Shadow Economy in Slovenia: The Labour Approach

Bojan Nastav
Štefan Bojnec

The all-around notorious shadow economy phenomenon is subject to constant reshaping, regarding both time and place, which results in a somewhat unclear definition. We use the following definition: all productive activities, whose output is legal, but is deliberately concealed from the authorities, usually for gaining financial benefits. Different methods of quantifying the size of the shadow economy have been developed. We focus on the labour approach, with Slovenia as the case-study during the last decade. The importance of such an analysis lies in the ambiguous effects of the shadow economy and their policy implications. We found that the shadow economy that relates only to the unemployment discrepancies in Slovenia amounts on average to around 6 percent of the official economy, and tends to slightly decline over the most recent years. On the other hand, employment discrepancy and more detailed activity-level results give much higher values and even an increase in the shadow economy: on average around 20 percent in the studied period.

Key Words: shadow economy, indirect methods, employment discrepancies, labour approach
JEL *Classification:* J21, E26

Introduction

Globalisation of the economy, cooperation and integration of countries and their common policies, cooperation and internationalisation of enterprises and entrepreneurial activities set a demand for consistent and internationally comparable evidences. Relating, for instance, to the gross domestic product (GDP), true values should be obtained by international methodologies and standards, where the *true* comprises both the official GDP and the one that is not covered by the official statistics. Deficiencies in the official statistics due to various reasons omit some of the pro-

Bojan Nastav is an Assistant at the Faculty of Management Koper, University of Primorska, Slovenia.

Dr Štefan Bojnec is an Associate Professor at the Faculty of Management Koper, University of Primorska, Slovenia.

Managing Global Transitions 5 (2): 193–208

ductive activities that are otherwise within the production boundary. As defined by the System of National Accounts (SNA) (1993), these omitted activities should be included in the GDP figures. Moreover, several of such activities are hidden on purpose. This is where the phenomenon of the shadow economy emerges, as it covers some of the missed and hidden production.

Due to its definition of the unobserved (missed and hidden) production, the shadow economy presents a methodological challenge to measure its size and determine its characteristics, but also for policy formulation as it has different consequences. By studying and empirically evaluating the shadow economy and its size, there is more information gathered, thus serving the implementation of appropriate development and other policy tools. Many studies have been conducted on this issue, covering various approaches, data sources and countries. However, country-specific studies turned out to be the most appropriate.

In this paper we deal with that part of the shadow economy that is embodied in the labour market activities. Thus the labour approach alone represents an indirect method that is used to study the phenomenon. Furthermore, we restrict our investigation only to Slovenia. During the analyzed period the country moved through the period of transition from a self-managed centrally-planned economy to a market-oriented economy and adjustment to European Union (EU) membership. Currently Slovenia is strongly included in the international cooperation, and on 1 May 2004 Slovenia joined the enlarged EU.

Different studies have shown that the transition period is a hotbed for the shadow economy activities (e. g. Kaufmann and Kaliberda 1996; Feige and Ott 1999; Schnider and Enste 2002). The importance of the shadow economy in the official one varies across countries, but the estimated proportion of the shadow economy in a certain country depends also on different approaches and methodologies that are used by different studies. The same holds for Slovenia. We aim to show that development level and developmental path determine the level of the shadow economy, which is believed to be on a downturn in recent years.

The rest of the paper is structured in the following way. The next sections present the definition and characteristics of the shadow economy and a brief literature review of this phenomenon in general, both in transition countries and in Slovenia. In the subsequent section the description of the methodology and the data used is given. A further section explains the results. Conclusions are given in the final section.

The Shadow Economy

Shadow economy is a phenomenon present in all societies, regardless of their level of development. That is the reason why definitions of the shadow economy differ among researchers, countries and also between various time frames. Besides, different terms are used for labelling the studied phenomenon, sometimes interchangeably, and not always consistently. Nevertheless, expressions like the shadow economy have been rooted in the researchers' languages and are as such widely used.[1] Therefore it is important to stress the meaning of the *shadow economy* in this paper to avoid possible misinterpretations: shadow economy comprises *all productive activities, whose goods and services are legal, but the activity itself is deliberately concealed from the authorities,* usually to make financial gains (e. g. tax avoidance, non-compliance with certain regulations and standards, etc.).

