

# **Intersectoral linkages in the Slovenian economy in the years 1990, 1992, 1993 and 1995**

*Key sectors in the Slovenian economy*  
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## **1 Introduction**

For the economies of the countries in transition it is reasonable to expect considerable changes in the structure of the economy. The Slovenian economy is not only in transition from a more or less planned into the market economy, but it is simultaneously also undergoing all the consequences of the independence process, i.e. the consequences of transition from a regional to a national economy. The aim of this contribution is to establish to what extent and in what way the transition of the Slovenian economy is reflected in the structure and mutual linkages of economic sectors. The basis for the analysis is the published input-output tables for the years 1990, 1992 and 1993<sup>1</sup> that include 27 sectors, and for the year 1995 for which the input-output tables include 26 sectors only<sup>2</sup>. The input-output tables are an ideal analytical tool for the study of mutual dependence of economic sectors at international, national-economic, regional and at even lower levels. After 1941, when W. Leontieff introduced the first tables (for the American economy), the input-output analysis became an indispensable means for studying numerous views on mutual intertwinements of sectors of the economy. Consequently, the input-output tables began to be used quite early (Rasmussen (1956), Chenery and Watanabe (1958)) for establishing the linkages between sectors of the economy. These linkages were studied on the side of inputs (the side of supply) to individual sectors (backward linkages) as well as on the side of outputs (the side of sales) of an individual sector to other sectors (forward linkages). The former as well as the latter represent how an individual sector is woven into the structure of the economy and how important it is. As early as 1958 Hirschman (Hirschman (1958)) introduced the analytical concept of the key sector of the economy as a sector with forward and backward linkages above average. In the literature numerous modifications of the basic procedures for establishing the key sectors and their use on data on different economies can be found (Strassert (1968), Hazari (1970), Laumas (1975), Bharadway (1976), Jones (1976), Schultz (1970, 1977), Rao and Harmston (1979), Hewings (1989), Dietzenbacher (1992)). Each of them has its advantages and disadvantages, that means its advocates and critics.

The present analysis will be based on three methods only. First we will analyse the changes in mutual linkages of the economy on the basis of a method that was developed by Chenery and Watanabe, then on the basis of the Rasmussen method and finally also with the help of the Dietzenbacher method. In the first section we will briefly describe the methodological framework of the analysis. The next three sections will deal with the results of the use of the three above-mentioned methods for establishing the key sectors. The last section will represent a rounded presentation of the findings of the analysis.

## **2 Methodological framework of the analysis**

Before presenting the results of the analysis of each out of the chosen methods, some general questions must be pointed out which appear in connection with analysing mutual dependence and

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<sup>1</sup> The sectors of the input-output tables correspond to the EU NACE Rev. 1 nomenclature of the activities. The tables are published in the publications of the Statistical Office of the Republic of Slovenia for the year 1990: Developmental questions of statistics; Methodological and data bases for the preparation of the input-output table of the Republic of Slovenia for the year 1990, Ljubljana, 1993; for the year 1992: Statistical information, No. 157, 1 July 1994; for the year 1993: Statistical information, No. 2, 8 January 1996. I am very grateful to Prof. Dr. I. Lavrač for providing the data represented in the tables on floppy disks.

<sup>2</sup> In the input-output table for the year 1995 the sectors 25 (Business services, dwellings and renting) and 26 (Other market services) from the previous years were put together into one sector named Business services, renting and other market services. It was published as a Working paper No. 9 by the Office for macroeconomic analyses and development of the Republic of Slovenia, Ljubljana, 1996.

establishing the key sectors. It has already been mentioned in the Introduction that all the methods are based on establishing two kinds of mutual linkages between sectors of the economy. First there are backward linkages that include the influences of the production of an individual sector on sectors that supply the production materials. A larger production of the sector exerts influence on a larger production in other sectors via these linkages, which means that its importance for the economy as a whole is reflected via these influences. There are also the so-called forward linkages. Each of the sectors, if it is not the exclusive supplier of the consumers, is simultaneously also the supplier of its products to other sectors for their reproduction needs. Consequently, its production also depends on the production of other sectors as well as enables the production of these sectors. In this way these linkages reflect the importance of the sector from another viewpoint.

The first question that is posed is whether it is necessary to take account of all the reproduction flows regardless of the origin of the material, that means regardless of the fact whether these are the purchases of the domestic or imported goods. In the literature the opinion has been crystallized that it is sensible to take only the flows of the domestic production materials into account, particularly when the existing situation in the economy is the focus of the interest of the analysis. Only when these linkages are intended to be used for presuppositions that presuppose the possible substitution of the imported products for the domestic ones, it is sensible to include the entire purchases of the production materials into the analysis. According to what has already been mentioned, this analysis will only take account of the domestic flows, since the influences of the development of the Slovenian economy on the other economies do not interest us. In this connection it is worth mentioning that such a treatment is enabled by the available input-output tables, since they also represent the flows of the imported products.

The next question posed in establishing the key sectors is the sectoral structuring of the economy in input-output tables. An excessive level of the aggregation of sectors obscures the differences in intensity of their mutual linkages. On the other hand, a great structuring of the economy brings in specificities that are not important to such an analysis. In each concrete analysis the degree of structuring is, of course, conditioned by the structuring of the available input-output tables. It is known that the tables with only a few tens of sectors as well as the tables with several hundreds of sectors are in the process of preparation. This analysis will be based on the available tables in which the Slovenian economy is divided into 27 sectors (26 for the year 1995). These are relatively aggregated sectors, therefore a more detailed structuring of the economy rather than a greater aggregation would be desired.

