The Function and Observation of Underground Activities

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Hidden economy is one of the most exciting parts of current economic research in Hungary, because its extent and gravity in management processes have also become dominant in the course of development of Hungarian capitalism. Hidden economy has a wide range of aspects, so it is difficult to define its actual order of magnitude.

Hidden economy is accompanied by the development and escalation of idiosyncratic Hungarian capitalism. It is an important cause of disproportions in economy and of deformations in society, especially of unequal competition, of overmuch liability in a broad population, and of extreme income and property deviation.

However, it is not obvious that hidden economy is always harmful, condemning, and must be persecuted. Hidden economy is, so to speak, iridescent, and its economic policy can be to find legalization possibilities, so that hidden economy shall be not more than 7-10 percent of GDP in Hungary. Dissolving and abolishing the economic causes of participation in hidden economy can be the solution for the problem. There is no doubt about rationalizing economic participants. If the profit is higher than the expected penalty of an almost (or a little bit) illegal activity, both companies and citizens will make the best of such a situation (estimating the penalty odds).

There are favourable and unfavourable features among the system-specific characteristics of capitalism, but changing of unfavourable features occasionally can have a bad influence on good practices and operation.

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Besides the increasingly strong criminal activities (somehow having an influence on every Hungarian citizen), the so called "soft types" of the hidden economy that are also accepted by social judgment have become general. These forms of the hidden economy are so varied nowadays that it is even difficult to collect and classify them. With this end in view, it is not hyperbolic that the rate of the hidden economy in Hungary could reach the 25-30 percent of GDP by the middle of 1990s. (This means approximately HUF 2 500-3 500 billion in the total GDP of HUF 11 580 billion calculated in current price in 1999.)

1. The concept of shadow economy

Similarly to other societies, Hungary can also be characterised by legal and illegal activities, visible and invisible – so to speak underground – spheres, silver grey, oxford-grey, and black economies, but their extension and range are quite different.

In some countries concealed, illegal and underground economies are sharply separated from each other. Certain economic activities are considered productive and legal, even if they are hidden from authorities, because of different tax or social insurance avoidance, and trespasses in connection with minimal payment, maximum man-hour, security and health or administrative regulations, statistical and other questionnaire faults.

The activities marked as hidden economy can be placed in the system of all human actions. For this, the Statistical Office of the European Communities developed a model that classifies and arranges all economic participants and their activities in different dimensions. The so called "black economy" is in the middle of this scheme, and this part of the economy can be also labelled as hidden economy, in accordance with the expression of several western countries and international institutions. The main reason for this is that the idea of the black economy is close to illegal wrongful or criminal acts, so it has a narrower context than interpretation of statistical offices. Hence, it is just a difference between terms. There is still an important semantic problem arisen between the definitions of production in System of National Accounts (SNA) and the delineated accrual. It is about the fixation of illegal activities that are part of production according to SNA, so it must be calculated in GDP, but as a part of "not measured production".

The considerable part of the "black economy" means activities that are profitable for some people, but can not be calculated in total GDP, because they are not derived from production. These corrupt, bribed, someway hot, or other wrongful incomes seem to be substantial in Hungary as well. Such criminal acts evidently do not raise the total available goods of a country; they only produce the redistribution of incomes and goods.

Studies on shadow economy show significant differences and sometimes contradictions in the definitions and methods they use as well as in the numerical results they arrive at. It all leads to errors in estimation and even bad economic decisions.

Experts of the topic include unreported and unmeasured economic activities in the concept of the shadow economy (*Feige* [1989]). They do this by applying the current regulations and techniques used for the observation of the economy. It is a "loose" definition that defines hidden activities outside the GDP by considering whether they belong there according to certain (UN and EU) regulations or they only fall outside the process of measuring. Shadow economy is "the marked-based production of goods and services, whether legal or illegal, that escapes detection in the official estimates of GDP" (*Smith* [1994]), that is "… all currently unregistered activities that contribute to the officially calculated (or observed) GNP" (*Schneider* [2002a]). According to this definition shadow economy covers the total sum of all income-earning activities that avoid state regulations, taxation or observation (*Fleming–Roman–Farrel* [2000]).

Table 1

Types of underground economic activities

Type of activity	Monetary transactions		Nonmonetary transactions	
Illegal activities	Trade in stolen goods; drug dealing; prostitution; gambling; smuggling, fraud, etc.		Barter of drugs, stolen or smuggled goods, etc.; growing or producing drugs for own use; theft for own use.	
Legal activities	Tax evasion	Tax avoidance	Tax evasion	Tax avoidance
	Unreported income from self-employment; wages, salaries, and assets from unreported work related to legal services and goods	Employee discounts, fringe benefits	Barter of legal services and goods	Neighbour help

Source: *Lippert* and *Walker* [1997] with additional remarks by *Schneider* and *Klinglmair* [2004].

The most obvious and significant characteristic of these definitions is that they are based upon the definitions of calculating and estimating the GDP of a government or an international organization. This definition can change in time − as

it changed in the past. The most accurate approach is the System of National Accounts (1993) and its amendments that define the compounds of the hidden economy with great rigour (*UNO* [2007]).[1] These applied concepts and definitions have been used in the creation of the European System of National and Regional Accounts (ESA, 1995) that is also regularly reviewed and amended.

The activities, which belong to the shadow economy, are mostly related to the distribution of income regulated by the state. The return on the participants' co-operation is the amount of unreported tax they can share. It is also important that both the customers and the sellers are associates in crime and beneficiaries in most of the transactions. Participants in the shadow economy consider

– the amount of costs and profit of their hidden activities compared with a legal activity, and also

– the return on legal expansion and increase of efficiency correlated to the return on tax evasion.

There are also crimes of clearly economic nature where the explicit aim of the activity is illegal profit making (for example fictitious VAT refund claims, fraudulent bankruptcies and embezzlements, cheating on excise taxes). Such activities call for updating the taxation procedures, increasing the efficiency of tax audits and decreasing the motivation as possibly efficient means of influencing.

The shadow economy is inseparable from the tax system and the rate of employment. Two extremely large groups within the income created in the underground economy stem from

– unreported employment and

– the evasion of the tax and the customs system.

The Hungarian tax system has been basically built upon the principles of pay and file since the tax reform of 1988. It is a fiduciary relation that the state holds as a pre-requisite for tax-payers willing to comply with the law. In parallel with the economic transition that started a few years ago, there has been and there is a continuous increase in the number of people who breach this fiduciary relation. Its reasons could be that the relationship between collecting and using the taxes has not yet had publicly understood in Hungary, and the tax morale is rather low.