Measuring the shadow economy poses a challenge to researchers primarily due to its nature:[2] by definition the shadow economy is concealed and therefore it is often impossible to directly measure its size. Nevertheless, several of the methods to quantify the size of the shadow economy have been developed. In general, three main groups can be identified:

1. *Direct methods,* which comprise surveys of households and enterprises on their shadow-economy behaviour.
2. *Indirect methods* quantify the shadow economy through the marks it leaves on the (official) economy. They can be further divided into several groups, for instance: monetary methods (the currency demand, transaction, and cash/deposit ratio approach); discrepancy methods (income/expenditure discrepancy, supply/demand of labour discrepancy); and physical output methods (electricity consumption method).
3. *Modelling* is the approach investigating relations of causes (determinants) and reflecting indicators through a latent shadow economy variable, which is then estimated.

The phenomenon of the shadow economy has both the negative and the positive sides. Shadow economy causes the public finance to collect fewer taxes, may cause damages to the official-economy firms as they face higher costs (and are thus not competitive), and also consumers may be worse-off due to no warranty for the products and services they purchase in the shadow economy. On the other side, the shadow economy has positive consequences as well. Firms engaged in the shadow economy can

operate at lower (labour) costs and more people can become employed. Consumers pay less, since no value-added tax is charged, or they do not deal with some operational and transactions costs that are caused by bureaucratic and administrative barriers that demand additional resources. This latter implicit taxation can also increase the entrepreneurial incentive in the shadow economy that can serve as an incubator for emerging small enterprises, which once they are successfully 'on the road' turn legal. It is a formidable task to determine, which, positive or negative, consequences of the shadow economy prevail. Therefore, several studies have been conducted across countries and over time to gain more information on the phenomenon, its causes and consequences. A brief review of some of them, with emphasis on the transition countries and Slovenia, is given below.

LITERATURE REVIEW

Several authors have conducted an in-depth study and gathered vital theoretical, methodological and empirical information on the shadow economy. It is important to stress that authors use different notations for the phenomenon and are not (always) consistent. Schneider and Enste (2002) for instance, use the same naming, i. e. *shadow economy,* yet with a slightly different definition. Williams (2004) addresses the phenomenon as the *cash-in-hand work.* Others, Breusch (2005) for instance, use the *non-observed or underground economy,* whereas Feige (1990) defined the phenomena as *unrecorded* and *informal* economies. Despite different definitions (which demands caution when comparing), these studies provide a valuable insight into the main terminological, methodological, and empirical issues of the phenomenon.

Besides individual researchers, international and supranational organisations such as Organisation for Economic Cooperation and Development (OECD), International Labour Organisation (ILO), United Nations (UN), and EU have realised the importance of the shadow economy and therefore, several definitions of the phenomenon, instructions on how to deal with it and estimates of its size have been put forward and some sort of standards in this field have been set.[3] Different recommendations and terms have been proposed. OECD (2002), for instance, defines *underground, illegal,* and *informal sector* production, household production for own final use, and production missed due to deficiencies in data collection programme, with the underground production being the most consistent with our definition of the shadow economy. EU has focused

primarily on *undeclared work* in its member states and this is defined as 'productive activities that are lawful as regards their nature, but are not declared to the public authorities, taking into account the differences in the regulatory system between Member States' (European Commission 2004, 94) which is clearly in line with the above mentioned definition of the shadow economy.

Special interest in the past decade(s) has been given to the transition economies, which comprise Central and East European countries and Former Soviet Union countries. As these countries have some common features of the shadow economy they were normally studied and analysed jointly. For instance, within the OECD the 'Methods of measuring the hidden economy in the transition economies' were presented (Árvay 1993). Their definition of the *hidden economy* is, however, not completely in line with the shadow economy used here, since illegal activities are added, so one needs to have this in mind when comparison is made. Furthermore, other authors (e. g. Dobozi and Pohl 1995; Kaufmann and Kaliberda 1996) use the electricity consumption method and they use the term *unofficial economy* defined as the 'unrecorded value added by and deliberate misreporting or evasion by a firm or individual' and thus giving room for illegal activities as well. Lackó (1999) and Feige and Urban (2005) provide further applications of the electricity consumption method to measure the *underground economy* in the transition countries. Besides, Feige and Ott (1999) gather some of these methods, and some additional methods that are arranged in a comprehensive guide to study the underground activities in transition countries.