To represent the methods more easily, the initial intersectoral model is shown. Since the input-output tables that will be used separately represent the flows of the domestic and foreign products, they can be represented (with the help of linear algebra) in the following way:

$$\begin{aligned} \mathbf{x} &= \mathbf{X}^d \mathbf{e} + \mathbf{f}^d \\ \mathbf{m} &= \mathbf{X}^m \mathbf{e} + \mathbf{f}^m \end{aligned} \quad (1)$$

The symbols stand for:

- $\mathbf{x} = \{x_i\}$  - vector of the sectoral values of production
- $\mathbf{m} = \{m_i\}$  - vector of the value of import of products by sectoral origin
- $\mathbf{X}^d = \{x_{ij}^d\}$  - matrix of the value of intersectoral consumption of the domestic products
- $\mathbf{X}^m = \{x_{ij}^m\}$  - matrix of the value of intersectoral consumption of the imported products
- $\mathbf{f}^d = \{f_i^d\}$  - vector of the sectoral values of the consumption of the domestic products
- $\mathbf{f}^m = \{f_i^m\}$  - vector of the value of the consumption of the imported products
- $\mathbf{e} = \{1\}$  - summation vector
- $i, j = 1, 2, \dots, n$
- $n$  - number of sectors in the input-output table

We can put down the flows of the domestic and imported products with the help of the so-called technical coefficients:

$$\begin{aligned} \mathbf{A}^d &= \mathbf{X}^d \hat{\mathbf{x}}^{-1} \\ \mathbf{A}^m &= \mathbf{X}^m \hat{\mathbf{x}}^{-1} \end{aligned} \quad (2)$$

The symbols stand for:

$$\begin{aligned} \mathbf{A}^d &= \{a_{ij}^d\} && \text{- matrix of the domestic technical coefficients} \\ \hat{\mathbf{x}} &= \{x_{ii}\} && \text{- diagonal matrix of the sectoral values of the production} \\ \mathbf{A}^m &= \{a_{ij}^m\} && \text{- matrix of the import technical coefficients} \end{aligned}$$

We can write down the calculation of the known matrix multipliers that reflect the multiplicative effects of the unit of the consumption of the domestic products on the values of production by sectors of the economy and the import (of the complex import shares) necessary for this unit:

$$\begin{aligned} \mathbf{R} &= (\mathbf{I} - \mathbf{A}^d)^{-1} \\ \mathbf{G} &= \mathbf{A}^m (\mathbf{I} - \mathbf{A}^d)^{-1} \end{aligned} \quad (3)$$

The symbols stand for:

$$\begin{aligned} \mathbf{R} &= \{r_{ij}\} && \text{- matrix of the matrix multipliers} \\ \mathbf{I} &= \{1_{ii}\} && \text{- unit matrix} \\ \mathbf{G} &= \{g_{ij}\} && \text{- matrix of the complex import shares} \end{aligned}$$

The calculation of the forward linkages will be based on the so-called output coefficients that were shown and explained in detail by Augustinovic (Augustinovic (1970)). The output coefficients are calculated as a quotient of the elements of the line of the input-output table and the production of the sector of the same line. The output coefficients and their corresponding output multipliers that will serve for analysing the forward linkages will be calculated in the following way:

$$\begin{aligned} \mathbf{B}^d &= \hat{\mathbf{x}}^{-1} \mathbf{X}^d \\ \mathbf{O} &= (\mathbf{I} - \mathbf{B}^d)^{-1} \end{aligned} \quad (4)$$

The symbols stand for:

$$\begin{aligned} \mathbf{B}^d &= \{b_{ij}^d\} && \text{- matrix of the output coefficients} \\ \mathbf{O} &= \{o_{ij}\} && \text{- matrix of the output multipliers} \end{aligned}$$

This is the presentation of the necessary elements that will be used in the analysis of the linkages with the above-mentioned methods.

### 3 Analysis of the intersectoral linkages on the basis of Chenery-Watanabe method

In international comparison of the sectoral structure of the economies Chenery and Watanabe (Chenery and Watanabe (1958)) used two shares as the measure of mutual dependence of sectors. The first one represents the share of intersectoral consumption of products of all the sectors of the economy in the unit of the value of the production of an individual sector and they labelled it as  $u$ . It should reflect the backward linkages, i.e. the influences of the sector on suppliers of the production materials whose size most certainly depends on the sectoral specialization of the economy, as well. The second share represents the share of the value of the production of the sector used in the production of all the sectors, which means that it is not intended directly for the consumer. The above-mentioned researchers labelled this share as  $w$ , and it reflects the dependence of the sector on the consumers of its products. Consequently, this share reflects the forward linkages of the sector in the

reproduction chain. The first share for an individual sector represents the sum of the appropriate column of the matrix of technical coefficients, since its elements show where the production materials for the production in this sector come from. The second share represents the sums of rows of matrix of the output coefficients which show the share of the production of an individual sector used in the production of all the sectors. Taking account of the above-mentioned matrices, the shares will be calculated in the following way:

$$\begin{aligned} \mathbf{u} &= \mathbf{e}'\mathbf{A}^d \\ \mathbf{w} &= \mathbf{B}^d\mathbf{e} \end{aligned} \quad (5)$$

The key sectors, that is the most important sectors for the economy, are the sectors, whose sum of both shares is the highest. This leaves the question open where to stop. The literature therefore suggests and uses the normalization of the shares in the way that their average equals one. The key sector is therefore the sector in which the values of both normalized shares exceed one. The normalized values of backward and forward linkages will be calculated on the basis of the following formulas:

$$\begin{aligned} \mathbf{un} &= n\mathbf{e}'\mathbf{A}^d / (\mathbf{e}'\mathbf{A}^d\mathbf{e}) \\ \mathbf{wn} &= n\mathbf{B}^d\mathbf{e} / (\mathbf{e}'\mathbf{B}^d\mathbf{e}) \end{aligned} \quad (6)$$

The symbols stand for:

$$\begin{aligned} \mathbf{un} &= \{un_j\} && \text{- vector of the normalized shares of the used products of all the sectors in the} \\ &&& \text{production of an individual sector} \\ \mathbf{wn} &= \{wn_i\} && \text{- vector of the normalized shares of the production of an individual sector} \\ &&& \text{used in the production of all the sectors} \end{aligned}$$

Table 1 presents the basic sectoral characteristics of the Slovenian economy for the four years studied. The sectoral structure of the production in the studied period at the discussed level of aggregation did not undergo any dramatic changes. A marked economic recession that decreased the real GDP by more than 11% in the first three studied years (in 1991 a real annual growth rate of GDP amounted to -8.1%, in 1992 to -5.4%, turned to +1.9% in 1993 and remained positive also in the following years – 5.3% in 1994 and 4.1% in 1995) affected only two sectors to a great extent, namely the sector Leather, footwear and leather products and the sector Basic metals and metal products. The share in the last three (two in 1995) service sectors increased to the greatest extent.

The second characteristic of the period studied lies in the fact that the share of the reproduction supplies of domestic products in the value of the production increased to a great extent. The weighted average<sup>3</sup> of percentages of these supplies increased by almost 5 percentage points in 1992. In 1993 as well as in 1995 this difference decreased slightly. On average, a greater part of this increase was compensated by the decrease in the average share of the imported production materials. On average no marked changes in the shares in value added in the value of the production took place<sup>4</sup>. The reproduction sales (forward linkages) by individual sectors changed to a great extent in this period. Interestingly, they are even smaller than the changes on the side of purchases at the level of the economy as a whole (see weighted averages).

