



## **SHADOW ECONOMY IN THE WOOD INDUSTRY IN SLOVENIA**

**Dr. Jože Kocjančič\***

*University of Primorska, Faculty of Management Koper Cankarjeva 5, 6104 Koper*

*Slovenia*

*joze.kocjancic@siol.net*

**Dr. Štefan Bojnec**

*University of Primorska, Faculty of Management Koper Cankarjeva 5, 6104 Koper*

*Slovenia*

*stefan.bojnec@fm-kp.si*

### **Abstract**

This paper investigates the impact of the reduction in the number and size structure of large enterprises in the wood industry on the dynamics of the shadow economy in the wood industry in Slovenia. The empirical results show that the dynamics in the reduction of the number and size structure of large enterprises in the wood industry significantly contributes on the increasing share of the shadow economy in the wood industry. The most important decision factors to participate in the shadow economy are the level of taxes and contributions, opportunities for better earnings and tax regulations. The estimated share of the shadow economy in the wood industry is 21.7%. As the basic solutions to reduce the share of the shadow economy and to speed up the dynamics of the entering of small enterprises in the wood industry are improved regulation system to provide better incentives to operate within the formal sector and better access for necessary financial capital at acceptable guarantees. As important are also good practices by the state institutions by providing incentives for entrepreneurship and encouraging decisions for the setting up of an enterprise.

Key Words: Shadow economy, firm dynamics, wood industry, Slovenia.

### **INTRODUCTION**

The research investigate the impact of the changes in the number and size structure of large enterprises in the wood industry in Slovenia on the share of shadow economy, and the most frequent reasons for operation in the shadow economy. The previous studies have largely investigated the shadow economy for the manufacturing sector activities as a whole. Few studies have investigated the shadow economy in the literature (e.g. Glas 1991; Kukar 1995;

Ott 1998; Feige et al. 1999, 2008; Fleming et al. 2000; Smith 1994; Flajs and Vajda 2004; Schneider 2005, 2007; Nastav and Bojnec 2007, 2008; Nastav 2009). In addition to the review of the previous studies on the shadow economy, in the empirical part we analyse the results of our research on the sample of micro and small enterprises, which operate in the wood industry in Slovenia. The empirical results indicate in what degree and in which ways the changes in the number and the importance of large enterprises in the wood industry have caused the changes in the shadow economy.

## **THEORETICAL BACKGROUND AND MAIN STYLIZED FACTS**

In general two main streams of literature exist regarding the definition of the shadow economy. The first view considers the shadow economy as an unregistered economic activity, while the second view basis on a temporary characteristics of economic behaviours (Fleming et al. 2000). The aims to generalise different definitions of the shadow economy in most cases is based on these two streams of literature. Thomas (1999) suggests that for the shadow economy activities are considered all those activities, which are not, but should be included into the national revenues. Schneider and Enste (2000) define the shadow economy as all economic activities, which should be calculated in the national gross domestic product, but due to different reasons are not. Smith (1994) defines the shadow economy sector as legal or illegal, on market demand based production and service activities, which were avoided in the estimate of the national gross domestic product. Nastav and Bojnec (2007) under the term of the shadow economy include all those economic activities, which are legal, but are not under a control of institutions, which are managing with them.

The main reasons for the shadow economy both in developed and transition economies and developing countries are higher taxes and contributions for social insurance, moral of the people and the degree of the state regulation. Higher taxes and contributions explain 35 to 38% of the reasons for the appearance of the shadow economy, more strict tax regulations 8 to 10% and tax moral 22 to 25% of the reasons for the shadow economy (Schneider 2005).

### **Impact of the shadow economy on the economy**

The shadow economy has negative and positive impacts on the economy from the economic and social points of view. These impacts are reflected in a form of less charged taxes of responsible institutions, in impacts on less competitive enterprises, which are operating in the formal sector of the economy as well as on the side of consumers, which usually do not have guarantee for products and services. On the other hand enterprises, which are operating in the shadow economy, they operate with lower costs and they can employ more people, which might do not find employment in the formal sector. Consumers can have lower costs for purchases of goods and services, which are caused by bureaucratic and administrative barriers and might not pay value-added taxes. The shadow economy can also play a specific incubator for small enterprises, which at the early beginning operate in the shadow economy (e.g. Schneider and Enste 2002; Smith 2002; Nastav and Bojnec 2008).

