounts (NA) were to be able to use the SPPI, improvement in quality was needed as well as the inclusion of securities commissions. FISIM is deflated with the GDP deflator, in line with what is recommended by the EU; this was not changed. The following changes were carried out as of 2009:

- The number of measured payment mediation services was decreased. The services that continued to be measured are now described in more detail.
- Securities commissions were included.
- Prices are collected via the web instead of on paper forms.
- Separate indices for household consumption and industry production are produced so that the NA can deflate banking services on both the supply and use sides.

Today four indices are produced; these are then weighted together to one index for household consumption and one for production:

1. Payments - consumption
2. Securities - consumption
3. Payments - production
4. Securities - production
2 Introduction

2.1 Background for the review
This review was initiated when the Price Statistics Unit at Statistics Sweden noted in 2007 that the SPPI being produced was not optimal. The index had developed in a way that could not be explained in a satisfactory manner. Because it was also revealed that the SPPI was not used by the NA, it was decided to review the index in 2008.

2.2 What is to be deflated
The production within the banking sector is divided into two product groups in the NA: FISIM and direct banking services.

FISIM
FISIM is an abbreviation for "Financial Intermediation Services Indirectly Measured" and refers to those services that finance institutions produce in connection with deposits and loans, but do not get directly paid for in the form of commissions and fees. The value of this production is defined as:

Lending: Interest income - (Reference rate*Lending reserves)
Deposits: (Reference rate*Deposit reserves) - Interest expenses

The reference rate corresponds to the risk-free cost of the loan. STIBOR (Stockholm Interbank Offered Rate) is used as an estimate of this - the interest that Swedish banks pay when they borrow money among themselves.

Direct banking services
These are services for which an explicit fee or commission is charged. The services can be divided into the following groups:
- Payment mediation commissions
- Lending commissions
- Deposit commissions
- Guarantee commissions
- Securities commissions
- Other commissions

According to information from NA, direct banking services are dominated by two nearly equally large parts: Payment mediation commissions and Securities commissions; other items are of less importance since the production values are small. Previously in the SPPI, only payment mediation commissions were measured. This was because it was previously assessed that NA's own produced index for securities commissions ("Fund index", see below) was acceptable.

Deflation previously
FISIM in constant prices was calculated by re-calculating lending reserves and deposits reserves to the price level of the base year. This means that volume development of FISIM will be equal to the development of the real loan reserves (loan reserves in constant prices). The loan reserves are deflated with the GDP deflator (the implicit price deflator for the final domestic demand). This is in line with the recommendations of the EU (see Council Regulation (EC) no 448/98).

Direct banking services were deflated by using NA's own "Banking service index". This index consists of two sub-indices - Fund index and Salary index. The fund index is the development of fund wealth and the Salary index is the development of salaries for white collar workers in the financial industry. The
banking services index is weighted between the fund index and the salary index with the help of household consumption of securities commission. The banking services index is calculated as:

\[
\text{Fund Index} = \frac{\text{Household consumption of securities commissions}}{\text{Household total consumption of commissions}} + \text{Salary Index} \left(1 - \frac{\text{Household consumption of securities commissions}}{\text{Household total consumption of commissions}}\right)
\]

That which NA calls the fund index is, as explained earlier, the development of fund wealth. In the index for household consumption, this is equal to the development of households' wealth, while that for production is the development of total fund wealth. However, as a basis for weights, household consumption of commissions is used in both cases. The use of development of fund wealth as a measure of price development for securities commissions is based on an assumption that the price is a fixed percentage of fund wealth. That is, all expenses for handling of securities are in proportion to the amount (ad valorem prices) and the percentage rate is constant. To measure the development of fund wealth correctly, adjustments are made for purchases and sales during the period. By doing so, volume changes are removed.

3 SPPI before the review

When the SPPI for banking services was developed in 2004, it was decided that only payment commissions would be measured. The idea was that SPPI would replace the Salary Index in the Banking Services Index of the NA.

3.1 Method for price measurement

Most of the prices that were collected were unit prices. For each service, the banks divided turnover with the number of transactions carried out. For some services list prices were used.

3.2 Weights and calculations

The banks had weights according to their turnover. At each bank, each service had its own weight based on the bank's income from the service.

3.3 Method of data collection

All data was collected from the banks via Excel files they sent by e-mail.