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<sup>3</sup> In all the averages in the table the values of the production by sectors from the year 1990 are considered as the weights in all the years. This eliminates the effect of the changes in the sectoral structure of the production on the calculated averages.

<sup>4</sup> A more detailed sectoral analysis of these changes in the years 1986, 1990 and 1992 can be found in Križanič (1995).

**Table 1:** Basic characteristics of the Slovenian economy by sectors in 1990, 1992, 1993 and 1995

Sec. No.	Sector	The sectoral structure of the production (%)				The share of the domestic reproduction supplies ( $\mathbf{u}$ )*100				The share of the imported prod. mat. ( $\mathbf{v}=\mathbf{e}'\mathbf{A}^m$ )*100				The share of the repro. Sales in the prod. ( $\mathbf{w}$ )*100			
		1990	1992	1993	1995	1990	1992	1993	1995	1990	1992	1993	1995	1990	1992	1993	1995
1	Agricultural & forestry products	4.7	5.9	5.1	5.0	38.8	50.6	48.3	11.6	30.3	9.6	9.6	11.6	56.3	65.5	64.4	61.7
2	Fishery products	0.0	0.0	0.0	0.0	17.9	55.8	48.8	1.4	21.5	26.5	0.6	1.4	25.8	53.5	30.6	31.7
3	Coal, crude oil, natural gas	0.6	0.9	0.6	0.6	14.1	15.4	20.6	1.4	8.4	0.7	1.3	1.4	84.8	91.6	95.8	96.1
4	Ferrous, nonferr. ores and stones	0.3	0.2	0.2	0.2	53.1	18.9	28.5	12.5	36.0	14.2	12.4	12.5	86.4	81.2	81.4	82.0
5	Food, beverages & tobacco	7.1	6.9	6.3	6.2	44.0	45.2	46.4	12.3	24.0	13.2	11.6	12.3	29.5	27.9	25.6	24.3
6	Textiles & wearing apparel	4.8	4.0	3.8	3.3	15.0	30.5	31.2	25.1	22.7	23.6	21.5	25.1	6.5	23.7	21.3	18.0
7	Leather, footwear, leather prod.	1.3	0.8	0.9	0.6	13.6	27.1	24.9	31.3	19.6	38.8	22.7	31.3	1.8	2.0	3.3	4.1
8	Wood&wood prod.,excl. furniture	1.9	1.5	1.6	1.4	59.7	51.1	53.3	19.5	30.3	16.5	14.8	19.5	66.5	39.9	42.5	32.3
9	Cellulose, paper & cardboard	3.1	2.8	2.7	2.3	53.0	40.7	44.4	31.9	16.4	27.9	21.4	31.9	47.4	43.3	45.0	34.4
10	Coke & refined petroleum prod.	1.1	2.0	1.9	1.8	17.6	2.9	4.9	10.6	13.3	22.6	13.8	10.6	37.6	59.6	58.3	21.2
11	Basic chemicals & chem. prod.	4.8	4.1	4.0	3.9	22.2	26.9	28.2	31.6	37.7	21.5	28.7	31.6	24.0	38.2	33.2	25.3
12	Rubber & plastic products	2.0	2.0	1.9	1.7	15.5	22.8	35.3	27.0	20.3	34.7	23.1	27.0	25.6	49.7	50.8	38.6
13	Other nonmetallic mineral prod.	2.0	1.9	1.7	1.6	29.7	33.8	37.6	23.9	20.9	19.5	20.7	23.9	38.1	63.0	58.1	49.5
14	Basic metals & metal products	7.6	6.2	5.4	5.2	51.2	48.7	38.2	28.1	37.5	24.0	25.7	28.1	46.5	49.9	52.9	46.1
15	Machinery & equipment	4.3	3.3	3.1	2.9	19.9	38.0	35.8	34.7	26.0	25.7	22.4	34.7	6.7	21.2	12.4	3.6
16	Electr. machinery & apparatus	3.8	3.0	3.1	3.1	12.4	16.2	30.9	23.9	27.1	19.3	20.1	23.9	2.2	12.8	22.2	9.2
17	Transport equipment	4.6	4.1	4.2	3.7	17.1	26.2	27.3	33.7	25.6	48.1	32.4	33.7	13.1	3.9	3.6	0.4
18	Wooden furniture, miscell. goods	2.5	2.4	2.5	2.2	50.2	36.9	42.3	24.7	20.9	10.1	19.7	24.7	38.7	37.5	32.3	34.8
19	Electricity, gas, steam & water	3.1	3.1	2.7	3.0	34.1	60.2	45.9	7.7	11.2	7.8	4.8	7.7	67.6	73.0	61.4	62.7
20	Construction	7.7	6.9	6.8	6.9	39.9	65.3	59.9	9.6	11.3	11.5	8.6	9.6	32.8	33.2	31.1	29.1
21	Trade & repair of motor vehicles	5.4	6.3	5.7	5.7	26.1	13.2	16.6	8.7	10.2	6.5	4.8	8.7	49.7	38.8	38.5	34.7
22	Services of restaurants & hotels	2.2	2.0	2.4	2.7	38.3	50.5	46.7	1.8	17.6	5.5	1.7	1.8	33.6	35.2	9.1	0.0
23	Transp.,commun.&travel agencies	6.4	5.1	5.3	5.5	52.8	34.6	26.6	17.2	25.0	9.8	11.1	17.2	59.5	52.6	53.7	60.4
24	Financial intermedia. & insurance	1.1	1.3	1.5	1.7	36.2	33.9	33.5	3.5	2.3	5.4	8.7	3.5	85.2	82.9	70.4	73.8
25	Business serv.,dwellings&renting	6.9	10.1	10.3	18.5	28.4	49.3	44.2	10.7	3.5	11.1	13.9	10.7	47.6	54.7	58.0	63.8
26	Other market services	2.1	2.2	3.9		48.5	36.5	37.3		20.7	8.7	5.9		46.3	83.9	95.6	
27	Nonmarket services	8.6	11.1	12.3	10.4	29.6	34.1	34.9	12.5	10.5	9.2	8.4	12.5	0.0	0.0	0.0	0.0
	Weighted average					33.9	38.8	37.7	35.0	20.5	16.7	15.4	18.4	34.0	37.7	36.5	32.7

Table 2 shows the normalized values of forward and backward linkages. Both underwent considerable changes in the period studied. To make the table easier to study, we shaded the key sectors, that is the sectors with values above average (values greater than 1) in the forward as well as in the backward linkages. In these four years only four sectors are the key ones: Agricultural and forestry products, Basic metals and metal products, Electricity, gas, steam and water and Other market services. Comparing only the situations in 1990 and 1995, the sector Financial intermediation and insurance was also among the key ones. In 1995 there was only one new key sector – Other nonmetallic mineral products, whereas the comparison in the sector Business services, dwellings and renting is not clear due to aggregation of this sector with the sector Other market services in 1995. Four sectors left the group of key sectors: Ferrous, nonferrous ores and stones, Wood and wood products, Cellulose, paper and cardboard and Transport, communication and travel agencies.