Due to the continuous liberalization of economic law there are a number of possibilities for abuse. There is no legal regulation and legislation of criminal law to serve the disclosure of abusers, as a control for the fiduciary relation. In addition, the legal

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[1] The following standards also exist: the general data transmission system of the International Monetary Fund, the recommendations of the International Labour Organization of the United Nations for the measuring of the indicators of employment in the shadow economy (*Fleming–Roman–Farrel* [2000]).

regulations are rather complicated, they change frequently and force tax payers to pay taxes beyond their capabilities. Today, there are companies that have specialized in utilizing the blank spots of the tax system, and they are usually a few steps ahead of the preparation phase of legislation.

There are different estimates by sector and activity for the size of the shadow economy. These, however, do not indicate the approximate amount of damage or gain created in these areas as a result of illegal or unreported activities.[2]

Estimates claim that today the amount of unreported tax and contribution is about one thousand billion HUF.

Phenomena of the shadow economy can be classified by their relationships to the regulatory system of the economy, that is:

- There are means of gaining income where the activity is neither economic in its nature nor legal. These areas are basically known (for example arms trade, illegal security mafia, receiving, drug trade and other illegal activities). These basically fall outside of the competence of economic policy.
- There are activities that are clearly economic crimes committed for the purpose of illegal profit making. These methods of making income are quite significant in Hungary today.
- Finally, there are other means of making income where the underground economic activity is carried out within the frames of legal economic organizations entangled with completely legal economic operations. The content of this underground economic activity is the decrease of tax and contributions paid by the venturer. Today these activities represent the greatest part of the shadow economy.

The significance and actual forms of the underground economy are fundamentally influenced by the financial policy of the state and, within it, tax policy and social policy. The results of the studies about the characteristics of the black economy show that several groups of factors are in close relationship with the development of the shadow economy, such as:

- indirect taxes burdening companies and private individuals,
- tendencies in the changing of tax burdens,
- the extent of state regulation of (intervention into) the economy,
- the level of tax morale.

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[2] In order to reveal the sector specific ratios of the private sector and the shadow economy, the GKI Economic Research Co. carried out the updating of the former estimations in 1994. The studies resulted in interesting conclusions about the route of the migration of domestic private- and international properties.

Without any further analysis, these factors clearly explain even few percent differences in the rates of black economies in the developed OECD countries to their GDP.

2. Characteristics of the shadow economy

The signs of the increasing hidden economy in the 1980s and 1990s came to the foreground of the interests of politicians and social scientists. One of the most comprehensive studies on the size of the shadow economy is a *study covering 17 OECD member states* that indicated a significant increase in the volume of the underground economy.

Table 2

Share of the shadow economy in the GNP, currency demand approach
(percent)

Country	1960	1970	1980	1990	1994
Austria	0.4	1.8	3.0	5.1	6.8
Belgium	–	10.4	16.4	19.6	21.4
Canada	–	–	10.1–11.2	13.6	14.6
Denmark	3.8–4.8	5.3–7.4	6.9–10.2	9.0–13.4	17.6
Germany	2.0–2.1	2.7–3.0	10.3–11.2	11.4–12.0	13.1
France	–	3.9	6.9	9.4	14.3
Ireland	–	4.3	8.0	11.7	15.3
Italy	–	10.7	16.7	23.4	25.8
The Netherlands	–	4.8	9.1	12.9	13.6
Norway	1.3–1.7	6.2–6.9	10.2–10.9	14.5–16.0	17.9
Spain	–	–	18.0**	21.0	22.3
Sweden	1.5–1.8	6.8–7.8	11.9–12.4	15.8–16.7	18.3
Switzerland	1.2	4.1	6.5	6.9	6.6
United Kingdom	–	2.0	8.4	10.2	12.4
USA	2.6–4.1	2.6–4.6	3.9–6.1	5.1–8.6	9.4
Japan	2.0*	–	4.1*/**	–	–
Finland	3.1*	–	7.6*/**	–	–

* Value calculated by model estimation.
** Data from 1978.

The most surprising fact revealed by the study was that the penetration, or increase in proportion of the shadow economy has grown faster than any other economic indicators. While in 1960 the size of the shadow economy in the studied OECD countries remained below 5 percent of the GNP, the share of this sector grew above 10 percent of the GNP in 1994.

To understand the reasons for the changes it is essential to examine them in the tax system and the regulations. If the tax system changes, by decreasing the tax burdens for instance, the shadow economy may be suppressed at first, but it can also gain influence later on. Between 1988 and 1990 the underground economy grew in the studied countries in spite of the lower tax rates of the tax reform because other important factors (for example regulations) developed unfavourably, making people work in the shadow economy. The effects of a lower direct tax burden were annihilated by the increasing regulations.

The growth of the hidden economy is also significant in countries where it used to have a much smaller share. In 1970 in the USA the share of the shadow economy was 3.6 percent, by 1990 this indicator reached 9.4 percent and remained around 10 percent at the beginning of the new decade, amounting to approximately USD 1000 billion.

The foregoing study came to the following conclusions about *the most important reasons of the increase*:

> – The higher significance of the shadow economy is mainly due to the growing general tax and social security burdens. It may lead to the erosion of the tax and social security funds and finally to the decrease of inland revenues that further increases the budget deficit and the direct and/or indirect tax rates, and that would lead to a further expansion of the shadow economy.
> – In case of an increasing shadow economy, decision makers of the economic policy may misinterpret the incomplete "official" indicators (for example official labour, earnings, consumption). In such cases a flowering shadow economy may cause serious problems to politicians.
> – We may consider its increase as a reaction of individuals overburdened by the functioning of the state (such as by high taxes and a growing number of regulations).
> – The increase may motivate (local and alien) employees to work in the shadow economy and reduce their work in the legal economy.

According to the newest global researches "The average size of the shadow economy (in percent of official GDP) over 2002/2003 in developing countries is 39.1%, in transition countries 40.1%, in OECD countries 16.3%, South Pacific

Islands 33.4% and 4 remaining Communist countries 21.8%." (*Schneider* [2004]). It seems, however, that its share is increasing due to certain differences in the growth of income (*Schneider–Enste* [2002a], *Schneider–Klinglmair* [2004]).