4. Identified problems

4.1 Coverage

As mentioned above, production is divided into two parts: FISIM and direct banking services. Direct banking services are dominated by payment mediation commissions and securities commissions. The previous SPPI only measured payment mediation commissions; the NA then used other deflators to calculate production values at constant prices for other parts.

4.2 FISIM

Since it is difficult to observe a price or quantity that correctly describes the value of FISIM most countries thus do not include it in their price index for banking services. However, the US does, and when the price index for banking services is discussed within Statistics Sweden, we often refer to the American index. Therefore this index is studied in more detail. The information has been taken from Deanna Egglestone's paper for the meeting of the Ottawa Group in Paris 2003 (U.S. Producer Price Index for Banking).
The US method for measuring prices of banking services is based on a user-cost approach where lending is seen as an asset of the bank and deposits are seen as a debt of the bank. An important part of the calculation of the financial service is the reference price, that is, the opportunity cost rate of money (does not include intermediary services, that is, the reference rate). The price to have bank assets at one's disposal (that is, to borrow) is equal to the difference between the cost of the customer (paid interest plus fees) and the reference rate. The price to have one's assets managed by the bank (the debt of the bank) is the difference between the reference rate and the cost of the banks to possess the debt (paid interest minus fees). The same reference rate is used for lending and deposits alike. The prices for lending and deposits are calculated as:

Price for lending: 
\[
\left( \frac{\text{Interest income + Fees}}{\text{Loan balance}} \right) - \text{Reference rate} \times 1000
\]

Price for deposits: 
\[
\text{Reference rate} - \left( \frac{\text{Interest payments} - \text{Fees}}{\text{Deposit balance}} \right) \times 1000
\]

The US method thus means that FISIM (according to the Swedish definition) and income from commission is calculated together and then divided by the loan reserves. This is then multiplied by 1000 to convert it to the value that is easy to use for index calculation.

If we use the Swedish definitions (Eurostat definitions) of the values of FISIM for lending and deposits, and deflate them with the respective price indices (according to the US definition) we will end up with the nominal development of lending and deposits. The US method for calculating the price of FISIM is thus not possible to use to calculate FISIM in constant prices according to the Swedish definition.

### 4.3 Securities commissions

As previously mentioned, no price index was delivered for securities commission. The NA used their own Fund Index instead. It is doubtful if this index fulfils the requirements that should be made on a deflator, because it is based on an unusual assumption (that the price is a constant percentage of fund wealth). The reason that this index is used is because there has been nothing better available.

### 4.4 Pricing method

As mentioned above, the SPPI previously measured price development for payment mediation services. The most common price measurement method was unit value. This method can be suitable when the services can be divided into homogenous groups. However, in this index the specifications of services were much too general. The price settings for payment services are diversified by the type of customer who buys the service. Because no breakdown of the different types of customers existed in the survey, this resulted in service groups that were too heterogeneous.

In certain cases, list prices were used. When we visited the respondents, we found that these prices did not reflect the true price development. The prices for these services had remained unchanged for several years in the index, while actually prices had decreased.

Another problem was that prices were previously collected for a large number of services where many of the observations had small weights. Because the influence of these prices on the index was marginal and all the banks reported that the calculation of the prices required considerable administration, the aim was to reduce the number of surveyed services.

### 4.5 Fees based on proportional amounts

If the securities commissions are to be included in the index, a question arises: how should fees based on proportional amounts (ad valorem prices) be handled? According to the European Commission's regulation 1920/2001, fees charged as a proportion of the transaction value should be measured as this
proportion of a representative unit transaction. The question is then how a unit transaction should be defined when dealing with the purchase of securities. In a paper written for the Ottawa group's meeting in Paris 2003 (Financial Services in Swedish Price Indices) by Martin Ribe, there is a discussion on this. He writes that a unit transaction is either defined as a purchase of a constant number of securities, or as a purchase of a number of securities with a constant value in real terms. In the first case it is suitable to use a stock market index as a measure of how the unit transaction changes over time, while in the other case, the Consumer Price Index (CPI) or the Harmonised Index of Consumer Prices (HICP) should be used. Martin Ribe argues that a unit transaction should be defined as a number of securities with a constant value in real terms.

In the NA Fund Index, higher fees for funds due to increased fund wealth are seen as a price increase. The method that Ribe argues for means that if the percentage that the customer pays is constant, then the price index is only calculated upwards with the CPI. This means that fluctuations in fund wealth (such as those due to fluctuations on the stock market) are seen as volume changes and not as price changes (as they do with the current method of the NA). The idea is that a higher stock market rate (fund wealth) means that the value in constant prices of stock broker services increase when the purchasing power of the managed fund wealth increases; this in turn means that the volume of securities commission increases, and not the prices.