SHADOW ECONOMY IN SLOVENIA

Slovenia was seldom covered in the above-mentioned studies of the shadow economy in the transition countries and not all of these studies are directly comparable, since authors follow different definitions and methodologies – which all contribute to different results. Schneider (2003) applied the modelling approach and recorded 22.6 percent of the shadow economy[4] of the Slovenian official GDP in the period 1990–1993, 23.9 percent in the period 1994–1995, and 26.7 percent in the period 2000–2001. This evidence suggests an increase in the degree and level of the shadow economy in Slovenia to around one-fourth of the official GDP.

The early transition period was covered and studied by Glas (1991) and Kukar (1995). They both list similar causes for the existence and

development of the shadow economy, which all date back into the socialist system. Mainly, these focus on the rigid legislative framework, centrally planned and controlled supply of goods (which seldom followed the demand), unstable macroeconomic environment, and increasing tax and contributions burden in the period of transition. The need for increased efficiency and more market-oriented production enterprises had increased, whereas the bureaucratic obstacles were only partially removed. The latter caused many of the private businesses to start 'off the record', in the shadow economy. Glas (1991) estimated the size of the shadow economy[5] in Slovenia in the late 1980s via a survey of the human resource departments in companies. The results revealed that up to 43 percent of the employed participates in the shadow economy, corresponding to above 38 percent of additional income. The trend was estimated to go even higher in the following years. Kukar (1995) estimates the size of the shadow economy[6] with the labour method measuring the activity rate of the labour force. For the year 1993, it was estimated that around 26 percent of labour force (partially) participated in the shadow economy, amounting to almost 9 percent of fully employed people, which on the other hand means around 10 percent as a share of GDP. In this study, other authors estimated the size of the shadow economy using other methods, mainly by estimating the unregistered activities by subgroups of activities (related to main industry sectors, such as construction, tourism, and agriculture), and they sum up to between 16.8 percent and 21.3 percent of the GDP in Slovenia in 1993.

Flajs and Vajda (2004) present more recent calculations. They followed the Eurostat's exhaustiveness measures and revised the GDP for the period 1995–2002 and the non-observed economy (without illegal activities) on average amounts to around 6.5 percent. Furthermore, the European Commission (2004) estimated that the undeclared work in Slovenia in 2003 produced around 17 percent of the official GDP. The undeclared work seems to be in decline, which was anticipated, as the transition was coming to an end, and entry into the EU was on the doorstep, which all meant a more efficient and stable macroeconomic environment, legal framework and market economy as opposed to the situation in the early stages of the transition.

Methodology and the Data Used

Despite the whole range of methods, we have decided to focus on the labour-market data approach alone, which relies in essence on the dif-

ferences in actual (real) and official (registered) use of labour.[7] There are two sources of evidence for these two aspects. On the one hand, the Labour Force Survey (LFS) reveals the actual side. On the other hand, the official records from the Employment Service of Slovenia (ESS) or the Statistical Office of the Republic of Slovenia (SORS) (or some other data source, where employers need to report their employees) provide the official labour use side in the labour market. Simplified, the discrepancy between the true and official labour use can be approximated by the data on (un)employment from the actual (LFS) and registered (ESS) labour use. First, the unemployment discrepancies provide rather rough indication of the phenomena, the results of which are often inconsistent across countries. We want to check the country-specific feature, i. e. whether the majority of registered unemployed work in the shadow economy, and thus we investigate the difference in unemployment rates or absolute numbers of unemployed, obtained on the one hand by the LFS following the more strict definition of the ILO, and by the ESS on the other. This difference provides a simple, but not very accurate number of the people working in the shadow economy. Second, we direct ourselves to more direct measurement of the discrepancy between the actual and registered labour use, estimating the discrepancy between the actual (LFS) and registered (ESS) number of employed. In Slovenia, these data are available from 1993 onwards. The next step needs to provide some evidence on the productivity of these people in order to obtain the final estimate of the size of the shadow economy as a percentage of the official GDP. However, there are three main drawbacks to such a methodological approach. First, it is almost impossible to determine the productivity measure for the shadow economy, when using indirect measures alone. Second, the assumptions that all unemployed work full-time in the shadow economy, and that no one with an official job participates (part-time) in the shadow economy, are rather weak. Besides, the problem of underreporting (understating) of the data to the LFS and ESS is also present. And third, different data sources on the labour force in the economy are very limited in their consistency. These three shortcomings have been tackled in the empirical analysis in the following way.

