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CONSTANT PRICE ACCOUNTING OF MARKET
SERVICES IN SWEDEN.
TWO SELECTED CASES.

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1. Summary
In this paper two selected constant price calculations of activities within the Swedish National Accounts System are in focus.

On the one hand, wholesale and retail trade, where lack of information is causing a lot of problems. On the other hand water transports, where maybe information is not lacking, the task is just to fit all the pieces together.

2. Introduction
The first preliminary etimates of preceeding year are ready by the end of March following year. The information used consists of quarterly based statistics. Gross output values are used for determining value added figures. In October a preliminary annual estimate is made. More reliable sources of yearly statistics are employed in calculating both output and input in a rather detailed way. In this estimate input/output-tables are used for balancing supply and demand for all commodity groups. Rather detailed data on manufacturing are available for the first time. In October two years after end of year the final figures are compiled.

The present base year in the constant price estimates is 1985. Within near future we aim at changing base year to either 1990, 91 or prices of previous year.

Figures are balanced in a input/output-system. Supply and demand are compiled in a system containing more than 300 commodity groups. Figures are in current and constant prices.

Market services make up to nearly 46 pct. of GDP (1991). If non market services are added, total services have a share of more than 69 pct. of GDP. In 1980 corresponding shares were 42 and 66 pct. respectively.

This implies that non market services have been marginally reduced compared to market services which has been slightly more important.

3. Market services, background
If concentrating most interest in GDP by kind of activity it is obvious that the sources are much more abundant regarding production of goods. For manufacturing there is fairly rich information at yearly basis by an annual census. There is also reliable information on government producers of non market services and quasi- and unincorporated enterprises of government. Statistics on private services has always been considered less reliable depending on lack of information. The main source for estimating market services is the quarterly turnover survey which covers a large sample of retailers and services such as hotels, restaurants, laundries, repair shops, barbers, etc. The figures are deflated, mainly by the relevant components of the consumer price index, to obtain constant price estimates. However on a yearly basis there is also a "base-statistics" which is a enterprise statistics plus information on unincorporated enterprises based on declarations from

taxation forms. This information is currently improved. In addition, during the last years, there have been figures collected and compiled in intermittent surveys. This surveys are more extensive and very useful. For telecommunications and postal services data are collected directly from the former state monopolies. For some private services there is for this moment almost complete lack of reliable information, for example passenger transport by bus and taxi, real estate(except permanent housing) and health care services.

4. Calculation of market services within the Swedish National Accounts
Calculation of gross output in current and constant prices are accomplished in accordance to the following main methods:

a. Figures in both current and constant prices are based on input/output calculations.

b. Figures in constant prices are based on indicators on quantities and current price values are based on indicators on values.

c. Figures in constant prices are based on indicators on quantities. Constant prices reflated by price indices leads to current price values.

d. Figures in both current and constant prices are based on volumes and unit prices from 1985 or current year.

e. Figures in current prices are based on indicators on values. Constant prices are the result from deflating values.

f. Figures in constant prices are based on hours worked and mostly some assumptions on productivity. Figures in current prices are accomplished by reflating constant prices.

In scheme below is shown the classification by kind of activity as well as different methods in current/constant price accounting for market services (Gross output).

ISIC rev2	Activity	Method
61/62	Wholesale and Retail trade	a
63	Restaurants and hotels	e
7111	Railway transport	b
7112	Urban, suburban and interurban highway passenger transport	c
7113	Other passenger land transport	c

7114	Freight transport by road	e
7116	Supporting services to land transport	e
7121/2	Water transport	c,e
7123	Supporting services to water transport	c
713	Air transport	b,e
719	Services allied to transport	-
72001	Postal services	b
72002	Telecommunications	b
81	Financial institutions	f
82	Insurance	f
831a	One- and two-family houses and leisurehouses	c
831b	Other real estate	c
832/3	Business services	e
92	Sanitary and similar services	e
931/2	Education services,research and scientific institutes	b,d
933/4	Medical,dental and other health services	e
935/9	Business,professional and labour associations	e
94	Recreational and cultural services	e
95	Personal and household services	e

5. Experience in constant price accounting of market services

There is not always possible getting price indices which are fully based on adopted principles.(Theory on constant price accounting is given in chapter XVI in the Revised System Of National Accounts)

The base material could be insufficient not covering all goods and services required. Indices also might be weighted according to other principles or mixed by a number of methods. The Swedish consumer price index for example is a Laspeyre chain index with weights from previous year.