However, this view is not shared by the NA. When the question was brought up for discussion, a memorandum was written by Per Ericson (Fastprisberäkning av bankernas beloppsproportionella avgifter) where he argues that an index for stock market development should be used to deflate ad valorem fees for securities commission. In this memorandum he presents a number of arguments for his stand and also refers to the Eurostat handbook on price and volume measures in national accounts. The recommendations of the handbook imply that the stock market index is an A-method while the CPI is a B-method.

4.6 Method of data collection

Previously, price information was collected via Excel files that were sent by e-mail. Since price information is sensitive information, it was a good idea to change this method. Because more and more surveys are now done through the Internet, it was suitable to do so here as well.

5 Changes carried out

5.1 FISIM

It would require considerable funding to develop a method to measure the price of FISIM. Considering the regulation of the council, it seems that the GDP deflator is a deflator that is generally accepted. It thus appears that it is more relevant to focus on producing a good index for the direct services. FISIM is therefore deflated in the same way as before.

5.2 Securities commissions

By starting to measure securities commissions and letting this replace the fund index of the NA, the SPPI has been able to completely replace the Banking Services Index of the NA. Securities commissions are measured by using information from the HICP fund index. This index consists of information on proportional broker's commission and minimum broker's commission as well as charges for purchases and sales and administration charges.

In the HICP fund index the charges are adjusted with the total HICP, while the fund index of the NA is adjusted with the development of fund wealth. These are two different methods. In the first one,
fluctuations on the stock market affect the volume index, while in the second one; the fluctuations affect the price index. As mentioned in section 4.5 above, there are different interpretations about which method is best to use. One of the arguments for the viewpoint of the NA (and the Eurostat handbook) is that if fluctuations in rates have a volume effect, this will have strange effects on productivity. If the production volume of the fund management industry increases and decreases with the ups and downs of the stock market, productivity would fall during the downturns and rise during the upswings.

Even if there has been some opposition at the Price Statistics Unit that the fluctuations on the stock market are to affect the price index, Eurostat's handbook is to be the guideline. This guideline is also in line with the preference of the NA. However, one important question remains: Should the HICP fund index be adjusted with the development of fund wealth or with a stock market index (general index)? The difference between these methods is that a stock market only measures shares, while fund wealth measures the development for all types of securities. After discussions with the NA, it was decided that the value development of fund wealth (adjusted for volume changes with the net saving during the period) would be used. This is considered to reflect the actual value development for securities better than a stock market index.

5.3 Pricing method for payments
To solve the problems that existed in the previous survey (see section 4.4 above), we visited all the banks. A number of changes have been made. Among other things, the number of measured services was reduced, while the services we continued to measure were classified by type of customer. The number of services was cut from 42 to about 20. Since the setting of prices varies considerably between different types of customers, the price collection some services is broken down by type of customer. This is done by the banks that classify the customers in groups by size and type of customer (company or government agency).

In those cases where list prices were previously used, these have been replaced by unit values.

5.4 Method of data collection
A web form was produced and was begun to be used from the first quarter of 2009 onwards.

5.5 Production and consumption
As mentioned above, the NA calculates one Bank Service Index for household consumption and one for industry consumption. However, the SPPI only measures producer prices and thus it is not suitable to use the SPPI for deflating household consumption. To be able to also use the SPPI for household consumption, consumer prices also had to be included.

Price data is collected in the CPI that is suitable to use for deflating household consumption of payment mediation commissions. Concerning securities commissions, the HICP fund index is an acceptable deflator for both production and consumption. However, VAT must be deducted in the index that will be used to deflate production. Another difference is that in the index for production, development of total fund wealth is used to calculate expenses in proportion to the amount, while in the index for consumption we use the development of households fund wealth.

Two indices are now produced so that the NA can deflate bank services on both the supply and use sides: one for production and one for consumption. Both indices consist of a sub-index for payments and one for securities. The Price Statistics Unit thus delivers four different indices to the NA, which in turn weighs them to one index for household consumption and one for production.
References

P. Ericson (2008), Fastprisberäkning av bankernas beloppssproportionella avgifter, NA-memo 2008:16
European Union Council (1998), *Council Regulation (EC) no 448/98*