First, regarding the productivity, there is only limited work conducted on this aspect in the literature. Jon Isachsen and Strøm (1985) for instance distinguish between those who have been laid off and those who voluntarily switch to the shadow economy. They found that the two types/categories differ in their productivity. In the unobserved sector

the 'payment more likely is according to productivity' (Jon Isachsen and Strøm 1985, 34) and thus the more productive workers shift to the shadow economy. Schneider (2003, 34) also states that: '... the productivity in the shadow economy is quite likely to be considerably higher than in the official economy.' At the same time, those who are laid off are usually low productivity workers and this brings the productivity of the shadow economy down. Thus, one can argue in both directions: as people work for themselves, the motivation and productivity for a similar job is normally higher in the shadow economy. On the other hand, working in the shadow economy requires extra resources for staying undetected, therefore hindering the productivity. By nature, shadow economy activities are more labour intensive with very limited access to high technology, which further reduces their productivity. Therefore, in order not to be very limited in our approximations and to evaluate the sensitivity of our results on the applied assumptions, we have used three scenarios for productivity measures.[8] Following the first one, the productivity in the shadow economy is 10 percent less than in the official economy. The second scenario approximates the same productivities, and the last one states that the shadow economy is by 10 percent more productive.

Second, the assumption on the full-time participation of the unemployed in the shadow economy is not properly grounded, due to sampling errors, underreporting and the fact that not all of those registered as unemployed according to the LFS work full-time in the shadow economy. Jon Isachsen and Strøm (1985, 35) stress that 'it is more common to work part-time in both sectors.' Thus we shift our analysis to the discrepancy between the registered and actual employment in the studied country, which suffers less from these drawbacks.

Third, the data from two different sources are not consistent, as the LFS measures the *employment,* whereas the administrative sources usually report the *jobs.* To bridge these shortcomings, we applied the methodological approach, which was developed by the Italian Statistical Office. This is the so-called Labour Input Method (LIM), which is obtained by the following five steps (OECD 2002, 53, 72): first, estimate the labour input underlying the GDP estimates. This registered use of labour is obtained from the tailor-made enterprise surveys or data from employment agencies. Second, estimate the labour input based on household survey data or the LFS (the actual labour use). Third, standardise the labour input estimates, which convert both of the evidences

into the same units of labour input, either to hours worked or full-time equivalents. Fourth, compare the two sets of estimates. Fifth, compute a multiplication factor to adjust the output and value added estimates to account for non-observed production obtained in the previous step.

The drawback of the LIM is a very high demand for the in-depth LFS. Also, some complementary special-purpose surveys are highly recommended. If these are not available, 'data from enterprise surveys and administrative files can be used' (OECD 2002, 73). Standardisation of labour input has been done through the number of hours worked, which are available for Slovenia on the activity level for the years 1995 and 2000 only. The OECD's (2002) handbook proposes that for each activity branch the value added per unit of labour input of non-observed production and the measured one do not differ. Essentially, this states, that the productivities are at the same level in both the shadow and official economy. We, however, use the following approach: calculate the value-added per official actually worked hour at the activity level and use it as the productivity ratio. Further, we assume that activities, requiring high-level skills are more likely to yield higher productivity in the shadow economy. Thus, activities of agriculture, fishery and mining (A, B, and C), following the International Standard Industry Classification (ISIC Rev. 3),[9] are below the official productivity by 10 percent; that the manufacturing and electricity, gas and water supply (activities D and E) are on the same level of productivity in both economies; and finally, that other, service-based activities are by 10 percent more productive in the shadow economy than in the official economy (see also Nastav and Bojnec 2007). At this point we add the sensitivity analysis in the way that we take upper/lower bounds to these productivity measures by plus/minus 5 percentage points, respectively. Further, multiplying the hours, estimated to be worked in the shadow economy by the corrected level of the value added per official working hour by activities, we obtain the shadow value added by activity levels. By doing additional calculations we obtain the final results (see table 3).

