Danmarks Statistik
MODELGRUPPEN

Arbejdspapir*

Dawit Sisay

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Import data:

Resumé:

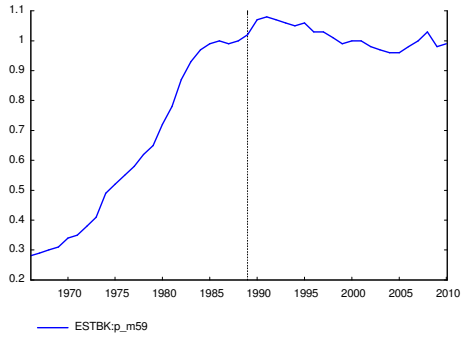
In this paper we present alternative import dataset by splicing data from ADBK0797 and SIMBK. We then try to adjust the spliced series so that it complies with the national account data. We finally compare the adjusted figures with different sources.

Modelgruppepapirer er interne arbejdspapirer. De konklusioner, der drages i papirerne, er ikke endelige og kan være ændret inden opstillingen af nye modelversioner. Det henstilles derfor, at der kun citeres fra modelgruppepapirerne efter aftale med Danmarks Statistik.

1. Introduction

Due to data problems, the import relations in DEC09 have not been estimated. The data in ESTBK.BNK have been considered unusable due to unexplainable break observed in 1989. Figure 1 shows the break in the price for industrial imports. This can, for example, happen in the process of extending backward the chain indexed series that are available only after 1990.

Figure 1. Price of industrial imports



The objective in this paper is to construct an alternative dataset by splicing data from an old ADAM bank ADBK0797.BNK and SIMBK.BNK. We will first explain how we construct the dataset, which we call DSIBK.BNK. We then make comparisons with the national account figures. The ultimate objective is to produce data that complies with the national account figures and exhibit no such breaks. This will require making proportional adjustments to the spliced data.

2. Constructing the data

a. DSIBK.BNK

The bank DSIBK contains data in both fixed and chain prices from 1960 to 2010. First, imports in current price at the detailed level are taken from SIMBK.BNK for the whole sample period (1960-2010). Second, we splice prices at the detailed level from ADBK0797 in fixed prices (for 1960-1990) and SIMBK.BNK in fixed and chain prices (for 1990-2010), i.e we have data for

m<i>, p_m<i>, pm<i>
where, i = 0, 1, 2, 3k, 3r, 3q, 7b, 7y, 5, 6m, 6q, 7q, 8 ;

From these variables we create fixed and chain index quantity of imports, *fm<i>* and *f_m<i>*, and imports in previous year price, *Dm<i>* and *D_m<i>*. Finally, data for *f_m <j>, p_m<j>, fm <j>* and *pm<j>, where j =01, 59, v,* can be created.

b. NA.BNK

This bank contains national account data for total imports, *m*, services, m*s*, and tourism, m*t*, in current prices; and imports in previous year prices are available only for total imports, D_*m,* and tourism D_*mt.* To construct *D_ms,* we used price for services from the Danish Input-Output Matrix. From which imports of

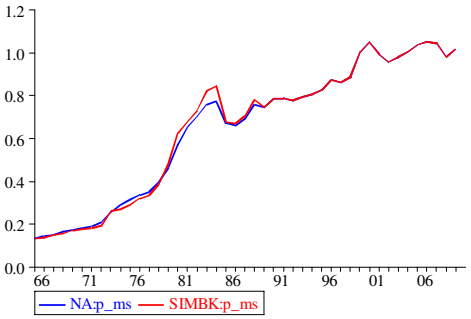
goods, D_*mv*, in previous year prices can be constructed. This can be used to create *p_ms, p_mt, p_mv*, and *p_m*. Fixed index prices are also available in this bank. Finally, prices for the group 01 and 59 can also be extracted from Input-Output table[1], see section 5 below.