Table 3

Shadow economy as percent of GDP in different periods

Country group	Percent of GDP	
	1988–2000*	2002–2003**
Developing	35–44	39
Transition	21–30	40
OECD	14–16	16

* The ranges reflect the different estimation methods used by different sources (*Schneider–Enste* [2002a]).
** The average size of the shadow economy based on currency demand and DYMIMIC (dynamic multiple-indicator multiple-cause model) approaches (*Schneider* [2004]).

Unreported income is obviously intended to optimize the income of tax payers. The following points are worth considering in this respect:

− The growing probability of detecting tax evasions decreases the extent of unreported incomes. The effect of the amount of the penalty on the ratio of concealing has not been clearly demonstrated.

− A motivation for concealing tax may be a high level of average tax burden. It can be completed by various other studies that, if the average tax burden is too high, it may lead to unreported tax and unreported work. Some surveys show that a 1 percent increase of tax burdens may result in 8 percent growth in unreported income.

− Another motivating factor is a progressive income tax system. It is argued, however, whether the increase of the tax free bracket decreases the amount of unreported income. The decrease of tax burdens and the positive changes in the bracket free margins did not clearly result in the increase of the inland revenue either.

− The researchers have not yet been able to find a close connection between the size of incomes and the frequency rate of their concealment. Families with great income take the risk of concealing of income at the same frequency rate as families with small income. However, it has been understood that the higher the rate of income not properly documented, the higher the extent of unreported income.

    − A number of researchers have examined the relationship between the qualification of the tax payer and the extent of tax evasion.[3] All in all we may say that tax evasion is less frequent among people with higher qualification. It also means that a more intensive tax audit can only "deter" better educated people.

    − A very useful practice for tax payers to be able to gain insight into the tax records at the local governments. Publicity is a means of social control that decreases the extent of income concealment via inspection by a stranger.

Global data received from international studies very clearly show that the extent of the shadow economy is significant and its existence cannot be neglected. Its size has undergone significant changes and it keeps changing; it is smaller in industrial countries and bigger in developing countries (compared to the characteristic economic indicators like GDP of the particular country) (*Schneider* [2004]).

Table 4

Estimates about the size of the shadow economy by using various methods

Country	Average size of the shadow economy in percent of official GDP using currency demand and DYMIMIC approaches	Average size of the shadow economy in percent of the official rate of employment using questionnaire method
	for the year 1999/2000	
Developing countries in		
Africa	42 (23)	48.2 (23)
South- and Central America	41 (18)	45.1 (18)
Asia (except for Hongkong, Japan and Singapore)	29 (26)	33.4 (26)
Transition economies	35 (23)	–
Western OECD countries – Europe	18 (16)	16.4 (7)
North American and Pacific OECD Countries	13.5 (4)	—

Note. The numbers given in brackets refer to the number of countries.
Source: *Schneider* [2002b].

[3] In this respect it is to be considered whether the "secondary analysis" of tax returns may provide accurate results. Some scholars (for example *E. Sik*) do not even consider it as an estimation method.

In transition countries, there are serious concerns about the size (share) of shadow economies defined by estimation, in addition to methodological problems:

– Different methods result in different estimations. There is no guarantee that the results obtained by different methods would coincide.

– Every method has advantages and disadvantages. In lack of procedures to compare the different methods we cannot select the "best" one (the only meaningful feedback would be a comparison with reality but we do not know the real size of the shadow economies).

– Generated timelines are not suitable for further analysis because of the dynamic change in the environment and the inaccuracy of available data.

The estimation accuracy of the size of regional and global shadow economies reflects the terminological and methodological problems described previously that are frequently discussed in a number of publications. One of the consequences of the inaccuracy of current estimations and the changes in the economic systems of transition countries is the impossibility to provide a ranking (*Dallago* [2002]). It seems obvious that the cause of this problem roots in the followings:

– The elements of the system of shadow economies and their loose internal connections are not entirely understood.

– We do not know much about the relationship between legal- and shadow economies.

– There is no information on the behaviour of major actors in the economy.

– There aren't sufficient quantity and quality of data available.

– There is no method of adequate accuracy − especially to manage a dynamically changing economic environment together with its impacts.

– Even in cases where there is a set terminology estimation, accuracy cannot be increased "endlessly".

There are rather different estimations made in the international practice about the size of the shadow economies in particular countries. These estimations, however, justify the generally accepted belief that the share of the hidden economy is in negative co-relation with the level of development of a country. According to certain estimations the share of the shadow economy in the independent countries formed out of the member states of the Soviet Union reaches 30 percent, in the newly joined

countries it amounts to 15-17 percent, in Southern-European countries it is 10 percent, and in developed industrial countries it is about 5-7 percent (*UN* [2003] p. 14.)

Table 5

Size of the shadow economy in transition countries

Transition country	Size of the shadow economy (in percent of GDP)		Labor force of the shadow economy (in percent of working-age** population) 1998/99
	Physical input (eletricity)* method	DYMIMIC method	
	Average 1990–1993		
Former Soviet Union			
1. Armenia	39.4	40.1	40.3
2. Azerbaian	43.8	45.1	50.7
3. Belarus	34.0	35.6	40.9
4. Estonia	33.9	34.3	33.4
5. Georgia	43.6	45.1	53.2
6. Kazakhstan	32.2	31.9	33.6
7. Kyrgyzstan	34.1	35.2	29.4
8. Latvia	24.3	25.7	29.6
9. Lithuania	26.0	26.0	20.3
10. Moldavia	29.1	29.3	35.1
11. Russia	27.0	27.8	40.9
12. Ukraine	38.4	29.4	41.2
13. Uzbekistan	20.3	22.1	33.2
Unweighted average	*32.8*	*32.9*	*37.1*
Central and Eastern Europe			
1. Bulgaria	26.3	27.1	30.4
2. Croatia	23.5	24.6	27.4
3. Czech Republic	13.4	13.1	12.6
4. Hungary	**20.7**	**22.3**	**20.9**
5. Macedonia	34.5	35.6	35.1
6. Poland	20.3	22.3	20.9
7. Romania	26.0	27.3	24.3
8. Slovakia	14.2	15.1	16.3
9. Slovenia	22.4	22.9	21.6
Unweighted average	*22.4*	*23.4*	*23.3*

* Using values from *Johnson–Kaufmann–Shleifer* [1997].
** Working age is between 16 and 65.
Note. The DYMIMIC method is one of the most developed techniques applied in practice today.
Source: *Schneider* [2002b].