The final approach applied uses the data on activity levels in Slovenia and essentially follows the Crnković-Pozaić (1999) application to the Croatian economy in the first half of the 1990s. By this approach, activity is supposed to move in more or less constant and inverse direction with the output. Crnković-Pozaić (1999, 220) argues that 'economic development and growth make it possible for a section of the working age population to stop working and turn to other activities which expand their

TABLE 1 Shadow economy in Slovenia (lower, middle, and upper bounds) following the employment discrepancy and the activity level approaches, 1993–2004 (%)

	Employment discrepancy			Activity level		
Year	Lower	Middle	Upper	Lower	Middle	Upper
1993	9.2	10.2	11.3	14.5	16.1	17.7
1994	11.8	13.1	14.4	4.3	4.8	5.3
1995	15.8	17.6	19.3	2.8	3.1	3.4
1996	16.1	17.9	19.7	4.4	4.9	5.3
1997	18.7	20.8	22.9	2.3	2.6	2.8
1998	19.5	21.7	23.9	0.5	0.6	0.6
1999	15.8	17.6	19.4	3.4	3.8	4.2
2000	14.7	16.4	18.0	—	—	—
2001	15.6	17.3	19.1	4.0	4.5	4.9
2002	15.9	17.7	19.4	3.7	4.1	4.5
2003	13.8	15.3	16.8	6.9	7.6	8.4
2004	18.8	20.9	23.0	1.9	2.1	2.3

SOURCES ILO (http://laborsta.ilo.org), ESS (http://www.ess.gov.si), SORS (http://www.stat.si), Eurostat (http://epp.eurostat.ec.europa.eu), own calculations.

quality of living, but are not considered economic activities.' In essence, the method proceeds as follows: the base year's activity rate is calculated and then used as a constant for all the subsequent years. By this, the so called *hypothetical* activity rates are calculated and then compared in each of the years to the official, *de-facto* activity rates. The latter would normally be (by assumption) lower and the difference between the hypothetical and de-facto active population is the measure of the number of people working in the shadow economy. Yet, the Slovenian case needs extra calculations: the activity rate has on average risen and therefore the base-year rate is not suitable for the hypothetical calculations.

Therefore, an assumption that the hypothetical activity rate was increasing at a constant annual growth rate,[10] surpassing the annual de-facto rates, is applied. This adjustment enables the required calculations to be made.

Results

Applying the unemployment discrepancy approach to the data available, we found that, although the results are rather volatile, there is a down-

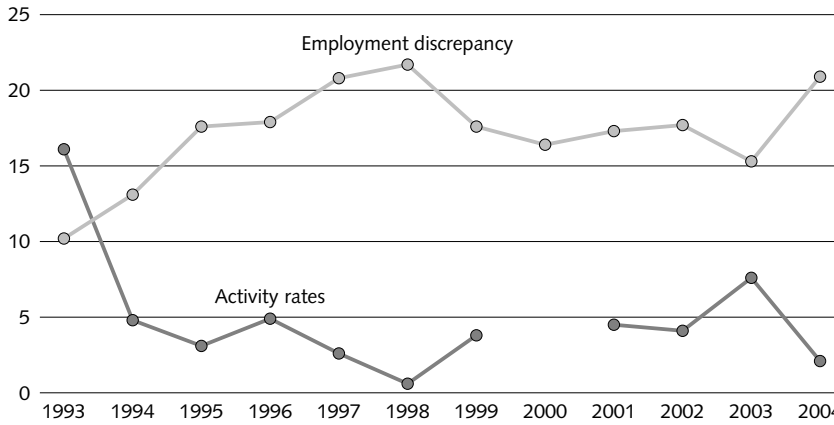

FIGURE 1 Shadow economy as a share in the official GDP for Slovenia in the studied period, comparing (middle values of) approaches from table 1

ward tendency and the results vary at around 6 percent and stabilize at around 4 percent of the shadow economy in the official GDP in 2004.