### **Shadow economy in Slovenia and in some developed countries**

As can be seen from Table 1 in most of developed countries the share of the shadow economy is between 8% and 30% of gross domestic product. Moreover, the share of the shadow economy in developed countries is lower than in transition economies and in developing countries. The shadow economy in general represents a part of gross domestic product, which should be considered in formulation of the economic policy.

Table 1: Share of the shadow economy in some developed countries

Country	Share of the shadow economy in % in gross domestic product in the period 1999–2003
Greece, Italy,	24–30%
Sweden, Norway, Denmark, Ireland, France, Spain, Netherlands, Germany, England, Portugal, Belgium, Finland	12–23%
Japans, Austria, Switzerland, USA	8–11%

Source: Schneider 2007.

Slovenia is rarely included in the studies of the shadow economy. Most often it is refereed in researches of the shadow economy in transition countries or in associated members of the EU. Empirical results of different studies often vary due to different used definitions and methodologies, which very often prevents their comparisons. The study conducted by Schneider and Enste (2003) reports that 26.7% of gross domestic product is generated by the shadow economy in Slovenia in the period 2000–2001. They consider all those economic activities, which are administratively organized and should be normally taxed. In the study conducted by Schneider (2004) on the sample of ten new members of the EU is also included estimation of the share of the shadow economy in the officially reported gross domestic product in Slovenia in the period 1999–2003. According to his estimates the share of the shadow economy is between 27.1% and 29.4% and tends to increase.

Nastav and Bojnec (2007) report that the share of the shadow economy in registered value added by different economic activities in Slovenia vary and tends to increase. The average estimate of the share of the shadow economy in gross value added in Slovenia was in the year 1995 between 18.9% and 20.8% and increased by the year 2000 from 20.4% to 22.5% of the registered gross domestic product.

### **Shadow economy and dynamics of enterprises**

European Commission (2004) and OECD (2002) argue that there is a direct association between micro and small enterprises on one hand and the shadow economy on the other. The finding is based on a fact that small enterprises are more flexible and easier avoid unfavourable legislation and administration and therefore easier hidden a part of their activities, which are performed in forms of the shadow economy. Moreover, high taxation obligations and other regulatory and administration limitations are causing the increases in the share of economic activities, which are performed in the shadow economy (Johnson et al. 2000). In a spite of this there is not possible to associate a positive dependent of the dynamics of entry and exit of enterprises only with these impacts. Taxation limitations, labour market regulations, administrative transaction costs, investment climate, income inequalities and some other factors can also have impact on the dynamics of entry and exit of enterprises as well as on the share of the shadow economy (Schneider and Enste 2002, Bartlett et al. 2005).

The relation between the rate of unemployment and the dynamics of entry of new enterprises particularly with an aim of self-employment can also have positive effects on the dynamics of entry, and vice versa (Audretsch et al. 2005). First, unemployment individuals are willing to establish own enterprise in the case of low opportunity costs of self-employment (Evans and Leighton 1990). Second, high rate of unemployment has for implication the higher share of activity, which is conducted in the shadow economy, which is

associated with low rate of the dynamics of entry of new enterprises. Third, positive dynamics of entry of new enterprises have impacts on the reduction of the shadow economy and the rate of unemployment (Storey 1991).

### **Wood industry**

Wood industry is included among manufacturing activities. Its main activity is production of processed wood and wooden plates, then production of furniture, construction furniture, and other products made from wood. For wood industry in Slovenia is typical a high concentration of enterprises: 1% of enterprises contribute 25% of total revenues, the first 3% of largest enterprises contribute 50% of total revenues in the wood industry in Slovenia.