3. Imports of services, tourism and goods

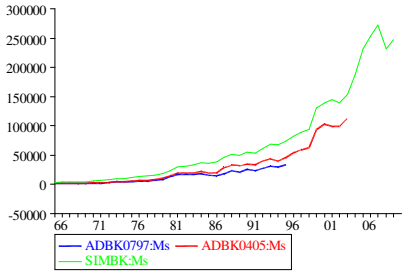
DSIBK contains data for only commodity imports. This means a choice for tourism and service import prices has to be made first since this determines prices for imports of goods. Tourism import price is consistent with NA figure, and the fixed and chain price indices are roughly identical. Figure 2a shows two alternative service import prices. The swing in *p_ms* in the mid 1980s is higher for data from SIMBK. The period corresponds to the Dollar fall. The data in SIMBK has been plainly spliced from ADBK0797. Using this data is not recommended because there has been a major revision of service imports in 2005, see figure 2b. Besides, the effect on *p_mv* from using the two *p_ms* is negligible, see figure 2c. In the following we continue with NA data for *p_ms*.

Figure 2. Comparison of data

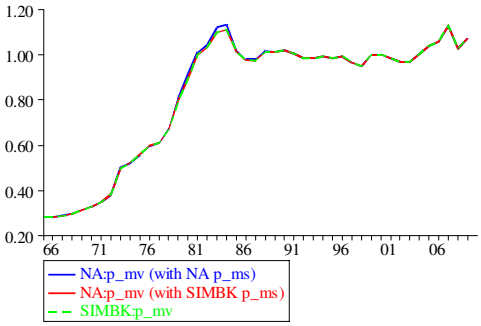
a. price of service imports



b. Service imports



c. Price of imports of goods



4. Adjusting data in DSIBK

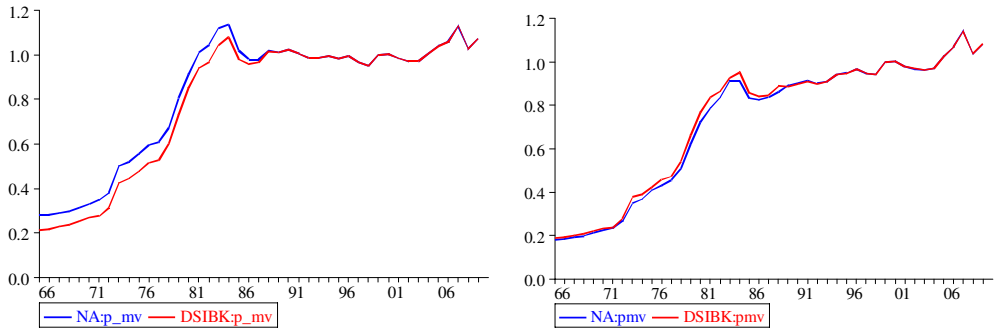
Figure 3a shows that the spliced data in DSIBK in chain prices is different from the NA figure. In contrast figure 3b shows when data is spliced in fixed prices, it is not significantly different from the NA data in fixed prices. This suggests that chain indexing could be responsible to the observed differences.

[1] We are grateful to Tim Folke of National Account for supplying us import data from the Danish IO tables.

The question is how to distribute the deviation in price of imports of goods into price of imports at the detailed level so that they add up to the national account figure. We proceed as follow. Recall that data in fixed and chain price are available at the detailed level in SIMBK.BNK for 1990-2010. Accordingly, we base our adjustment on these data. Those with significantly different fixed and chain index price are chosen for proportional adjustment. These import groups are *0, 2, 5, 7q,* and *8*, see figure 1 in the appendix. The groups *1, 3k, 3q, 3r, 6m, 6q, 7b* and *7y* are left unchanged.

Figure 3. Price of imports of goods, NA.BNK Vs. DSIBK.BNK

a. In chain price **b. In fixed price**

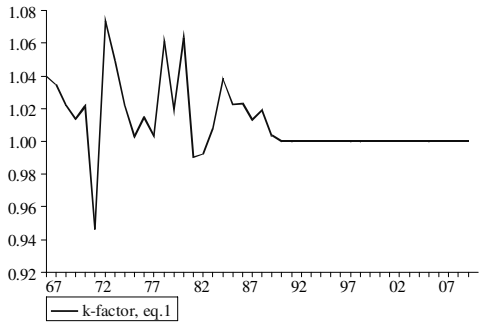


The next step is to calculate the adjustment factor

$$k - factor = \frac{NA : DMV - \sum_i DSIBK : Dm < i >}{DSIBK : DMV - \sum_i DSIBK : Dm < i >} \qquad (1)$$