When calculating values added in constant prices a decision has to been made how to handle intermediate consumption. For all of the service activities value added is accomplished as a residual between gross output and intermediate consumption. Gross output is deflated or extrapolated as described above.
Depending on the quality in figures of intermediate consumption and price indicies, you choose between two different main principles of calculating value added in constant prices; double or singel deflation.

When double deflation is used, gross output is deflated with output indices, and intermediate consumption with indices for different input categories.
If single deflation is used, you use the same (output) indices for both gross output and intermediate consumption, which implies fixed input

coefficients in constant prices.(under the assumption that intermediate consumption in current price develops in the same way as gross output)

In Sweden we use a method which lies somewhere in between of these two principles. For some activities as for example post- and telecommunications, sea-, railway and air transportation we use strict double deflation. For the rest of the activities we start using single deflation.

The first step is to estimate gross output in current and constant prices, as described above, by means of relevant output price indices. By using a fixed input coefficient, we receive preliminary figures on intermediate consumption in constant prices.

The next step is to reflate intermediate consumption with indices of domestic supply by commodity groups, and we get preliminary figures for intermediate consumption and value added in current prices.

The third step is to adjust intermediate consumption within the input/output system, in both current and constant prices. This adjustment is achieved in a process balancing supply and demand(incl.intermediate consumption) by commodity groups in the input-output system in both current and constant prices. The tuning affects total intermediate consumption for all activities except those where the total in current price is known (= the activities where we use a strict double deflation).

At the end we get estimations of value added at constant prices for all activities and no fixed input coefficients exists.

Coefficients have been moving up or down depending upon, among other things, the residuals for each commodity group.

The method is a combination of double and single deflation and is called controlled double deflation (you might also say adjusted single deflation).

Below there are two examples of constant price calculation. They are chosen because firstly, the calculations are a bit complicated, and secondly, a lot of questions are raised and problems are caused.

6. Wholesale and retail trade

The activities are treated together in calculation and publication.

Gross output is defined as margins in trade. Trade margins are defined as the difference between the price at which the distributor sells a good and the price originally paid.

The concept intermediate consumption should not be mixed up with purchased goods for sale. Gross output values in both current and constant prices are calculated in the input/output-system.

Margin rates for groups of commodities and by type of use- more than 300 groups of commodities in the entire system- were determined for 1980 and after that somewhat revised.

If we assume a simplified model containing not 300 but only 3 commodity groups, the model functions as follow:

1990   **TRADE MARGINS**
million sek Basic values
1985 prices

Com-modity.	Demand1.	Trade margin	%	Demand2.	Trade margin	%	Demand Tot.	Trade margin Tot.	%
Food	11320	2547	22.5	5108	1200	23.5	16428	3747	22.8
Cars	23171	2549	11.0	32732	3535	10.8	55903	6084	10.9
Ships	1308	65	5.0	2919	181	6.2	4227	246	5.8
Total	35799	5161	14.4	40759	4916	12.1	76558	10047	13.2

Margin rates were set for 1980 by kind of demand and commodity group. At that time it was possible to get some information regarding margins in wholesale and retail trade for consumer goods as well as investment goods and goods for intermediate consumption.

In this example there are two types of demand, we can assume, private consumption and exports. Margin rates are determined for each commodity. Total rate of margin was hereby weighted to 13.2 pct. This example refers to the commodity concept not the activity. At a detailed level the rate is fixed but thanks to changes in structure total rate is fluctuating.

Due to the fact that the margins are supposed to develop in the same way in price and volume as demand at commodity level, change in price is carried out implicit as an effect from both changes in structure and differences in price changes for different products.

Intermediate consumption is treated as described earlier in accordance to the controlled double deflation model.

In the first step input coefficients are fixed in the system. However, for wholesale and retail trade, this assumption has been abandoned. In March 1993 a revision of the NA was accomplished due to new statistics on manufacturing. These figures showed among other things that establishments in manufacturing produced larger trade margins than former had been shown. As the total trade margins are determined within the I/O-system, the output left to the activity wholesale and retail trade diminished, and value added became unrealisticly low compared to figures from the enterprise statistics, which is another source of reference. The method used in the I/O-system had already for the last six or seven years been showing a lower value added than the enterprise statistics, and using the new manufacturing figures therefore became difficult.