In 2006 in the wood industry operate 2,586 enterprises and individual entrepreneurs (SURS 2007), which means 14.2% share of all enterprises in the manufacturing activities. In the same year the gross value added per employee in the wood on average amounted to 19,403 euro, which is a bit more than 67% of value-added per employee in the manufacturing activities, which on average achieved 26,974 euro, and only a bit less than 64% of gross value added per employee in the economy as a whole, which on average achieved gross value added per employee 30,408 euro (SURS 2008).

The comparison of the wood industry in Slovenia with the wood industry in the EU-27 shows that Slovenia with 19,403 euro of value added per employee achieved a bit less than 75% of average value added per employee in the EU-27, which amounted to 25,885 euro. The wood industry has important contribution in the Slovenian economy employment and value added, but the productivity in the Slovenian wood industry on average is lower than in the EU.

### **METHODOLOGY AND DATA**

The collected data from the existing secondary data bases are analysed by descriptive statistics and multivariate factor analysis. In addition, at the end of 2008 the primary data for the sample of enterprises are collected using the written questionnaire, which was sent by post-mail with a pre-paid post mark and envelope. The written questionnaire contains from a short, mostly closed-type of questions. The possibility for a selection of answers was based in a form, which is known as a Likert's scale-type. The respondents were asked to select one out of five possible answers. The selected answer indicates the degree of agreement or disagreement with the possible opinion (Easterby-Smith, Thorpe and Lowe 2005).

We include statistical population of micro, small and large enterprises, which operate in the wood industry in Slovenia. In 2007, the statistical population contains 3,324 micro and small enterprises and 18 large enterprises (Table 2). The investigation of statistical population is based on a statistical sample, which includes 700 statistical units in population of micro and small enterprises, which represents almost 21% of total population of micro and small enterprises in the wood industry in Slovenia. On the written questionnaire we received 168 answers of enterprises out of 700 in the sample randomly selected enterprises to the written questionnaire was sent. This means that we received 24% of successfully completed written questionnaires. Among the participating enterprises are by legal-organization forms 60.7% independent entrepreneurs, 33.9% associations with limited responsibility and in 3.6% share-holding company.

Table 2: Population of micro, small and large enterprises in the wood industry by Standard Classification of Activities, Slovenia, 2007

	Number of enterprises		Number of employees	
	DD20	DN36	DD20	DN36
Micro enterprise (0 – 9 employees)	1,520	1,568	3,030	3,139
Small enterprise (10 – 49 employees)	119	117	2,326	2,524
Total micro and small enterprises	1,639	1,685	5,356	5,663
Large enterprises (more than 250 employees)	6	12	3,385	5,212
Total population	1,645	1,697	8,741	10,875
Note: Standard Classification of Activities DD20 – Manufacture of wood and wood products; DN36 – Manufacture of furniture, manufacturing not elsewhere classified.				

Source: SURS 2008a (SI-stat).

### **ANALYSIS OF THE SHADOW ECONOMY IN SLOVENIA**

We investigate the impact of the changes in the number and size structure of large enterprises in the wood industry in Slovenia on the share of the shadow economy and most frequent reasons for participation in the shadow economy. The starting point of the analysis is theoretical and empirical findings of the shadow economy (e.g. Schneider 2004, 2005, 2007; Feige and Ott 1999; Nastav and Bojnec 2007, 2008; Nastav 2009).

#### **Analysis of the impact of the dynamics of large enterprises on the share of the shadow economy**

The presence of the shadow economy is visible particularly in activities, which require relatively smaller investments into technological equipments and buildings. In a difference from the formal sector, which is burdened with taxes and regulations, the shadow economy is dynamic and adjustable (Schneider and Enste 2002).

We investigate the impact of the reduction in the number of large enterprises on the share of the shadow economy in the wood industry using the questionnaire. We find that the reduction in the number of large enterprises in the wood industry causes the number of people working in the shadow economy. The average value of 3.89 by the Likert's scale – from 1 as very unimportant to 5 as very important – shows relatively important positive impact of the reduction in the number of large enterprises on the increase of the shadow economy (Table 3). Similarly, the reduction in the size structure of large enterprises on the shadow economy in the wood industry shows relatively important positive impact on the increase in the shadow economy with the average value of 3.82. Therefore, the reduction in the number and in the size structure of large enterprises in the wood industry increases the share of people working in the shadow economy.