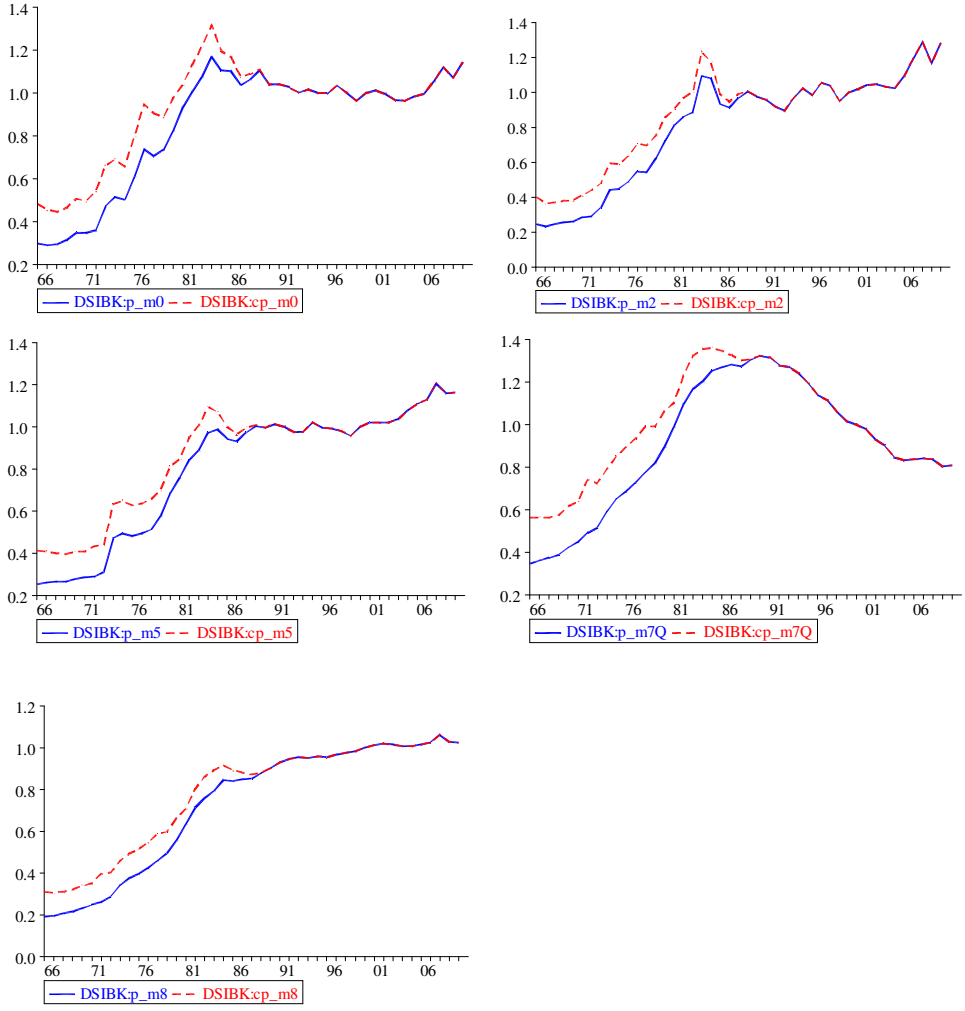
Where, i =*1, 3k, 3q, 3r, 6m, 6q, 7b*, *7y* are the groups we do not adjust*;* D*m*<*i*> is import in previous year prices for import group <i>. Figure 4 shows the k-factor.

Figure 4. The k-factor



We then multiply D*m*<*j*>, where j = 0, 2, 5, 7q, 8, by the k-factor (1). This process ensures *p_mv* and *f_mv* in DSIBK comply with the national account counterparts. Figure 5 shows the original spliced and adjusted chain indexed prices for import groups *i = 0, 2, 5, 7q, 8*, ***adjusted variables have a prefix 'c'.***