**Table 2:** Backward linkages (**un**) and forward linkages (**wn**) in 1990, 1992, 1993 and 1995  
Chenery-Watanabe method

Year		1990		1992		1993		1995	
Sec. No.	Sector	Backward linkages	Forward linkages						
1	Agricultural & forestry products	1.1907	1.4342	1.4159	1.4517	1.3412	1.5107	1.3744	1.7111
2	Fishery products	0.5488	0.6564	1.5599	1.1863	1.3549	0.7178	1.2578	0.8786
3	Coal, crude oil, natural gas	0.4325	2.1601	0.4310	2.0295	0.5718	2.2470	0.6548	2.6644
4	Ferrous, nonferr. ores and stones	1.6315	2.2012	0.5279	1.8004	0.7907	1.9098	0.9622	2.2734
5	Food, beverages & tobacco	1.3521	0.7516	1.2650	0.6176	1.2883	0.5997	1.1570	0.6738
6	Textiles & wearing apparel	0.4616	0.1661	0.8538	0.5256	0.8660	0.5006	0.9817	0.4989
7	Leather, footwear, leather prod.	0.4187	0.0465	0.7567	0.0438	0.6899	0.0779	0.7128	0.1143
8	Wood&wood prod.,excl.	1.8326	1.6940	1.4303	0.8832	1.4800	0.9954	1.5531	0.8967
9	Cellulose, paper & cardboard	1.6282	1.2084	1.1396	0.9603	1.2329	1.0551	1.1090	0.9542
10	Coke & refined petroleum prod.	0.5418	0.9585	0.0803	1.3206	0.1366	1.3660	0.1093	0.5869
11	Basic chemicals & chem.	0.6803	0.6124	0.7514	0.8460	0.7820	0.7791	0.8089	0.7017
12	Rubber & plastic products	0.4774	0.6521	0.6389	1.1003	0.9793	1.1914	0.9509	1.0697
13	Other nonmetallic mineral prod.	0.9130	0.9709	0.9442	1.3962	1.0430	1.3612	1.1790	1.3717
14	Basic metals & metal products	1.5739	1.1840	1.3609	1.1051	1.0592	1.2393	1.1426	1.2777
15	Machinery & equipment	0.6100	0.1718	1.0625	0.4694	0.9943	0.2918	0.8938	0.1005
16	Electr. machinery & apparatus	0.3813	0.0559	0.4532	0.2833	0.8576	0.5210	0.9359	0.2549
17	Transport equipment	0.5263	0.3333	0.7339	0.0864	0.7566	0.0853	0.6454	0.0121
18	Wooden furniture, miscell. goods	1.5420	0.9854	1.0310	0.8303	1.1747	0.7569	0.9524	0.9647
19	Electricity, gas, steam & water	1.0466	1.7216	1.6844	1.6168	1.2739	1.4386	1.4493	1.7395
20	Construction	1.2254	0.8346	1.8276	0.7356	1.6642	0.7282	1.7931	0.8058
21	Trade & repair of motor vehicles	0.8027	1.2663	0.3694	0.8593	0.4621	0.9036	0.3918	0.9611
22	Services of restaurants & hotels	1.1763	0.8572	1.4112	0.7794	1.2974	0.2142	1.1408	0.0000
23	Transp.,commun.&travel	1.6228	1.5149	0.9672	1.1646	0.7389	1.2589	0.6075	1.6747
24	Financial intermedia. &	1.1129	2.1698	0.9487	1.8374	0.9300	1.6496	1.1416	2.0452
25	Business	0.8721	1.2123	1.3797	1.2114	1.2275	1.3597	1.3587	1.7688
26	Other market services	1.4906	1.1805	1.0217	1.8596	1.0368	2.2410		
27	Nonmarket services	0.9080	0.0000	0.9538	0.0000	0.9700	0.0000	0.7361	0.0000

#### 4 The analysis of intersectoral linkages based on the Rasmussen method

The main criticism of the Chenery-Watanabe method is that it considers only direct linkages between sectors but neglects indirect ones which are even more important in some sectors. That is why some authors advocate the use of the Rasmussen method which is based on the use of matrix multipliers instead of technical coefficients. The sum of the column of the matrix of multipliers should represent the power of the sectoral backward linkage. That is why he called this sum the index of the power of dispersion (p). The total of the row of the matrix of multipliers represents sectoral forward linkages and he named this sum the index of the sensitivity of dispersion (s). We decided on the use of the output matrix to determine the forward linkages. That is why the index of the sensitivity of dispersion of the sector will be determined as the sum of the row of the inverse matrix of outputs.

The formal representation of the calculation of both indices is as follows:

$$\begin{aligned} \mathbf{p} &= \mathbf{e}'(\mathbf{I} - \mathbf{A}^d)^{-1} = \mathbf{e}'\mathbf{R} \\ \mathbf{s} &= (\mathbf{I} - \mathbf{B}^d)^{-1} \mathbf{e} = \mathbf{Qe} \end{aligned} \quad (7)$$

The formal representation of the calculations of the appropriate normalized values is as follows:

$$\begin{aligned} \mathbf{pn} &= n\mathbf{e}'\mathbf{R} / (\mathbf{e}'\mathbf{Re}) \\ \mathbf{sn} &= n\mathbf{Qe} / (\mathbf{e}'\mathbf{Qe}) \end{aligned} \quad (8)$$

The symbols stand for:

$\mathbf{pn} = \{pn_j\}$  - vector of the normalized indices of the power of dispersion

$\mathbf{sn} = \{sn_i\}$  - vector of the normalized indices of the sensitivity of dispersion

Therefore the value of the index of the power of dispersion of an individual sector represents the necessary production of all sectors of the economy, which ensures the unit of the consumption of the production of this sector. The value of the index of the sensitivity of dispersion of the sector represents the necessary production of all the sectors to absorb the influence of the increase in the unit of the primary input of this sector. The index of the power of dispersion starts to exert influence at the end of the production process, i.e. in the consumption, and keeps exerting influence throughout the production system until the appropriate increases in the sectoral productions enable the consumption. The index of the sensitivity of dispersion appears at the beginning of the production process. It follows the increase in the primary input of the sector throughout the production system until the production in all the sectors is guaranteed which is caused by this increase.