Table 3: Analysis of responses for impact of reduction in the number and the size structure of large enterprises on the share of the shadow economy in the wood industry in Slovenia, 2009

Interval of opinions for its average value (Likert's scale from 1 to 5)					
Notes on opinions: 1 – very unimportant; 2 – unimportant; 3 – neutral; 4 – important; 5 – very important					
Opinions	N	Average value	Modus	Median	Standard deviation
Impact of reduction in the number of large enterprises on the share of the shadow economy	165	3.89	4	4.00	1.093
Impact of reduction in the size structure of large enterprises on the share of the shadow economy	165	3.82	4	4.00	0.977

Table 4: Analysis of opinions for impact of labour price on the share of the shadow economy and dynamics of exit of small enterprises in the wood industry in Slovenia, 2009

Interval of opinions for its average value (Likert's scale from 1 to 5)					
Notes on opinions: 1 – very unimportant; 2 – unimportant; 3 – neutral; 4 – important; 5 – very important					
Opinions	N	Average value	Modus	Median	Standard deviation
Impact of price of labour on the share of the shadow economy	156	3.85	4	4.00	0.772
Impact of price of labour on dynamic of exit of small enterprises	165	3.49	3	3.00	0.712

Table 4 shows the important impact of labour price on the share of the shadow economy as well as on the dynamics of entry of small enterprises in the wood industry. Therefore, the labour price through the structure of value added per employee has important impact on the shadow economy. Enterprises, which operate in the shadow economy, can avoid a part of operational costs, which can increase their competitiveness as well as can provide a source of income for people, which might do not find employment in the formal sector of the economy. Moreover, the labour price in the structure of value added per employee with taxes and contributions has impact on the taxation burden of enterprises, which operate in the formal sector of the economy. Due to this, they can become less competitive in comparison with the informal sector and its expansion.

Table 5 shows that the impact of the shadow economy on competitiveness of small enterprises in the wood industry is relatively strong with their impact on the reduction of competitiveness of the small enterprises that operate in the formal sector of the economy. Due to less paid taxes the shadow economy enterprises are more competitive vis-à-vis enterprises, which operate in the formal sector, which pays taxes and thus have higher costs of operation. Therefore, the increased share of the shadow economy with its supply of products and services has modest to important impact on the reduction of competitiveness of small enterprises, which operate in the formal sector of the wood industry.

Table 5: Analysis of opinions for impact of the shadow economy on competitiveness of small enterprises in the wood industry in Slovenia, 2009

Interval of opinions for its average value (Likert's scale from 1 to 5)					
Notes on opinions: 1 – very unimportant; 2 – unimportant; 3 – neutral; 4 – important; 5 – very important					
Opinion	N	Average value	Modus	Median	Standard deviation
Impact of the shadow economy on competitiveness of small enterprises	162	3.65	4	4.00	1.112

Analysis of factors of the shadow economy and its share in the wood industry

### Reasons for operation in the shadow economy

The reasons to operate in the shadow economy might be different by countries and within a certain countries by individual branches. Table 6 presents the opinions of the respondents on the nine frequently reported reasons as important for decision of an individual to work in the shadow economy in the wood industry. The average value of the respondents' opinions on the important factors for decision to work in the shadow economy in the wood industry in Slovenia vary by questions, but the highest opinion values are found when the higher level of taxes and contributions, followed by opportunities for better earnings and state tax regulations.