Figure 5. Proportionally adjusted prices of imports



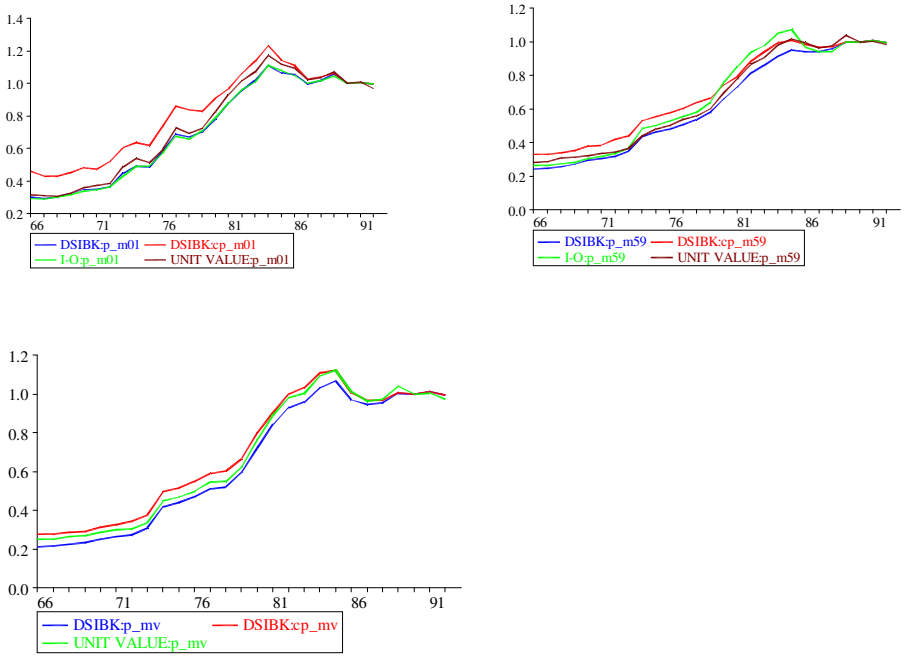
The fact that the adjustment is concentrated on five import groups, in part, explains the relatively significant difference between the adjusted and unadjusted series.

5. Comparing DSIBK with different sources

We can finally compare the spliced and adjusted data in DSIBK with two alternative sources: data from the input-output table and data based on unit value indices.

Data for p_m01 suggests that the group 01 is better left unadjusted. In contrast to data from DSIBK, the IO data for p_m59 exhibits a significant swing in the mid-1980s, which is a reflection of the smaller swing in service prices, see above. Whereas choosing between the adjusted and unadjusted *p_m59* and *p_mv* based on the unit value index is not straightforward. The data at the detailed level suggests that the spliced series should not be adjusted, see figure 2 in the appendix.