A widespread method of comparing statistics is based on the collating of input and output that involves the contrasting of production with consumption on a certain level of disaggregation (commodity-flow method). The approach in which the ratio of current consumption and gross output is compared with a value characteristic of a particular sector can be considered as a professional estimation (comparison with norm). In this case the corrections of GDP calculation have to be performed on the basis of larger divergences. The direct surveys recommended by the methodology should not primarily be applied to income from underground economic activities but to the consumption of products and services deriving from such activities. This way, we have more accurate information since the activity itself is illegal but the consumption of its output is usually legal. Such surveys are frequently applied to construction and renovation works.

Other significant discrepancy methods include the comparison of the amounts of VAT calculated on the basis of national accounts and actually collected by the tax authority, or the comparison of the theoretical value of income tax also calculated on the basis of macro-aggregates with the amount of income tax actually collected.

The conclusions about the size of the shadow economy drawn from macro-economic data and calculated by macro-models were mainly typical in the 1990s (*Giles* [1999], *Frey–Schneider* [2001], *Bernotaite–Piskunova* [2005]). These methods were widely criticised. The major critics claimed that these methods mixed up elements that are not observed with others or that are observed but inaccurately measured; the models are based on simplifying presuppositions and aren't robust enough; and the results obtained by different methods significantly differ from each other. One of the most typical methods of calculation based on macro data tries to estimate the size of the shadow economy on the basis of financial aggregates. It is presupposed that, by their nature, underground economic activities primarily demand cash and they try to draw conclusions from the number of transactions, the cash/deposit ratio, and the amount of cash in circulation. The speed of circulation in transactions was usually measured by the wearing out of bank notes calculated between the dates of issue and withdrawal. It obviously often led to distorted results since, for instance, it disregarded the international circulation of money. In two other cases the presupposition was that the cash/deposit ratio and the amount of cash are influenced exclusively by changes in the tax system and the regulations and thus they made estimations by filtering these out. The two experiments showed significant differences, the results were significantly distorted by various forms of cash payment and savings.

In another basic methodology based on macro-data, calculations are made on the basis of a global indicator. Such an indicator may be the consumption of electricity. It may also lead to distorted results since, for instance, the volume of consumption in agriculture is strongly dependent on the weather, a fixed part of consumption is not

proportional to the economic activity and − due to artificially low prices − the consumption does not decrease together with the activities of production. Regression models formerly used in practice are also worth mentioning among macro data-based methodologies; they were most often criticized for their arbitrarily selected explanatory variables and their hardly explainable causal relationships.

In the past ten years bottom-up methodologies, also recommended by Eurostat, came to the foreground. The most typical estimation methods include the labour input method mentioned previously, and indirect surveys as well as expert estimations. There are obviously other methods mentioned in the literature. An estimation about the size of Slovenia's shadow economy was made by applying and comparing three indirect methods: the consumption of electricity, the currency demand and the labour input methods (*Nastav–Bojnec* [2005]). A British model was adapted to Latvia in which food consumption as a macro-indicator served as a basis (*Bernotaite–Piskunova* [2005]). It is obviously arguable whether higher income results in proportionately higher food consumption. In another case the total of labour expenditures performed in the shadow economy was calculated on the basis of Romanian household statistics, and then proportioned to the GDP (*Albu* [2003]). The same method was also applied to calculations about certain major sectors (*Ivan-Ungureanu* [2001]). The shadow economy of Slovakia was basically calculated by the current Eurostat methodology primarily based on the analysis of the discrepancies between VAT figures collected actually and defined theoretically on the basis of Labour Input and the national accounts (*Balaz* [2004]). The Polish shadow economy was measured by the labour input method: the results of a small company were compared with the labour force survey based on household questioning, and expert estimations were also applied (*Jakóbiak* [2000]). In Bulgaria quarterly and annual surveys were made based on direct collection of partially qualitative information in which the data providers made estimations about the site of the shadow economy, the ratio of unreported activities, and the volume of VAT and other tax evasion (*Vitosha Research* [2003]). Other researchers used the labour input model (*Calzaroni* [2000]) together with other elements of the Eurostat methodology and made estimations on the basis of the panel model about the size of the shadow economy in OECD countries derived from the level of taxation and a corruption index (*Bosi* [2002]). They also estimated the underground labour supply on the basis of a simplified cost-benefit analysis and concluded that the general level of taxation fundamentally influences the size of the shadow economy in developed economies, therefore its share is the greatest in the Scandinavian countries (*Frey–Schneider* [2001]). The correlations between the shadow economy and the effects of tax burden were examined by a model of econometrics (*Giles–Caragata* [1999]) but the efficiency of this method is also weakened by its reliance upon former estimations about the size of the underground economy (*Bosi* [2002]). The correla-

tions of taxation, unemployment and the ratio of the shadow economy were ana-
lyzed on the basis of Russian and Ukrainian data by a macro-model (*Bilonizhko*
[2006]).

Out of the estimation methods mentioned in the Eurostat methodology, some ex-
perts primarily prefer direct methods. Considering the factors specifically resulting in
the expansion of the shadow economy in newly joined, former socialist countries
these experts set up the following major categories:

> *1.* Elements in the first group are referred to as social-
> economic/market factors: an example is the phenomenon in which the
> fast structural changes during the transition to market economy led to
> distortions in the labour market and, as a result, various forms of unre-
> ported employment appeared. The transition and the quick pace of pri-
> vatization resulted in the sudden increase of unemployment figures
> and the increase of unreported employment. Foreign capital invest-
> ments, however, contributed to the increase of legal employment since
> these investors tried to avoid illegal forms of employment. It has be-
> come generally accepted that the sectors most infected by underground
> activities are the ones dominated by domestic capital.
>
> *2.* The second group includes institutional factors, primarily high
> levels of tax and contribution burden. Unreported employment is also
> stimulated by the underdevelopment of the institutional infrastructure,
> that is, the quick changes or lack of transparency in the regulations, the
> underdevelopment of the financial sector, the lack of efficiency in the
> tax audit system, etc. Legal operations are also hindered by too bu-
> reaucratic and expensive mandatory procedures, like in the case of es-
> tablishing a company, or the possible interventions into the private
> sector by the state.
>
> *3.* The third group includes factors deriving from social traditions
> and attitudes. These causes are the most difficult to change and they
> will probably have long-term effects. These factors include the attitude
> of hostility against the state, and generally against all authorities or
> systems of norms and rules, as well as the lack of public trust. It entails
> that the tax payers do not believe that their payments are used prop-
> erly. Evading contributions is dominated by a short-sighted perspec-
> tive: contribution payers believe that their future pension will not de-
> pend on their current payments.