Table 3 shows the sectoral multipliers and multipliers of forward linkages. To draw a comparison with direct import shares complex import shares have been calculated in table 1 representing the necessary import in the whole economy for a unit of the consumption of products of an individual sector. The appropriate weighted averages are calculated for the economy as a whole where the structure of the consumption in 1990 is taken as weights in all years. By comparison, the structure of the consumption by individual years is shown in the first column of the table 3. The negative percentage value means that the domestic production does not cover the whole reproduction consumption of products which belong to this sector.

The increase in the shares of the purchases of domestic production materials in the value of the production determined in the previous section is now reflected in the increase in the sectoral multipliers. Weighted averages are now calculated on the basis of the structure of the consumption since the values of multipliers refer to it, too. In the economy of Slovenia it was necessary to produce 1.49 unit of the production on average for a unit of the consumption in 1990, 1.65 unit in 1992, 1.62 unit in 1993 and 1.57 unit of the production in 1995. It is evident from the data in table 3 that multipliers in individual sectors underwent great changes. Let us mention only that in 1990 the sector Wood and wood products had the greatest value of the multiplier and in 1992, 1993 and 1995 the first place was occupied by the sector Construction. It is interesting to note that on average the complex import shares decreased in the middle two years studied, but to a considerably lesser extent than the direct import shares on average<sup>5</sup>, whereas in the last year the average complex import share returned to the value of 1990, which is almost true also for the average direct import share. The changes on the side of the output multipliers are not as noticeable as those on the side of the input multipliers.

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<sup>5</sup> It should be taken into account that the structure of the consumption in 1990 by sectors was used as weights.

**Table 3:** The structure of the final demand, input and output multipliers and complex import shares of the Slovenian economy in 1990, 1992 and 1993

Sec. No.	Sector	The structure of the final demand (%)				Input multipliers (p)				Complex import shares (e'G)*100				Output multipliers (s)			
		1990	1992	1993	1995	1990	1992	1993	1995	1990	1992	1993	1995	1990	1992	1993	1995
1	Agricultural& forestry products	1.0	3.2	2.6	2.9	1.6182	1.8748	1.8227	1.7744	46.0	20.3	18.9	21.8	1.9842	2.1708	2.1200	2.0424
2	Fishery products	0.0	0.0	0.0	0.0	1.2627	1.8354	1.7539	1.6493	24.8	41.5	12.3	14.2	1.3652	1.8393	1.4086	1.4059
3	Coal, crude oil, natural gas	-0.8	-1.7	-1.0	-0.9	1.1980	1.2467	1.3213	1.3578	10.5	3.6	4.6	5.9	2.7958	3.0583	2.9381	2.8804
4	Ferrous, nonferr. ores and stones	-0.4	-0.3	-0.3	-0.2	2.0184	1.3050	1.4505	1.5407	62.3	17.5	17.9	19.2	2.6976	2.4621	2.2746	2.2426
5	Food, beverages & tobacco	8.3	9.8	8.8	8.9	1.7311	1.8178	1.8056	1.6635	41.7	22.5	20.7	20.6	1.4410	1.4361	1.3379	1.2930
6	Textiles & wearing apparel	7.4	5.2	4.7	4.1	1.2212	1.4702	1.4732	1.5038	26.8	31.3	28.4	33.7	1.0722	1.3118	1.2757	1.2207
7	Leather, footwear, leather prod.	2.6	1.7	1.5	1.1	1.2024	1.4067	1.3670	1.3514	23.2	45.5	27.9	37.1	1.0215	1.0315	1.0621	1.0871
8	Wood&wood prod.,excl. furniture	0.1	1.3	1.4	1.3	2.1563	1.9261	1.9052	1.8777	61.6	27.3	25.9	32.0	2.2950	1.6109	1.6375	1.4756
9	Cellulose, paper & cardboard	2.5	2.1	2.0	1.5	1.9504	1.7127	1.7330	1.6089	31.7	38.1	31.5	41.1	1.8022	1.6961	1.7199	1.5074
10	Coke & refined petroleum prod.	-0.6	-0.3	0.3	0.3	1.2459	1.0482	1.0711	1.0572	16.5	23.0	14.4	11.3	1.6951	2.1390	2.0300	1.3772
11	Basic chemicals & chem. prod.	0.8	-1.1	0.0	0.2	1.3203	1.4117	1.4355	1.4320	46.1	27.9	35.5	38.6	1.3428	1.5466	1.4943	1.3547
12	Rubber & plastic products	2.7	1.3	0.7	0.5	1.2093	1.3548	1.5429	1.4976	25.3	41.1	32.7	36.4	1.4244	1.8275	1.8601	1.6133
13	Other nonmetallic mineral prod.	1.2	0.3	0.4	0.5	1.4804	1.5088	1.5458	1.5969	30.6	26.4	27.7	32.8	1.5917	1.9830	1.9068	1.7628
14	Basic metals & metal products	1.8	2.4	1.1	1.2	1.9304	1.8869	1.5998	1.6170	63.6	38.4	34.0	37.6	1.7608	1.8701	1.8963	1.7911
15	Machinery & equipment	7.0	5.3	5.2	4.7	1.3188	1.6176	1.5640	1.4745	34.0	36.2	31.7	42.8	1.0804	1.3298	1.1658	1.0481
16	Electr. machinery & apparatus	6.0	3.3	2.6	3.2	1.1985	1.2599	1.4839	1.5096	31.5	22.8	27.2	31.9	1.0242	1.1442	1.2957	1.1072
17	Transport equipment	6.0	5.7	6.2	5.1	1.2443	1.3496	1.3888	1.3033	31.4	52.4	37.1	37.6	1.1707	1.0409	1.0381	1.0083
18	Wooden furniture, miscell. goods	2.7	2.7	3.0	2.5	1.9964	1.6288	1.6918	1.5227	45.2	18.1	29.6	33.0	1.5670	1.6278	1.5179	1.5720
19	Electricity, gas, steam & water	1.9	1.8	2.2	2.3	1.4783	1.8987	1.6538	1.7586	16.1	15.3	10.3	15.2	2.2451	2.2503	2.0297	1.9757
20	Construction	11.3	10.1	9.7	10.2	1.6690	2.2021	2.0347	2.0703	22.4	29.2	22.4	24.9	1.5042	1.5180	1.4842	1.4529
21	Trade & repair of motor vehicles	5.4	8.1	7.0	7.2	1.3695	1.2169	1.2578	1.2179	15.7	9.2	7.3	11.3	1.8303	1.5688	1.5588	1.4746
22	Services of restaurants & hotels	2.5	2.8	4.5	5.5	1.6138	1.8619	1.7991	1.6182	29.7	16.8	11.5	10.9	1.6156	1.6857	1.1758	1.0000
23	Transp.,commun.&travel agencies	2.1	2.7	3.7	2.9	1.8858	1.4905	1.4054	1.3527	40.9	18.1	16.2	21.9	2.0001	1.8974	1.8503	1.9093
24	Financial intermedia. & insurance	0.3	0.3	0.7	0.8	1.5738	1.5210	1.5327	1.6460	4.1	9.0	14.0	7.9	2.8076	2.6962	2.3257	2.4185
25	Busness serv.&dwelling&renting	7.8	8.7	7.5	12.2	1.4279	1.8678	1.7278	1.8018	7.2	22.0	24.9	21.5	1.7170	1.9497	1.9244	2.1962
26	Other market services	1.5	2.8	3.5		1.8359	1.5854	1.5927		34.5	16.2	12.3		1.7776	2.4552	2.6941	
27	Nonmarket services	18.8	21.8	22.2	21.8	1.4893	1.5509	1.5556	1.3946	18.2	17.5	16.3	18.6	1.0000	1.0000	1.0000	1.0000
	Weighted average					1.4910	1.6471	1.6239	1.5721	26.7	26.4	23.4	26.7	1.3503	1.4159	1.3814	1.3423