Figure 6. Import prices, p_m01 and p_m59

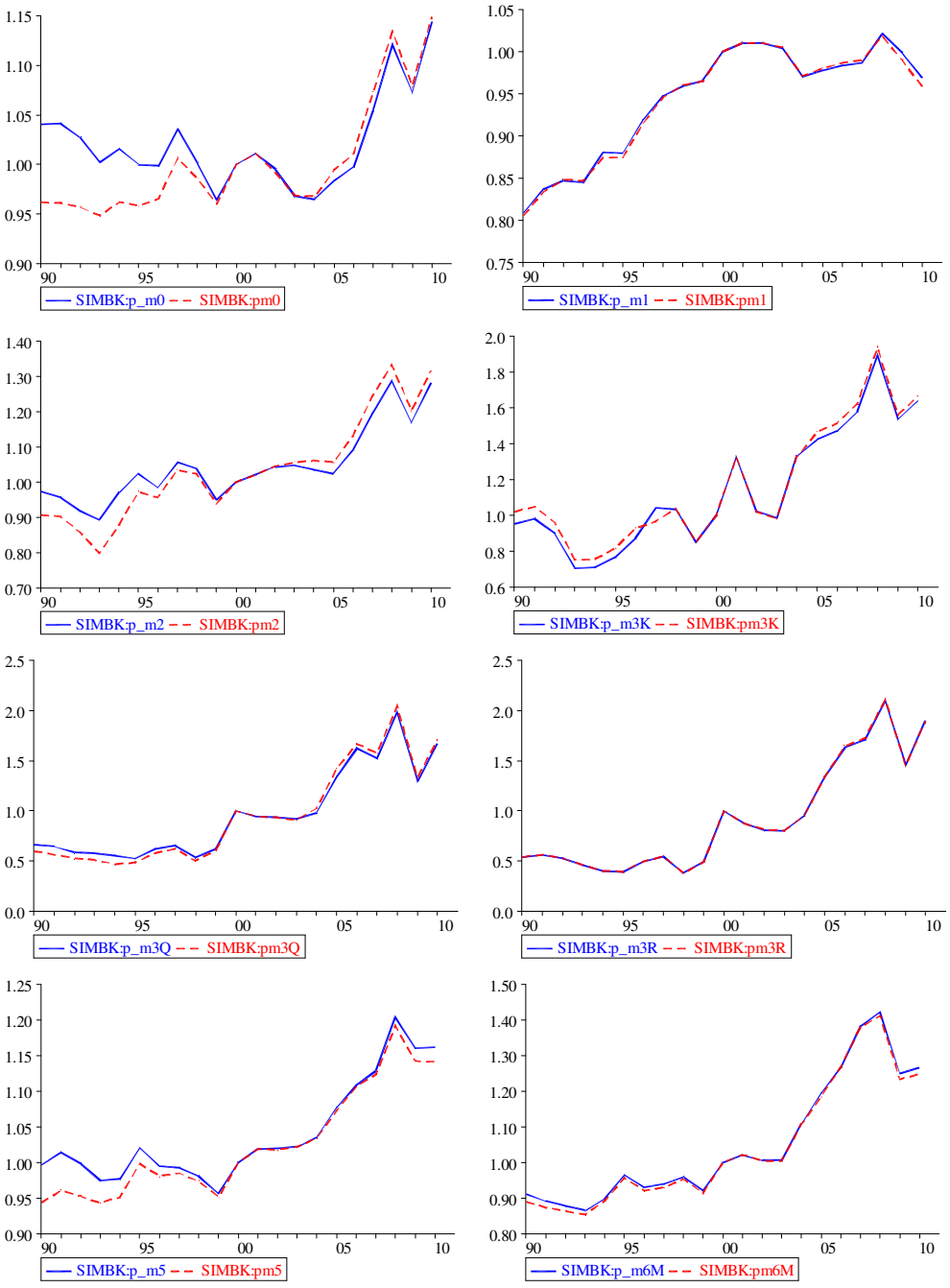


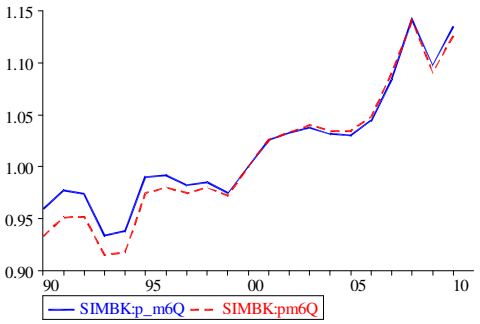
6. Summary

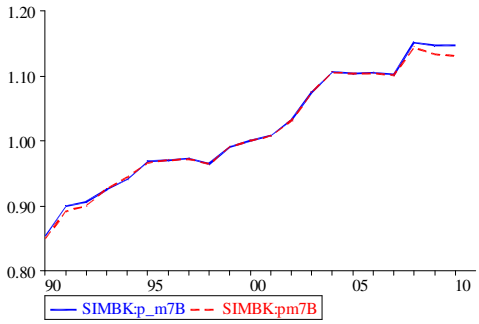
The proportional adjustment we chose in this paper is one of the different options one can have. For example, one can choose to proportionally adjust all import groups or one import group such as, *m7q*, whose fixed and chain index prices are significantly different. It is also possible to leave the import series unchanged and instead create additional variable as a residual component, and we suggest this might be a better alternative.

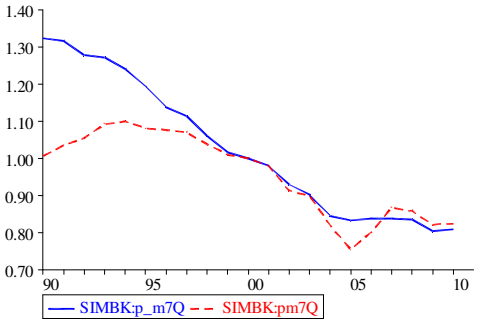
Appendix

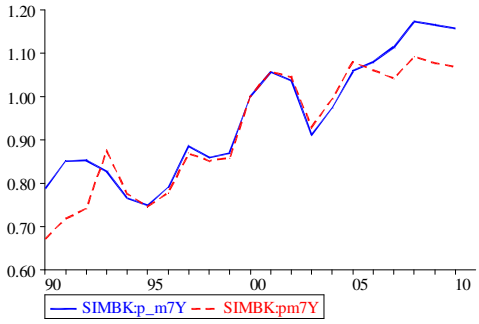
Figure 1. Fixed and chain index price, SIMBK.BNK