Table 1 presents results pertaining to the employment discrepancy and activity rate methodological approaches. We can see that the shadow economy's share in the official economy has been fluctuating, and that the results differ substantially. While the activity rate approaches show a downwards tendency, the employment discrepancy has the opposite path. It can also be seen, that the activity rate approach indicates a rather low share of the shadow economy (for all three scenarios), compared to previous studies by other authors, which is consistent with liberalization and more commercialized economic activities. Furthermore, it also reveals a much higher variability in the size of the shadow economy, indicating some deeper structural changes that have been induced by the stabilization programmes, privatisation and structural reforms, and also by EU enlargement. However, at the same time the results confirm the approximate level and the downward patterns in the share of the shadow economy as the country becomes more developed. On the other hand, the employment discrepancy reveals a slight upwards trend, especially in the last studied year, which is unexpected, but comparing it to the LIM approach (see below), these results seem reasonable. These movements of the share of the shadow in the official economy are presented graphically in figure 1.

The LIM approach, i. e. the comparison of the hours worked measured by the official data sources and the LFS reveals that there is again the

TABLE 2 Discrepancy between the official and LFS hours worked on average at annual level by the activity break-down for Slovenia for the years 1995 and 2000

Year	A and B	C	D	E	F	G	H
1995	985.2	547.6	424.4	358.8	446	323.2	468.4
2000	780.4	501.2	391.6	400	437.6	371.2	464.4
Year	I	J	K	L	M	N	O
1995	504.4	311.2	323.2	364.8	105.6	371.6	184.8
2000	490.4	420.4	388.4	369.2	349.6	439.6	275.6

NOTES A – agriculture, hunting and forestry, B – fishing, C – mining and quarrying, D – manufacturing, E – electricity, gas and water supply, F – construction, G – wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods, H – hotels and restaurants, I – transport, storage and communications, J – financial intermediation, K – real estate, renting and business activities, L – public administration and defence; compulsory social security, M – education, N – health and social work, O – other community, social and personal service activities, P – private households with employed persons.

SOURCES ILO (http://laborsta.ilo.org), SORS (http://www.stat.si), own calculations.

discrepancy. This is shown in table 2. We can see that in total, the discrepancy has increased; this is inconsistent with our expectations, but in line with the employment discrepancy method outlined above, and also several of the activities have experienced an increase in this discrepancy, comparing these two years alone. This holds particularly for E – electricity, gas and water supply, G – trade, J – financial intermediation, K – real estate, renting and business activities, M – education, N – health and social work, and O – other personal services. Especially the latter is interesting, as it shows, that shadow economy activities are indeed concentrated (and expanded) in these activities. We can also add shadow tutoring and teaching, accompany them by renting and personal services (which point to unstable real estate market conditions), and we obtain what can be believed to be the major shadow economy activities.

From these data we can calculate the approximate shadow economy's share in the official value added at the activity levels. Table 3 presents the results. The figures show remarkably high shares in the value added at activity levels, but these numbers would be slightly lower if calculating them in the GDP at activity levels using detailed input-output tables. Nevertheless, looking at the dynamics, the results are consistent with the previous finding by some other authors (e. g. Schneider 2003) regarding the hours worked in the shadow economy by activities. The results for

TABLE 3 Percentage of the shadow economy (lower, middle, and upper bounds) in the official value added at activity level for Slovenia for the years 1995 and 2000

Year	A and B	C	D	E	F	G	H
1995 – upper	50.5	33.6	26.3	22.0	29.1	20.8	30.7
1995 – middle	47.8	31.8	25.1	20.9	27.8	19.9	29.4
1995 – lower	45.2	30.1	23.8	19.9	26.5	19.0	28.1
2000 – upper	42.3	30.1	24.1	25.0	28.1	24.5	31.3
2000 – middle	40.1	28.5	23.0	23.8	26.9	23.5	30.0
2000 – lower	37.9	26.9	21.8	22.6	25.7	22.4	28.6
Year	I	J	K	L	M	N	O
1995 – upper	33.8	19.9	20.8	23.5	6.5	24.1	11.7
1995 – middle	32.3	19.0	19.9	22.4	6.2	23.0	11.2
1995 – lower	30.9	18.2	19.0	21.4	6.0	22.0	10.7
2000 – upper	33.1	29.4	25.8	24.7	24.1	30.5	18.5
2000 – middle	31.7	28.1	24.7	23.7	23.1	29.2	17.7
2000 – lower	30.2	26.9	23.6	22.6	22.0	27.9	16.9