We solved temporarely the problem by reducing input. In constant prices we now have a falling input coefficient from 1985. If trade margin rates have been unchanged as indicated by some sources, the input coefficients must have been lowered during second half of the eighties if value added in enterprise statistics should be reached. There has been a big change in structure from smaller to bigger stores under the period and this ought to have given some effects on input levels.

There are a great deal of difficulties in getting for NA-purposes relevant base information concerning margins, intermediate consumption etc. Available information is just given for total sale and purchase.
Some data about margins in connection to consumer goods is collected and compiled by some organisations outside Statistics Sweden.
The information available indicates that margins have been as well stable, during the 1980's, as in a level corresponding to NA estimations. But the development during the latest years of recession is so far unknown.
There is almost complete lack of information concerning margins for investment goods and goods for intermediate consumption. Formerly presented data on margins on investment goods and goods for intermediate consumption are not available any moore.
In collecting information about margins a major problem is that companies regard this information as both difficult or impossible to count and also confidential. They neither can nor want to answer in a survey.

The problem with figures tendencing to differ from the enterprise statistics must be fully analysed and solved.
Price indices for gross output and intermediate consumption also has a tendency to diverge causing differences in structure between gross output, intermediate consumption and value added. The cause behind these conditions must also be identified and examined.
Most of all we hope that the intermittent survey, earlier mentioned, in future will expose this business better.

7. Water transport
The source is a survey that is sent to shipowners. The survey is distributed to all companies, organisations or private persons who are registered as owners to Swedish-registered vessels with a grosstonnage of 100 tons and over. There is information on different types of freights and also transport of passengers, chartered vessels and other revenues. On the cost-side there is also a lot of details.
Both revenues and costs are divided between Sweden and foreign countries in regard of the direction of payments. By using this information we calculate both gross output, intermediate consumption,value added as well as exports and imports of sea freight services. No volume figures are given in the survey.

The activity is very difficult to estimate in constant prices. Nearly all freights takes place in ocean water traffic. A major part of all payments has foreign countries as one counterpart. Nearly all payments are made in foreign currency, mostly US-dollar.

No volume indices have been applied in transportation of goods. We apply international price indices produced and published by the German institute, ISL (Institute Of Shipping Economics And Logistics) . Indices are published monthly at a rather detailed level.

Those indices have to been adjusted for changing exchange rates. During the fourth quarter last year, in connection to the Swedish depreciation, it became quite clear that the impact of this adjustment was considerable.
The reason for this treatment is the fact that nearly all payments are made in foreign currencies, also transports to Swedish ports when a Swedish company is paying for the freight. In NA all figures must be given in Swedish crowns.
Some doubts have arised concerning methods in constant price accounting due to instability in constant price figures.

Transport of passengers has up till now been estimated by a volume indicator showing number of passengers. From 1994 we could start apply a recently constructed consumer price index.

Prices fluctuate enormously over the years as shown in the table below.

GROSS OUTPUT, WATER TRANSPORTS

Yearly percentage change.

year	value	volume	price
1986	-5.9	20.0	-21.6
1987	3.0	8.3	-4.9
1988	28.2	24.9	2.7
1989	15.8	-6.8	24.3
1990	18.4	30.9	-9.6
1991	3.3	-3.3	6.7

The seafreights share of GDP is around 1 per cent. so a yearly percentage change by 30 has an effect on GDP by 0.3 per cent.

The problems are previously mentioned. The fluctuating figures indicates an instability which is hard to understand. Could these conditions really prevail in the business over the years ?

To what extent could forward cover occur in payments for freights ?
In that case an adjustment for shifting exchange rates is not neccesary.
According to experts in the business forward cover is not to be found because also costs are paid in foreign currencies.
Another problem is that we do not have information on what currencies that are generally used and to what extent. It is just an assumption that US-dollar and German mark are most frequent.

Freight prices are varying due to type of cargo, destination and size of ship. A complete index should be tremendously complicated.

Perhaps it would be most convenient to apply some sort of volume indicator. Obviously that is the way some other countries have tried to solve this problem.
Some introductory contacts have been taken with experts in the business in order to constructing a constant price calculating system in accordance to actual conditions.