Table 6: Analysis of opinions on factors important for decision to operate in the shadow economy in the wood industry in Slovenia, 2009

Interval of opinions for its average value (Likert's scale from 1 to 5)					
Notes on opinions: 1 – very unimportant; 2 – unimportant; 3 – neutral; 4 – important; 5 – very important					
Opinions	N	Average value	Modus	Median	Standard deviation
Rate of value added per employee	162	3.61	4	4.00	0.954
Low value added	159	3.60	4	4.00	0.835
Lack of establishing capital	162	3.30	4	3.00	0.918
Degree of the branch competition	159	3.23	3	3.00	0.885
Level of taxes and contributions	162	3.96	4	4.00	0.905
Tax regulations	159	3.91	4	4.00	0.786
Opportunities for earning	162	3.93	4	4.00	0.962
Law moral of people	159	3.58	4	4.00	1.021
Lack of suitable employment	156	3.06	3	3.00	1.120

Dynamics in the share of the shadow economy in the wood industry

The opinions on the dynamics of the shadow economy in the wood industry are based on the answers by the respondents on the three questions: the share of the shadow economy in the wood industry has declined, has remained at a similar level, and has increased. Table 7 indicates some differences in the average value of the responses on the individual question. The highest average value 4.37 is given to the statement that the share of the shadow economy in the wood industry has increased, while the average value 3.61 is given to the

statement that the share of the shadow economy in the wood industry has remained at a similar level. The frequency distribution and the average value of the opinions suggest that the share of the shadow economy in the wood industry has remained at a similar level or has a slightly increased.

Table 7: Analysis of opinions on the dynamics of the shadow economy in the wood industry in Slovenia, 2009

Interval of opinions for its average value (Likert's scale from 1 to 5)					
Notes on opinions: 1 – very unimportant; 2 – unimportant; 3 – neutral; 4 – important; 5 – very important					
Statements	N	Average value	Modus	Median	Standard deviation
Reduction in the share of the shadow economy	24	3.46	4	4.00	0.721
Stagnation in the share of the shadow economy	84	3.61	3	3.00	0.865
Increase in the share of the shadow economy	57	4.37	4	4.00	0.587

The average share of the shadow economy in the wood industry by the opinion of the respondents is around 22% (Table 8). According to some other estimates the share of the shadow economy in the registered gross domestic product in Slovenia was between 18.9% and 20.8% in 1995, and between 20.4% and 22.5% in 2000 (Nastav and Bojnec 2007). Therefore, the wood industry in Slovenia with the share of the shadow economy, which is close to an average in the economy, is not an exception by the share of the informal sector of the economy.

Table 8: Analysis of opinions on the share of the shadow economy in the wood industry in Slovenia, 2009

Interval of opinions for its average value					
Note on shares: 3%, 6%, 8%, 10%, 12%, 14%, 16%, 18%, 20%, 22%, 24%, 26%, 28%, 30%, >30%					
Opinion	N	Average value	Modus	Median	Standard deviation
The share of the shadow economy	165	21.73	30	22.00	9.936

### COMMON FACTORS TO WORK IN THE SHADOW ECONOMY

With the factor analysis we aim to identify whether exist common factors, which explain how changes in the number and size structure of large enterprises in the wood industry in Slovenia causes on the share of the shadow economy. In the sample analysis are included 168 enterprises. The factor model is estimated in two steps: with principal axis factoring and maximum likelihood method with estimation of factor weights with using rotations.

In the factor analysis are used the following indicators: impact of the reduction in the number of large enterprises on the shadow economy, impact of reduction in the size structure of large enterprises on the shadow economy, impact of value added per employee on decision to work in the shadow economy, impact of capital profitability on decision to work in the shadow economy, impact of establishing capital on decision to work in the shadow economy, impact of competition on the share of the shadow economy, impact of



level of taxes and contributions on the share of the shadow economy, impact of tax regulations on the shadow economy, impact of better earning on decision to work in the shadow economy, low moral of people, availability of working places, impact of price of labour on the shadow economy, impact of price of labour on the number of small enterprises in the wood industry, and the impact of the shadow economy on competitiveness of enterprises, which operate in the formal sector.

With the factor analysis we define two common factors, which explain differential in the share of the shadow economy in the wood industry in Slovenia. The variables used are based on the opinions of the average responses. Two common factors explain around 45% of variability in the dynamics of the shadow economy in the wood industry in Slovenia (Table 9).