SOURCES ILO (http://laborsta.ilo.org), SORS (http://www.stat.si), own calculations.

activities E, G, J, K, M, N, and O show an increase in shadow activities. Making the sum-up, we obtain that the shadow economy as a percentage of the official GDP at the country level was from 18.9 to 20.8 percent in 1995, and from 20.4 to 22.5 percent in 2000. This confirms that the shadow activities *are* present and their presence is by no means negligible. More specifically, the widespread shadow economy activities in table 3 comprise activities that are not typical seasonal work activities, such as in agriculture, tourism or construction, but include mainly blue collar service activities.

Concluding Remarks

Following the step-by-step evolvement of the labour approach, we have seen that the shadow economy in Slovenia is by no means a negligible phenomenon. The results at the level of the total economy, using the unemployment discrepancy and activity rates approaches, show that the shadow economy activities are, on average, on a downturn in the studied period. While this is consistent with economic growth, reduction of the transition impact, and socio-economic development that are believed to hinder the shadow economy activities, there were also some fluctua-

tions present. Nevertheless, the discrepancies between the results of both methods seem to converge at the end at a 4–6 percent level.

An employment discrepancy and more detailed, activity-level study, however, gives much higher values and even an increase in the shadow economy: on average at the level of around 20 percent of the official economy in the studied period. Accompanying results also point to several of the activities that have gained their importance in the shadow economy, namely: electricity, gas and water supply; trade; financial intermediation; real estate; renting and business activities; education; health and social work; and other personal services. More specifically, these are not typical seasonal work activities such as in agriculture, tourism or construction, but largely blue collar service activities. Thus, shadow economy policies should primarily aim at these activities.

We have illustrated that the labour methods applied could provide some evidence on the shadow economy activities in Slovenia. Yet, primarily due to lack of accurate evidence, their use is limited for concrete policy proposals. Thus, further research and detailed in-depth studies are needed. These, however, strongly rely on the data from the official sources or, especially, on the LFS results, which can reveal the true nature of the national labour market condition and evolvement. Nevertheless, official, administrative sources are important, as they serve as a benchmark, against which the shadow economy employment can be determined. They can be supplemented by special-designed surveys. Furthermore, it was assumed that the shadow and official economies were operated in a separate way, in the sense that there were no multiplicative effects of e. g. the shadow economy earnings spent in the official economy and vice versa, where some of the official resources could be used for the hidden activities. As the country develops and improves the data collection programmes, one is able to produce country-specific studies, relying on qualitative and long-run data, as well as specific-purpose surveys, thus resulting in an in-depth insight into the true state of the shadow economy. Such in-depth results can provide the basis for proper policy tools to enhance development and wellbeing.

Notes

1 Despite some clear objections by Williams (2004), the term 'shadow economy' is used.
2 And also due to some inconsistencies with its definition.
3 See for instance the ILO 1993 International Conference of Labour Statisticians (ICLS) for the definition of the informal sector, SNA (1993)

and its current reforms by UNSD, the set up of the Delhi Group on Informal Sector Statistics by the UNSD (http://unstats.un.org/unsd/methods/citygroup/delhi.htm) in 1997, the handbook *Measuring the Non-Observed Economy* (OECD 2002), and the work of the European Commission (2004) on undeclared work in the EU.

4 The author counts 'all economic activities which would generally be taxable were they reported to the state (tax) authorities' Schneider (2003, 24).