Apart from these, all means of collecting income are legal in market economies
and the law can usually prevent or eliminate them with low efficiency. There were

types of underground activities exclusively characteristic of socialist countries: unre-
ported employment, wages applied as costs, illegal second job next to the legal one,
employing unjustified beneficiaries of supplies, illegal employment of foreign citi-
zens, unauthorized economic activity, unreported personal services, such as teaching,
baby-sitting or cleaning, etc. (*Renoy et al.* [2004]).

In Hungarian studies the ratio of the shadow economy was calculated on the basis
of electricity consumption. Researchers estimated the energy consumption indicating
personal use or production on the basis of a cross-section statistic model (*Lackó*
[1996]). The disadvantage of the method is that it may provide unreal results, like in
the case of Slovenia (*Nastav–Bojnec* [2005]). The developed model, however, is ap-
plicable in controlling the results of a bottom-up method. The motivations of partici-
pating in the shadow economy and the possible measures of suppressing it (*Szántó–
Tóth* [2001]) as well as the temporal changes in the contract and tax morale of com-
panies have all been examined by a direct survey (*Semjén–Tóth* [2004]). The re-
searchers studied the answers looking for factors influencing the contract and tax
morale by a model inscribed on nominal variables.

Experts are regularly examining in detail the general and system specific reasons
of the shadow economy (*Ékes* [2003]). Hungarian researchers find similar reasons to
the ones ascertained by international colleagues. Among the general causes they
mention excessive taxation, operational problems of the institutional system, over-
regulation, poverty, higher levels of income only available by underground means,
inflation, the growth of the service sector, the reduction of working hours, and the
traditions. System specific reasons most typical in transition economies are the mix-
ing of a wage system inherited from the socialist era with market-based forms of dis-
tribution, privatization, and the dismantling of the former state property, as well as
the deficiency of economic and legal regulations, for example loopholes. The most
characteristic phenomena of the shadow economy in Hungary have been analyzed in
details in recent years. These include tax evasion, transfer type incomes (that is the
transferring of income within private individuals), illegal labour together with their
social and economic impacts. The estimated size of the shadow economy is also con-
sidered in international comparison.

The volume of underground activities is usually estimated in practice by direct or
indirect methods.[4] The Eurostat methodology referred to previously primarily rec-
ommends discrepancy-analyses, since they are based on available statistics, and thus
statisticians can be provided with easily and repeatedly calculable procedures. Even
though it approaches *direct surveys* with reservation, since data providers obviously

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[4] Direct methods include questionnaire studies, the application of the results of administrative audits, and
experience-based expert estimations. Indirect methods cover estimations based on the discrepancies in the offi-
cial statistical observations, and they apply top-down methodology on the basis of financial or natural macro-
data.

cannot provide accurate information, this methodology accepts the necessity of such limited information in the estimation of the shadow economy.

In spite of the former doubts, one of the significant trends of the recent years was the increasing role of the so called public opinion surveys performed by personal interrogation. Several of them have been published recently about the Hungarian shadow economy; they are primarily based on the results of questionnaire studies carried out among companies and individuals within the frames of ECOSTAT.

These public surveys summarize the results obtained from personal *questioning in active households*, as well as the answers collected from companies by questionnaires. The questions covered the views and opinion shared in the surveyed households about the shadow economy and their participation in it (*Belyó* [2002], [2007]). Results showed that the government measures intended to serve the fiscal budget balance have a direct influence on the unreported income of the individuals, as well as on the evasion of tax and other payments (for example social security). The values shared by the individuals in the sample prove that the compliance with economic laws and regulations is considered essential; the majority of the individuals in the sample do not intend to break the law, 49 percent claim that they would never do anything like that. Another significant group (13%), however, claims that incompliance with the law derives from deficiencies of the current legal regulations, especially tax regulations; and 7 percent of them believe that incompliance with the law is necessary in lack of other alternatives.

The survey carried out *among Hungarian companies* offered insights into their relationships with the underground economy.

70 percent of the chief executive officers are convinced that there are means to fight against the shadow economy and to suppress its possible appeal or necessity (*Belyó* [2002], [2007]).

The results of direct surveys are necessarily reconcilable with other methods of observing the shadow economy. In parallel with the international practice, Hungarian studies consider the labour input method as essentially important. It is basically a comparison of the volumes of labour expenditure collected from company surveys and household questionings. The latter is typically a higher value serving as the basis for the estimation about the size of the shadow economy. Direct surveys should also be carried out about the labour expenditures connected to underground activities. Experience shows that data providers are willing to render detailed information about labour done in the shadow economy if it is not an illegal activity. Useful information may also be obtained from questions concerning time consumption. In this case data providers describe the overall consumption of their time that often provides more accurate information on labour expenditures than household labour surveys. Useful information for grounding expert estimations is provided by surveys based on qualitative questions.

Obviously, there is no one "best" methodology, the foregoing methods are used in practice as complementary solutions depending on available data and information. The different methods will surely provide different estimations and that raises the question of which one to accept. The upcoming chapter offers an overview of the Hungarian and international results of the former estimations.

3. Measuring the size of the shadow economy

We do not have direct and exact information about the extent and change of the shadow economy – as the expression itself suggests. However, its main characteristics have been identified by the researches of the last few decades, which also provide possibilities to make approximate calculations, linked sample survey, opinion polls, and quite solid professional estimates.

Studying the extent and certain fields of the shadow economy, it could be especially important to have an extensive knowledge about it in international organizations and possible interpretation in the aspect of Hungary. Researchers have quested for samples that could express in numbers some segments of the hidden economy for several decades.

Direct and indirect approach, and recently model-based approximation are applied for estimating the rate of the hidden economy. Direct approaches can be sampling surveys or estimates deriving from for example tax audits. Statistics based on national accounts (income-expense) or labour market are used in indirect approach, but the so called transaction and currency demand approach, or for example the material input based methods (power consumption) are also applied. During model-based approximation, latent variables are used in dynamic structural equations, or multiple indicator models, multipurpose models, and in dynamic multiple indicator or multipurpose models.