The first common factor for the role of general enterprise environment factors explains a bit less than 30% of variance for the share of the shadow economy in the wood industry. The greatest impact in the first factor shows variables for the impact of competition in the wood industry, impact of reduction in the size structure of large enterprises, impact of reduction in the number of large enterprises, and impact of value added per employee on the share of the shadow economy in the wood industry. The reduction in the number and size structure of large enterprises in smaller extent causes the dynamics of entry of new small enterprises in the wood industry, but indeed increases already a strong competition as well as causes reduction in the rate of value added per employee. Due to this an important part of labour surplus decides for operation in the shadow economy due to lower operation costs. In a case of restructuring of supply of existing small enterprises towards foreign markets with higher processed products this would be a way to achieve higher value products, which would reduce competition for products and services with lower value added. This would have positive implications on the dynamics of entry of small enterprises and on reduction of the shadow economy in the wood industry.

The second common factor for the role of the state on the shadow economy explains additionally a bit more than 15% of variance for the dynamics of the shadow economy in the wood industry. The greatest impact is on variables the impact of taxation regulations on the shadow economy and to a lesser extent the impact of level of taxes and regulations on the share of the shadow economy and opportunities for greater earnings. Importance of tax regulations implies that the enabling environment should be more institutionally friendly towards small enterprises with more friendly legislation and advice activities, which would reduce the identified negative impacts and create positive synergies to reduce the shadow economy in the wood industry.

Table 9: Share of explained variance of factors of the shadow economy in the wood industry in Slovenia, 2009

Initial Eigenvalues				Extraction Sums of Squared Loadings		
Factor	Total	% of variance	Cumulative in %	Total	% of variance	Cumulative in %
1	4.176	29.826	29.826	3.680	26.282	26.282
2	2.133	15.234	45.060	1.792	12.803	39.086
3	1.444	10.316	55.377			
4	1.194	8.531	63.907			
5	0.947	6.763	70.670			
6	0.860	6.146	76.816			
7	0.773	5.520	82.335			

8	0.650	4.645	86.980			
9	0.604	4.317	91.297			
10	0.484	3.455	94.752			
11	0.284	2.031	96.783			
12	0.203	1.452	98.234			
13	0.140	1.003	99.238			
14	0.107	0.762	100.000			

Estimation method: principal axis factoring and maximum likelihood method.

## CONCLUSION

The research has confirmed the importance of the reduction in the number and the size structure of large enterprises on the share of the shadow economy in the wood industry in Slovenia, but less on the dynamics of entries of new enterprises in this branch. This implies that a great proportion of people who lost employment in large enterprises prefer to operate in the shadow economy rather than to establish own enterprise. The reasons for operation in the informal sector are particularly in relatively high taxation burdens and administration barriers. Moreover, labour costs in the structure of value added per employee have important impact on the share of the shadow economy in the wood industry. This branch on average experiences relatively low value added per employee and cannot compete by wages in other branches, which causes outflow of qualified and skilled labour from the wood industry or they decide to work in the shadow economy. This increases the importance of the informal sector of the economy. Incentives for entries of small enterprises and providing easier access to necessary financial means would create incentives for innovation towards products and services with higher value added and opportunities for more competitive relative wages to keep the best qualified and skilled labour in the formal sector as potential for recovery and development of the wood industry.

The research has contributed to science and theory in the area of investigation of the impact of the restructuring of large enterprises on the market dynamics of small enterprises focusing particularly on the shadow economy in the wood industry in Slovenia. Literature so far has focused on more aggregated manufacturing activities in Slovenia. The research contribution is based on own conducted quantitative research analysis using secondary and primary collected survey data. As implications for theory and practice we aim to provide the links between them in order to identify, measure and provide implications and proposals for reduction of the shadow economy and provide incentives for a greater dynamics of micro and small enterprises. The share of the shadow economy in the wood industry in Slovenia has not declined and for its reduction would be valuable to promote taxation and other economic policies, which would not be oriented only on control over the tax collection, but particularly on providing incentives for switch from the informal economy to the formal economy by entry and growth of enterprises in the formal economy. As limitations and future research possibilities are in a fact that our research investigates only the impact of the dynamics in the number of size structure of large enterprises on the shadow economy in the wood industry in Slovenia.

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