5 Defined as productive activities, not reported to the authorities but excluding own-production of households.

6 The definition is (again) in line with the SNA 1993 unregistered activities within the production boundary.

7 The labour market data were obtained from various sources, mainly from the International Labour Organisation (ILO) website (http://laborsta.ilo.org), the Statistical Office of the Republic of Slovenia (SORS, http://www.stat.si), and Employment Service of Slovenia (ESS, http://www.ess.gov.si). Additional (national accounts) data needed were supplemented mainly by SORS or the Eurostat statistics.

8 Total GDP (or value added by activities breakdown) per officially employed person has been used as a measure of productivity.

9 Or comparable national Standard Classification of Activities.

10 This could be a reasonable assumption, as the early transition years induced shocks by the break-downs of big state-owned enterprises as still the largest employers at that time. When the initial shocks were over, the official employment again started to rise.

References

Árvay, J. 1993. *Methods of measuring the hidden economy in the transition economies.* Paris: OECD.

Breusch, T. 2005. Estimating the underground economy using MIMIC models. Http://129.3.20.41/eps/em/papers/0507/0507003.pdf.

Crnković-Pozaić, S. 1999. Measuring employment in the unofficial economy by using labour market data. In *Underground economies in transition: Unrecorded activity, tax evasion, corruption and organized crime,* ed. E. Feige and K. Ott, 211–44. Aldershot: Ashgate.

Dobozi, I., and G. Pohl. 1995. Real output decline in transition economies: Forget GDP, try power consumption data. *Transition* 6 (1–2): 17–8.

European Commission. 2004. Undeclared work in an enlarged Union. COM(98) 219.

Feige, E. L. 1990. Defining and estimating underground and informal economies: The new institutional economics approach. *World Development* 18 (7): 989–1002.

Feige, E. L., and K. Ott. 1999. *Underground economies in transition: Unrecorded activity, tax evasion, corruption and organized crime.* Aldershot: Ashgate.

Feige, E. L., and I. Urban. 2005. Estimating the size and growth of unrecorded economic activity in transition countries: A re-evaluation of electric consumption method estimates and their implications. William Davidson Institute Working Paper 636.

Flajs, A., and J. Vajda. 2004. Merjenje nezajetih dejavnosti: Vrste popravkov zajetja bruto domačega proizvoda 2002 po Eurostatovi klasifikaciji in tabelah. In *Statistično spremljanje pojavov globalizacije in storitev – izzivi in nujnost: zbornik,* ed. B. Tkačik and M. Urbas, 447–56. Ljubljana: Statistični urad Republike Slovenije.

Glas, M. 1991. *Siva ekonomija v svetu in v slovenskem gospodarstvu.* Ljubljana: Ekonomska fakulteta.

Isachsen, A. J., and S. Strøm S. 1985. The size and growth of the hidden economy in Norway. *Review of Income and Wealth* 31 (1): 21–38.

Lackó, M. 1999. Electricity intensity and the unrecorded economy in post-socialist countries. In *Underground economies in transition: Unrecorded activity, tax evasion, corruption and organized crime,* ed. E. Feige and K. Ott, 141–65. Aldershot: Ashgate.

Kaufmann, D., and A. Kaliberda. 1996. *Integrating the unofficial economy into the dynamics of post-socialist economies: A framework of analysis and evidence.* Washington, DC: World Bank.

Kukar, S. 1995. *Siva ekonomija v Sloveniji: Razlogi za njen razvoj in ocene njenega obsega.* Ljubljana: Inštitut za ekonomska raziskovanja.

Nastav, B., in Š. Bojnec. 2007. Shadow economy in Bosnia and Herzegovina, Croatia, and Slovenia: The labour approach. *Eastern European Economics* 45 (1): 29–58.

OECD. 2002. *Measuring the non-observed economy: A handbook.* Paris: OECD.

Schneider, F., and D. H. Enste. 2002. *The shadow economy: An international survey.* Cambridge: Cambridge University Press.

Schneider F. 2003. The size and development of the shadow economies and shadow economy labour force of 22 transition and 21 OECD countries: What do we really know? In *The informal economy in the EU accession countries,* ed. B. Belev, 23–62. Sofia: Center for the Study of Democracy.

System of National Accounts 1993. 1993. New York: United Nations.

Williams, C. C. 2004. *Cash-in-hand work: The underground sector and the hidden economy of favours.* Hampshire: Palgrave MacMillan.