The Statistical Office of the European Communities feels it necessary to create a standard terminology that constitutes a common conceptional frame and makes it possible to develop the valuation methods of the hidden economy. It has become absolutely clear how substantial it is to review the possibilities of estimation for illegal production activities. In the case of economies in transition, it could be a crucial objective to integrate and institutionalise the informal sector, but in the developed countries new statistical methods that can be adapted for measuring brand-new, emerging forms of informal activities must be developed.

There has been a great leap forward to form a general model for surveying hidden economy, but the different approaches and separated data sources seem to remain a

constant problem. In the matter of further projects it is necessary to provide compa-rability, especially in the context of international data and transparency. All these ac-tivities presume new methods to define the extension of the hidden economy. Simulation can be a sufficient methodological choice, because it is able to manage complex, dynamic systems, and it is insensitive for data quality.

The scholars of the field (*Schneider* [1992]) have developed a number of applicable methods since the 1970s to find out about the shadow economy and to measure its size and share. The compiled rough classification of the methods used after 2000 and applicable for measuring would be the following:

– Direct approach
  Sampling survey
  Tax audit
– Indirect approach
  National account statistics (receipts and expenditures)
  Labor statistics
  Transactional approach
  Currency demand approach
  Physical input method
– Model-based approach
  Using latent variables
   – Structural equation modeling (SEM)
   – Multiple indicator multiple cause model (MIMIC)
   – Dynamic multiple-indicator multiple-cause model (DYMIMIC)
 Simulation model

The background for the shadow economy of Hungary from the 1990s is also provided by economic, political and cultural factors. The dynamics and size of the underground economy are the necessary results of them.

The size of the Hungarian shadow economy compared to the official GDP decreased from its 1993 peak of 33 percent to 25 percent by 1998, and it has kept on decreasing since then, according to several surveys (*Lackó* [2000], *Tóth–Sík* [2002]). One of the newest simple experience estimations calculates the possible change in the ratio of the hidden economy on the basis of major changes in macro-level trends and estimates that the rate of the shadow economy is between 18 and 20 percent (*Belyó–Molnár* [2007]). This is also supported by international comparative studies.

In the past two decades the underground economy has undergone a significant change and, as an important characteristic, the income deriving from it fundamen-tally changed during the period of transition. The structural changes taking place in

this context are closely related to the changes in the political and economic environment, such as the growing number and economic performance of private ventures, the new income tax, accounting and auditing systems, etc. There have always been new possibilities for the expansion of the shadow economy in areas that were functionally unaffected by the black economy during the planned economy in Hungary.

Figure 1. Size of the shadow economy in percent of GDP
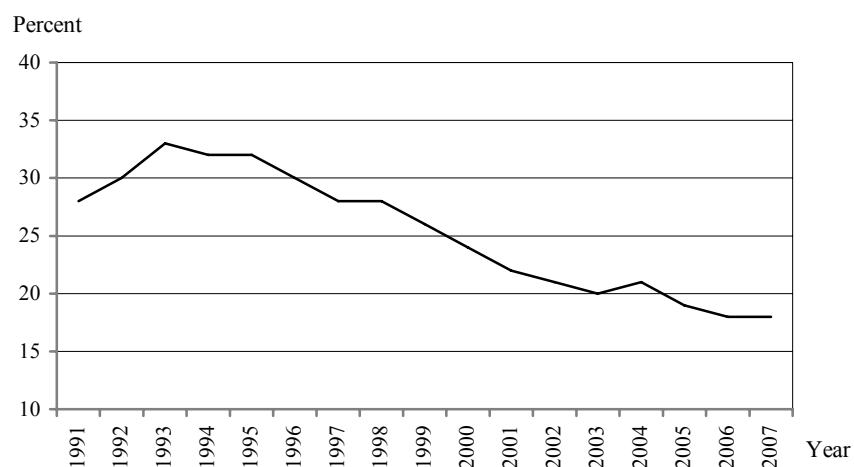
Source: Belyó [2007].

Figure 2. Estimated value of unofficial economic activities at current prices
(HUF million)
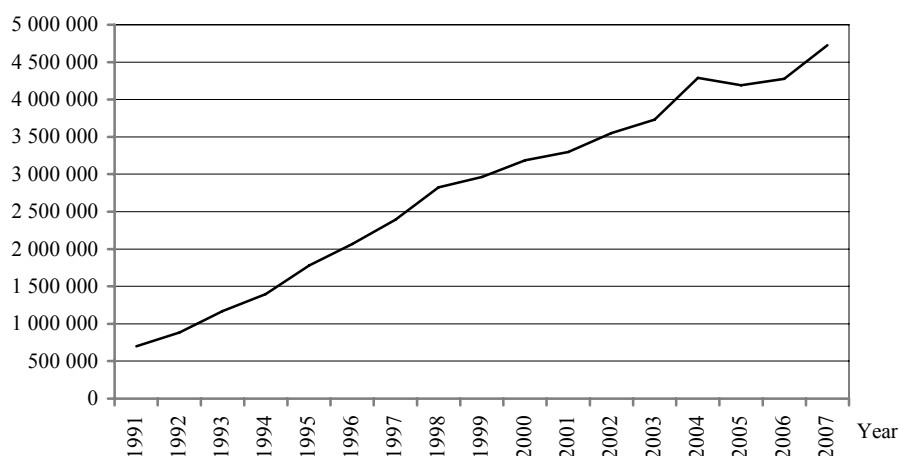
Source: Belyó [2007].

The majority of the shadow economy in the 1980s was provided by unofficial economic activities of private individuals (for example tip, gratitude money, neighbour help, etc.) From the 1990s tax evasion and unreported business activities of companies play the most crucial role in the underground economy. These tendencies, however, have been/are hardly represented in the official statistics. Even if Hungarian statistics have relatively improved in this respect since the end of the 1990s, – moreover, they cover a greater part of the shadow economy than the statistics before the transition to market economy – as a result of the significant increase that took place after the change of the system, a significant volume of production in the underground economy is probably still unregistered. The size of the shadow economy has significantly increased – estimations of international comparisons claim that the volume of HUF 83 billion measured in 1980 increased to HUF 230 billion by 1989, and to HUF 650 billion by 1992 – the improved methods of measurement could only decrease its rate unobserved in the GDP.