Table 4 shows the normalized values of indices of the power and indices of the sensitivity of dispersion and backward and forward linkages. The key sectors have been defined in the same way as in the previous section and have been shaded. In comparison with the Chenery-Watanabe method there are no differences in 1990 and 1995. According to the Rasmussen method the sector Other market services no longer belonged to key sectors in 1992. The only difference in 1993 is that the sector Other nonmetallic mineral products is no longer in the group of the key sectors. These facts prove different findings that can be found in the literature. The use of the matrices of multipliers instead of the matrices of technical coefficients does not produce considerably different results in the determination of the key sectors. We believe that the information about intersectoral linkages provided by the Rasmussen method is richer in content than that of the Chenery-Watanabe method.

**Table 4:** Backward linkages (**pn**) and forward linkages (**sn**) in 1990, 1992, 1993 and 1995  
Rasmussen method

Sec No.	Sector	1990		1992		1993		1995	
		Backward linkages	Forward linkages						
1	Agricultural & forestry products	1.0491	1.1741	1.1812	1.2174	1.1575	1.2437	1.1477	1.2884
2	Fishery products	0.8186	0.8078	1.1563	1.0314	1.1139	0.8264	1.0667	0.8869
3	Coal, crude oil, natural gas	0.7767	1.6544	0.7854	1.7150	0.8391	1.7237	0.8782	1.8170
4	Ferrous, nonferr. ores and stones	1.3085	1.5963	0.8221	1.3807	0.9212	1.3344	0.9965	1.4146
5	Food, beverages & tobacco	1.1223	0.8527	1.1452	0.8054	1.1467	0.7849	1.0759	0.8156
6	Textiles & wearing apparel	0.7917	0.6345	0.9262	0.7356	0.9356	0.7484	0.9726	0.7701
7	Leather, footwear, leather prod.	0.7796	0.6044	0.8862	0.5784	0.8681	0.6231	0.8741	0.6858
8	Wood&wood prod.,excl.	1.3979	1.3580	1.2134	0.9034	1.2099	0.9607	1.2145	0.9308
9	Cellulose, paper & cardboard	1.2645	1.0664	1.0790	0.9511	1.1005	1.0090	1.0406	0.9509
10	Coke & refined petroleum prod.	0.8077	1.0031	0.6604	1.1995	0.6802	1.1909	0.6838	0.8687
11	Basic chemicals & chem.	0.8560	0.7945	0.8894	0.8673	0.9117	0.8767	0.9262	0.8545
12	Rubber & plastic products	0.7840	0.8429	0.8536	1.0248	0.9798	1.0913	0.9687	1.0177
13	Other nonmetallic mineral prod.	0.9597	0.9419	0.9506	1.1120	0.9817	1.1187	1.0328	1.1120
14	Basic metals & metal products	1.2515	1.0419	1.1887	1.0487	1.0160	1.1125	1.0459	1.1298
15	Machinery & equipment	0.8550	0.6393	1.0191	0.7457	0.9933	0.6839	0.9537	0.6611
16	Electr. machinery & apparatus	0.7770	0.6061	0.7938	0.6417	0.9424	0.7601	0.9764	0.6984
17	Transport equipment	0.8067	0.6927	0.8503	0.5837	0.8820	0.6091	0.8430	0.6361
18	Wooden furniture, miscell. goods	1.2943	0.9272	1.0261	0.9129	1.0744	0.8905	0.9849	0.9917
19	Electricity, gas, steam & water	0.9584	1.3285	1.1962	1.2619	1.0503	1.1908	1.1374	1.2463
20	Construction	1.0821	0.8900	1.3873	0.8513	1.2922	0.8707	1.3390	0.9165
21	Trade & repair of motor vehicles	0.8878	1.0830	0.7666	0.8798	0.7988	0.9145	0.7878	0.9302
22	Services of restaurants & hotels	1.0463	0.9560	1.1730	0.9453	1.1425	0.6898	1.0466	0.6308
23	Transp.,commun.&travel	1.2226	1.1835	0.9390	1.0640	0.8925	1.0855	0.8749	1.2044
24	Financial intermedia. &	1.0203	1.6613	0.9582	1.5120	0.9734	1.3644	1.0646	1.5256
25	Business	0.9257	1.0160	1.1767	1.0933	1.0973	1.1290	1.1654	1.3854
26	Other market services	1.1902	1.0519	0.9988	1.3769	1.0114	1.5806		
27	Nonmarket services	0.9655	0.5917	0.9771	0.5608	0.9879	0.5867	0.9020	0.6308

## 5 The analysis of the intersectoral linkages on the basis of the Dietzenbacher method

As has already been mentioned, several methods have been proposed to determine the key sectors. Besides the methods used in the previous two sections, the methods using the triangulation of the matrix of technical coefficients, hypothetical extraction of individual sectors, etc. can also be found in the literature. The Dietzenbacher method is among the latest ones found in the literature. There are three reasons why we decided to apply this method. Firstly, the determination of the key sectors does not depend on the use of matrices of technical coefficients or matrices of multipliers. Secondly, the previous use of this method showed that it was also sensitive to minor changes in intersectoral linkages. Thirdly, the use of this method gives a summary measure of the power of mutual linkages in the economy.