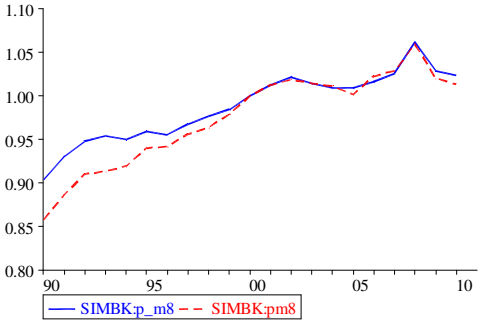



1.15
1.10
1.05
1.00
0.95
0.90
90
95
00
05
10
SIMBK:p_m6Q
SIMBK:pm6Q


1.20
1.10
1.00
0.90
0.80
90
95
00
05
10
SIMBK:p_m7B
SIMBK:pm7B


1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
90
95
00
05
10
SIMBK:p_m7Q
SIMBK:pm7Q


1.20
1.10
1.00
0.90
0.80
0.70
0.60
90
95
00
05
10
SIMBK:p_m7Y
SIMBK:pm7Y


1.10
1.05
1.00
0.95
0.90
0.85
0.80
90
95
00
05
10
SIMBK:p_m8
SIMBK:pm8

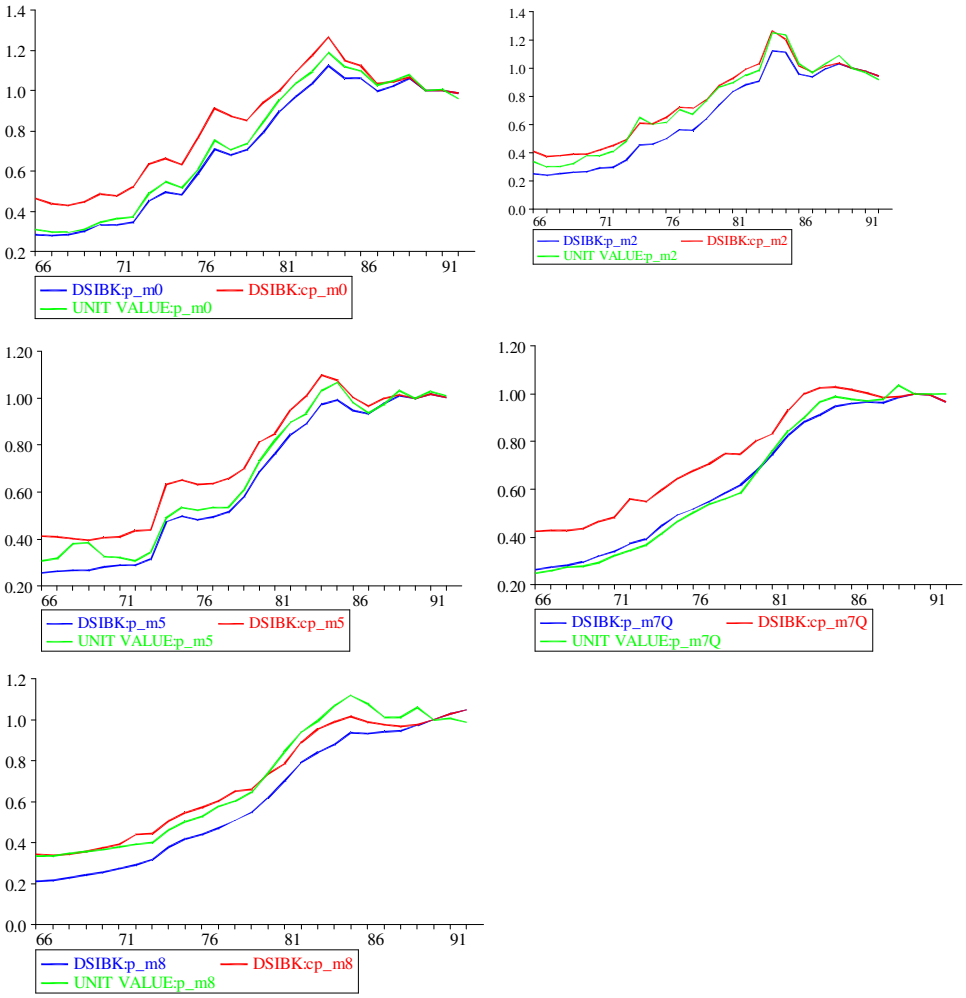



Figure 2. Import prices at the detailed level, DSIBK and unit value indices