The questionnaire studies carried out within the frames of ECOSTAT in the first half of 2000 among companies and private individuals were important milestones in the research of the shadow economy and, in particular, the so called calculation by direct estimation methods.[5]

The urgent need to incorporate the shadow economy into the legal economy is an unavoidable problem and task of our times. There have been a number of measures introduced recently to solve this issue; international experiences highlight the importance of the strengthening of the organization of the tax and contribution collection system, a significant aggravation of sanctions and the increase in the efficiency of the fight against corruption. According to general opinion, the decreasing of the shadow economy results in significant growth in inland revenue, it leads to the production of public goods and services in greater quantity and quality, that eventually stimulates economic growth. We may also claim that in countries where the tax burden is above the optimal level and the co-operation of law enforcement authorities is insufficient, the growth of the shadow economy results in the decline in the growth rate of the economy (*Schneider* [1998]).

The neo-classic approach considers the operation of the underground economy as an optimal reaction to the production and service demands of the economic environment, for example that it is basically dependent upon the states efforts to create a strong, motivating environment, that results in competition, high efficiency and strong limitations in the activities of the government. Experts claim that we should not universally prevent all underground economic activities (*Fleming–Roman–Farrel* [2000]). Empirical studies also show that two thirds of the income

produced in the shadow economy are practically spent immediately in the legal sector, thus indirectly contributing to the economic growth and the indirect inland revenue (*Schneider* [1998]). In developing countries with high unemployment rate unofficial activities are necessary means of survival for the people and they may never entirely disappear; the enforcement of regulations may only lead to the annihilation of the bases of incomes (*Belyó* [1999]).

Governments are capable of influencing the shadow economy by inspiring certain activities and exploiting the possibilities offered by the economic factors (*Schneider* [1998]). Incentives, prevention, detection, penalizing, and publicity, all of them are instruments to be applied only in a refined and balanced formula (*Grabiner* [2000]).

The practice of economic policy applied against the shadow economy can best be connected to the terminology of untaxed economy (*Atkinson* [1999]). This name reflects on the relationship between income and taxation and shows that the untaxed economy does not only cover tax evasion practices within legal activities but illegal activities as well. The types of income in this category have one thing in common: they are not taxed regardless of the differences between legal and illegal activities.

According to Eurostat calculations, the size of unobserved economic activities was about 12 percent of the GDP in Hungary in 2000. (In Poland and Slovakia this figure shows 15-15 percent, while in the Czech Republic it is only 7 percent.)

Hungarian scholars claim that the size of the shadow economy was the greatest in 1993 compared to the GDP (33%), it has been gradually decreasing since then, and in 2006 a ratio of 17-19 was estimated.

The volume of GDP in 2007 amounted to nearly HUF 25 thousand billion. The structure of the shadow economy shows the following important characteristics:

54 percent of the companies in the productive sectors, and 64 percent of the companies in the service sector claimed that the shadow economy is present in their immediate economic environment.

Most frequent forms of the shadow economy are unreported employment (30%), unreported services (20%), and abuses in waging (17%).

The Hungarian Central Statistical Office carried out its first calculations in 2006 that measured the production of GDP on a wider basis than before in accord with the norms of the EU. The calculations included prostitution, as well as the production and trading of drug increasing the level of GDP by approximately 1 percent.[6]

It is inevitable that the level of tax evasion in Hungary jeopardizes the balanced future growth of the economy. In 2006, the centralization of taxes and contributions

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[6] The values are derived from the number of consumer transactions multiplied by the average price. The calculations about the production and trade of drugs are based upon criminal statistics and the sources of the police and the tax authority. The statistics on prostitution are built on data provided by the lobby organizations. However, it does not have any significance from the perspective of inland revenues, these activities do not contribute to the value of taxed income.

amounted to approximately 40 percent of the GDP in Hungary. The aggregate tax and contribution revenues amounted to HUF 8700 billion. On the basis of the estimated value of the rate of the shadow economy compared to the GDP, it probably means more than HUF 1000 billion in unpaid taxes and contributions. It is a gigantic amount, especially compared to the budget deficit of HUF 1.375 billion in 2007.

References

ALBU, L. [2003]: *Estimating the Size of the Underground Economy in Romania.* Institute for Economic Forecasting. Working Paper.

ATKINSON, M. [1999]: *Transfer Pricing – Protecting the Tax Base.* Conference on Quantifying and Controlling the Untaxed Economy. Deloitte and Touche. London.

BALAZ, P. [2004]: *Estimates of Non-Observed Economy in the Slovak Republic.* Statistical Office of the Slovak Republic. Working Paper.

BELYÓ, P. [1999]: *Kísérletek a rejtett gazdaság nagyságának meghatározására.* Módszertani füzetek. ECOSTAT. Budapest.

BELYÓ, P. [2002]: *A lakosság részvétele a rejtett gazdaságban.* Időszaki Közlemények. No. XVIII. ECOSTAT. Budapest.

BELYÓ, P. [2007]: *A rejtett gazdaság a lakosság és a vállalkozások körében.* Időszaki Közlemények No. XXVI. ECOSTAT. Budapest.

BELYÓ, P. – MOLNÁR, I. [2007]: Shadow Economy: The Hungarian Case. In: *Dr. Kirpalani, V. H. – Dr. Garbarski, L. – Kaynak, E.* (eds.): *Successfully Doing Business/Marketing in Eastern Europe.* Routledge Studies in International Business and the World Economy. Routledge. London.

BERNOTAITE, R. – PISKUNOVA, A. [2005]: *An Expenditure-based Estimate of Latvia's Shadow Economy.* Stockholm School of Economics in Riga. Working Paper.

BILONIZHKO, O. [2006]: *Measurement and Determinants of the Hidden Economy in Regions of Ukraine and Russia: Mimic Approach. Master of Art in Economics Thesis.* National University of Kyiv-Mohyla Academy. Kiev.

BOSI, M. [2002]: *The Nature of the Underground Economy. Some Evidence from OECD Countries.* Instituto di Studi e Analisi Economica. Working Paper.

CALZARONI, M. [2000]: A nemzeti számlarendszer teljes körű becslései: új fogalmak és módszertani megközelítés. *Statisztikai Szemle.* Vol. 78. No. 6. pp. 413–434.

DALLAGO, B. [2002]: *The Irregular Economy in Systemic Transformation and Statistical Measurement.* Research Paper Series. Russian-European Centre for Economic Policy. Moscow.

ÉKES, I. [1999]: *A rejtett és informális gazdaság foglalkoztatási hatásai.* Gazdasági Minisztérium. Budapest.