Dietzenbacher showed that the elements of eigenvector of the dominant eigenvalue of the matrix of technical coefficients or the matrix of multipliers were appropriate for measuring intersectoral linkages. The dominant eigenvalue can be used as a general measure of the power of intersectoral linkages. The normalized values of the sectoral forward and backward linkages are calculated according to this method as follows:

$$\begin{aligned} \mathbf{zn} &= \mathbf{nz} / (\mathbf{e}'\mathbf{z}) ; \mathbf{B}^d \mathbf{z} = \lambda \mathbf{z} \\ \mathbf{qn} &= \mathbf{nq}' / (\mathbf{q}'\mathbf{e}) ; \mathbf{q}'\mathbf{A}^d = \lambda \mathbf{q}' \end{aligned} \quad (9)$$

The symbols stand for:

- $\mathbf{zn} = \{zn_i\}$  - vector of the normalized values of forward linkages  
 $\mathbf{qn} = \{qn_j\}$  - vector of the normalized values of backward linkages  
 $\lambda$  - dominant eigenvalue

The determined dominant eigenvalues entirely correspond to the law of changing the intersectoral linkages in the Slovenian economy which has been determined so far. The value from the year 1990 when it amounted to 0.3967 first increased to the value of 0.4068 in 1992, then decreased to the value of 0.3796 in 1993 and finally increased again to the value of 0.4136 in 1995. This is proved by previous findings; the Slovenian economy first made a greater use of its own production materials, then it relied more on foreign economies in these purchases and later returned to the use of own production materials again<sup>6</sup>. The normalized values of forward and backward linkages according to the Dietzenbacher method are shown in table 5.

**Table 5:** Backward linkages (**qn**) and forward linkages (**zn**) in 1990, 1992, 1993 and 1995 Dietzenbacher method

Sec .No	Sector	Year		1990		1992		1993		1995	
		Backward linkages	Forward linkages								
1	Agricultural & forestry products	0.6100	1.3671	1.7472	1.8352	2.2372	1.5944	1.2916	0.5191		
2	Fishery products	0.3280	0.2249	0.8700	1.0843	1.0710	0.2100	0.9254	0.0299		
3	Coal, crude oil, natural gas	0.1588	3.3630	0.3268	3.3343	0.4459	3.7315	0.6962	3.7838		
4	Ferrous, nonferr. ores and stones	2.3221	2.2808	0.4278	1.4132	0.6801	1.4765	1.1350	1.6877		
5	Food, beverages & tobacco	0.7915	0.3949	1.7922	0.5674	2.1596	0.2602	1.1917	0.0407		
6	Textiles & wearing apparel	0.1899	0.0079	0.5354	0.1231	0.6680	0.1395	0.7690	0.0996		
7	Leather, footwear, leather prod.	0.1931	0.0132	0.4547	0.0406	0.4647	0.1113	0.5218	0.3214		
8	Wood&wood prod.,excl.	3.9038	2.0408	1.9279	0.5460	2.2115	0.6930	1.5698	0.7523		
9	Cellulose, paper & cardboard	1.3449	1.1469	1.2336	0.7234	1.1810	0.9495	1.1155	0.5515		
10	Coke & refined petroleum prod.	0.1794	0.8618	0.0711	1.6928	0.0798	1.5432	0.0990	0.5485		
11	Basic chemicals & chem.	0.2998	0.2681	0.5563	0.4070	0.6203	0.5625	0.7874	0.3983		
12	Rubber & plastic products	0.1325	0.4488	0.5215	0.9821	0.7358	1.3528	0.8284	0.8592		
13	Other nonmetallic mineral prod.	0.6774	0.3561	0.5934	0.7373	0.6236	1.0711	0.9583	1.1949		
14	Basic metals & metal products	2.3164	0.5189	1.8421	1.0617	0.8119	1.2880	1.0837	2.1046		
15	Machinery & equipment	0.5975	0.0329	1.0186	0.4161	0.8347	0.1218	0.8304	0.0422		
16	Electr. machinery & apparatus	0.3386	0.0040	0.4246	0.0258	0.7153	0.2041	0.9788	0.0581		
17	Transport equipment	0.3025	0.0815	0.3520	0.0041	0.4513	0.0040	0.4258	0.0136		
18	Wooden furniture, miscell. goods	4.5628	0.2715	1.1794	0.7771	1.3598	0.6914	0.9485	1.4952		
19	Electricity, gas, steam & water	0.2078	1.7546	1.2942	1.4820	0.7897	1.4894	1.4198	1.6521		
20	Construction	1.3886	0.3352	2.7890	0.3916	1.9462	0.5888	2.3619	0.6916		
21	Trade & repair of motor vehicles	0.2933	0.8915	0.3620	0.5066	0.3733	0.6095	0.4461	0.5583		
22	Services of restaurants & hotels	0.6866	0.7800	1.7755	1.0536	2.0251	0.2944	1.0134	0.0000		
23	Transp.,commun.&travel	1.2177	1.0917	0.6403	1.0889	0.5965	1.0869	0.7676	1.2889		
24	Financial intermedia. &	0.3583	7.0613	0.3839	3.7169	0.8509	2.8677	1.2645	3.7689		
25	Busness	0.7651	0.5233	1.8988	1.2187	1.2576	1.2236	1.8394	3.5399		
26	Other market services	1.8814	0.8794	1.0199	1.7703	0.8971	2.8348				

<sup>6</sup> By comparison, Dietzenbacher's finding for the Dutch economy can be mentioned: the dominant eigenvalue amounted to 0.366 in 1948 and by the year 1984 it fell to the value of 0.303.

27	Nonmarket services	0.9521	0.0000	0.9617	0.0000	0.9120	0.0000	0.7310	0.0000
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It can be asserted that there are greater changes in the intersectoral linkages when this method is used. In 1990 there were only four sectors among the key sectors, five in 1995, six in 1992, but in 1993 there were only two key sectors. If we take a closer look at the last year studied, we can realize that the first sector – Agricultural and forestry products, which was firmly anchored among the key sectors by all the three methods in 1992 and 1993, dropped off the group of key sectors. We observe the same situation also in the year 1990. But according to Dietzenbacher's method we have one new key sector, namely Financial intermediation and insurance, that was not considered a key sector by the other two methods, nor in the other years studied. The results of the two previous methods correspond to a slightly higher degree with those of the third method only in 1992 and 1995. The sensitivity of the method to smaller changes in the intersectoral linkages found expression in our calculations as well.

## 6 Conclusions

On the basis of the calculations that have been carried out it can be established that there were no marked changes in the structure of the production and consumption at the discussed level of sectoral aggregation in the studied period between 1990 and 1995. All three methods discussed show that the Slovenian economy considerably increased mutual linkages on the side of purchases as well as on the side of sales in 1992 in comparison with 1990. In 1993 as well as in 1995 these changes were already slightly smaller which probably means that the economy is gradually becoming more open.

Table 6 has been prepared to provide a clear survey of the results showing the importance of an individual sector in encouraging the domestic production via intersectoral linkages. This table includes the results of the calculations which have been carried out by placing each sector into one out of four groups. Key sectors, that is sectors with both forward and backward linkages above average, have been marked K, sectors with only forward linkages above average with F and sectors with only backward linkages above average have been marked B. Sectors where the normalized values of forward and backward linkages are smaller than 1 are marked L. To make a clearer survey of the situation in 1995, the columns in the table referring to this year have been shaded.

It is taken into account that a key sector is a sector which is placed into this group by at least two methods used. Only the situation in 1995 is compared with that in 1990. In this way it has been found out that in 1995 there were only six sectors that belonged to the group of key sectors, namely Agricultural and forestry products, Other nonmetallic mineral products, Basic metals and metal products, Electricity, gas, steam and water, Financial intermediation and insurance and Business services, renting and other market services. In comparison with 1990 four sectors left this group: Ferrous, nonferrous ores and stones, Wood and wood products, Cellulose, paper and cardboard and Transportation, storage, communication and travel agencies. Two sectors joined the group of key sectors anew: Other nonmetallic mineral products and Electricity, gas, steam and water. It should be mentioned that among the key sectors Agricultural and forestry products and Basic metals and metal products are the two sectors that are anchored most firmly, if we take all the studied periods and all the used methods into account<sup>7</sup>. There are several sectors which did not change the group in all these years, e.g. the sector Coal, crude oil, natural gas belonged to the F group, Food, beverages and tobacco and Construction to the B group, Textiles and wearing apparel, Leather, footwear and leather products, Basic chemicals and chemistry products, Electric machinery and apparatus, Transport equipment and Nonmarket services to the L group, etc.

<sup>7</sup> This holds good of the Netherlands, too. In the entire period between 1948 and 1984 the sector Agriculture, forestry and fishery was among the key sectors (cf. Dietzenbacher (1992)).

**Table 6:** Key sectors (K), sectors important to backward linkages (B), sectors important to forward linkages (F) and sectors with weak linkages (L)

Method		Chenery - Watanabe				Rasmussen				Dietzenbacher			
Sec. No.	Sector	19 90	19 92	19 93	19 95	19 90	19 92	19 93	19 95	19 90	19 92	19 93	19 95
1	Agricultural & forestry products	K	K	K	K	K	K	K	K	F	K	K	B
2	Fishery products	L	K	B	B	L	K	B	B	L	F	B	L
3	Coal, crude oil, natural gas	F	F	F	F	F	F	F	F	F	F	F	F
4	Ferrous, nonferr. ores and stones	K	F	F	F	K	F	F	F	K	F	F	K
5	Food, beverages & tobacco	B	B	B	B	B	B	B	B	L	B	B	B
6	Textiles & wearing apparel	L	L	L	L	L	L	L	L	L	L	L	L
7	Leather, footwear, leather prod.	L	L	L	L	L	L	L	L	L	L	L	L
8	Wood&wood prod.,excl. furniture	K	B	B	B	K	B	B	B	K	B	B	B
9	Cellulose, paper & cardboard	K	B	K	B	K	B	K	B	K	B	B	B
10	Coke & refined petroleum prod.	L	F	F	L	F	F	F	L	L	F	F	L
11	Basic chemicals & chem. prod.	L	L	L	L	L	L	L	L	L	L	L	L
12	Rubber & plastic products	L	F	F	F	L	F	F	F	L	L	F	L
13	Other nonmetallic mineral prod.	L	F	K	K	L	F	F	K	L	L	F	F
14	Basic metals & metal products	K	K	K	K	K	K	K	K	B	K	F	K
15	Machinery & equipment	L	B	L	L	L	B	L	L	L	B	L	L
16	Electr. machinery & apparatus	L	L	L	L	L	L	L	L	L	L	L	L
17	Transport equipment	L	L	L	L	L	L	L	L	L	L	L	L
18	Wooden furniture, miscell. goods	B	B	B	L	B	B	B	L	B	B	B	F
19	Electricity, gas, steam & water	K	K	K	K	F	K	K	K	F	K	F	K
20	Construction	B	B	B	B	B	B	B	B	B	B	B	B
21	Trade & repair of motor vehicles	F	L	L	L	F	L	L	L	L	L	L	L
22	Services of restaurants & hotels	B	B	B	B	B	B	B	B	L	K	B	B
23	Transp.,commun.&travel agencies	K	F	F	F	K	F	F	F	K	F	F	F
24	Financial intermedia. & insurance	K	F	F	K	K	F	F	K	F	F	F	K
25	Business serv.&dwelling&renting	F	K	K	K	F	K	K	K	L	K	K	K
26	Other market services	K	K	K		K	F	K		B	K	F	
27	Nonmarket services	L	L	L	L	L	L	L	L	L	L	L	L

Finally, some questions should be pointed out which are raised in connection with the analysis of mutual linkages of the sectors of the Slovenian economy:

- Is the sectoral disaggregation which has been taken into account appropriate?
- Are the changes determined common or uncommonly great?
- To what extent are the changes determined as the result of transition or of the completed privatization of an individual sector?
- How strong is the influence of the change in relative prices and different interventions of economic policy at sectoral level (reductions in or exemptions from paying different taxes or contributions)?

These and other questions can only be answered with more thorough analyses which require other data, too, and not only input-output tables.

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