ÉKES, I. [2003]: *A gazdaság árnyéka, avagy a rejtett gazdaság.* Rejtjel Kiadó Kft. Budapest.

FEIGE, E. L. (ED.) [1989]: *The Underground Economies. Tax Evasion and Information Distortion.* Cambridge University. Cambridge, New York, Melbourne.

FLEMING, M. – ROMAN, J. – FARREL, G. [2000]: The Shadow Economy. *Journal of International Affairs.* Vol. 53. No. 2. pp. 64–89.

FREY, B. – SCHNEIDER, S. F. [2001]: Informal and Underground Economy. In: *International Encyclopedia of Social and Behavioral Science. Bd. 12 Economics.* Elsevier Science Publishing Company. Amsterdam.

GILES, D. E. A. [1999]: Measuring the Hidden Economy: Implications for Econometric Modelling. *The Economic Journal.* Vol. 109. No. 456. pp. 370–380.

GILES, D. E. A. – CARAGATA, P. J. [1999]: *The Learning Path of Hidden Economy: The Tax Burden and Tax Evasion in New Zealand.* http://web.uvic.ca/econ/wp9904.pdf

GRABINER, A. [2000]: *The Informal Economy. A Report by Lord Grabiner QC.* The Public Enquiry Unit. HM Treasury. The Stationery Office Limited. London. http://62.164.176.164/d/74.pdf

IVAN-UNGUREANU, C. [2001]: *Non Observed Economy in Romania.* http://www.oecd.org/dataoecd/39/34/2069777.pdf

JAKÓBIAK, B. [2000]: *The Systematic Approaches to Measuring Hidden Economy in Poland.* Central Statistical Office of Poland. Workshop on Measurement of the Non-Observed Economy. http://www.oecd.org/dataoecd/39/35/2069764.pdf

JOHNSON, S. – KAUFMANN, D. – SHLEIFER, A. [1997]: The Unofficial Economy in Transition. *Brookings Papers on Economy Activity.* Vol. 28. No. 2. pp. 159–240.

LACKÓ, M. [1996]: *Hidden Economy in East-European Countries in International Comparison.* International Institute for Applied Systems Analysis (IIASA). Laxenburg.

LACKÓ, M. [2000]: Hidden Economy – An Unknown Quantity: Comparative Analysis of Hidden Economics in Transition Countries 1989-95. *Economics of Transition.* Vol. 8. No. 1. pp. 117–149.

LIPPERT, O. – WALKER, M. (EDS.) [1997]: *The Underground Economy: Global Evidences of Its Size and Impact.* The Frazer Institute. Vancouver.

NASTAV, B. – BOJNEC, S. [2005]: *Shadow Economy in Slovenia.* Managing the Process of Globalization in New and Upcoming EU Members. 6th International Conference of the Faculty of Management Bernardin. http://www.fm-kp.si/zalozba/ISBN/961-6573-03-9/nastav.pdf

RENOY, P. ET AL. [2004]: *Underground Work in an Enlarged Union – An Analysis of Undeclared Work: An In-Depth Study of Specific Items.* European Commission: Employment and European Social Fund. Brussels. http://www.csd.bg/en/econ/fileSrc.php?id=1488

SCHNEIDER, F. [1992]: *The Development of the Shadow Economy under Changing Economic Conditions: Some Tentative Empirical Results for Austria.* Conference on Mass Migration in Europe. Vienna. Working Paper.

SCHNEIDER, F. [1998]: *Stellt das Anwachsen der Schwarzarbeit eine wirtschaftspolitische Herausforderung dar?* Einige Gedanken aus volkswirtschaftlicher Sicht. Mitteilungen des Instituts für angewandte Wirtschaftsforschung (IAW). Linz.

SCHNEIDER, F. [2002a]: *The Size and Development of the Shadow Economies of 22 Transition and 21 OECD Countries.* Discussion Paper Series. Institute for Study of Labo. IZA DP No. 514. Bonn.

SCHNEIDER, F. [2002b]: *Size and Measurement of the Informal Economy in 110 Countries Around the World.* Workshop of Australian National Tax Centre. ANU. Canberra.

SCHNEIDER, F. [2004]: *The Size of Shadow Economies of 145 Countries All Over the World: First Results Over the Period 1999 to 2003.* Discussion Paper Series. Institute for Study of Labor. IZA DP No. 1432. Bonn.

SCHNEIDER, F. – ENSTE, D. [2002a]: *Hiding in the Shadows: The Growth of the Underground Economy.* IMF. http://www.imf.org/external/pubs/ft/issues/issues30/index.htm

SCHNEIDER, F. – ENSTE, D. [2002b]: *The Shadow Economy: Theoretical Approaches, Empirical Studies, and Political Implications.* Cambridge University Press. Cambridge.

SCHNEIDER, F. – KLINGLMAIR, R. [2004]: *Shadow Economies Around the World: What Do We Know?* Discussion Paper Series. Institute for Study of Labor. IZA DP No. 1043. Bonn.

SEMJÉN, A. – TÓTH, I. J. [2004]: Rejtett gazdaság és az adózási magatartás, 1996–2001. *Közgazdasági Szemle.* Vol. LI. No. 6. pp. 560–583.

SMITH, P. [1994]: *Assessing the Size of the Underground Economy: The Statistics Canada Perspectives.* Canadian Economic Observer. Catalogue No. 13-604-MIB No. 28. Canada's National Statistical Agency. Ottawa.

SZÁNTÓ, Z. – TÓTH, I. J. [2001]: A rejtett gazdaság és az ellen való fellépés tényezői. *Közgazdasági Szemle.* Vol. XLVIII. No. 3. pp. 203–218.

TÓTH, J. – SIK, E. [2002]: Hidden Economy in Hungary 1992–1999. In: *Neef, R. – Stanculescu, M.* (eds.): *Social Impact of Informal Economies in Eastern Europe*. Ashgate Publishing. Aldershot. pp. 219–230.

UN [2003]: *Non-Observed Economy in National Accounts – Survey of National Practices*. United Nations Economic Commission for Europe. Geneva.

UNO [2007]: *Towards 1993 SNA Rev.1.* http://unstats.un.org/unsd/nationalaccount/snarev1.asp

VITOSHA RESEARCH [2003]: *The Hidden Economy in Bulgaria.* (General Population.) Working Paper. http://www.vitosha-research.com/fileSrc.php?id=1145