

SHADOW ECONOMY EXTENT MEASUREMENT METHODS' IMPORTANCE IN COUNTRY'S COMPETITIVENESS VALUATION

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Крушинкас Ритис, Ейтмантите Довиле, Викторія В. Кошеленко. Особливості методів оцінки тіньової економіки у контексті оцінки конкурентоспроможності країни.

Проведений аналіз показує, що різні вчені, оцінюючи масштаб тіньової економіки, застосовують різноманітні методи оцінки тіньової економіки, які видають різноманітні результати. Для країн, таких як Литва і Україна, в яких достатньо високий рівень тіньової економіки, дуже важливо, як привабливість країни оцінюють іноземні інвестори. Тому виявлення особливостей різних методів оцінки тіньової економіки може надати новий погляд, інтерпретуючи масштаб тіньової економіки у контексті оцінки конкурентоспроможності країни.

Крушинкас Ритис, Ейтмантите Довиле, Викторія В. Кошеленко. Особенности методов оценки теневой экономики в контексте оценки конкурентоспособности страны.

Проведенный анализ показывает, что разные исследователи в оценке размеров теневой экономики используют различные методы оценки теневой экономики, которые дают разные результаты. Странам, таким как Литва и Украина, с относительно высоким уровнем теневой экономики, очень важно то, как привлекательность страны оценивают иностранные инвесторы. Таким образом, раскрытие особенностей различных методов оценки теневой экономики может обеспечить новый подход к интерпретации масштаба теневой экономики в контексте оценки конкурентоспособности страны.

Krusinskas Rytis, Dovile Eitmantyte, Viktorija V. Koshelenko. Shadow Economy Extent Measurement Methods' Importance In Country's Competitiveness Valuation.

The article shows, that the majority of scientists, who measures shadow economy, uses various methods that provide different results. For such countries as Lithuania and Ukraine, where is high level of shadow economy, it is very important to realize - how the investors value attractiveness of country. The revealing of new features of shadow economy assessment methods can provide new attitude for shadow economy scale valuation in general country's context of competitiveness.

Introduction. The issue about revival of global economy is very relevant nowadays. The government leaders of countries are paying more attention to international cooperation, free movement of capital and services, deeper integration and technological innovation. As a result, the regular growth of competitiveness in the global market has become one of the most important goals for most of the countries. The ability to identify the barriers of competitiveness, to find out the solutions for concurrency problems is very important in order to trigger attraction of foreign direct investments and increasing the standard of living. The interest in analyzing the causes of countries' competitiveness is related with integration processes. Countries, which are the members of European Union (EU) or potential candidates, are interested in the topic of competitiveness, because they need to be competitive in internal markets. This fact is very relevant for Ukraine, which is trying to become a member of EU by stimulating its' competitiveness. Such actions, in Ukraine, as announcement about free market, close cooperation between this country and EU, entry to World Trade Organization, had positive impact for economy of Ukraine. For instance, Ukraine has attracted 36 billion USD foreign direct investments for the period from 2004 till 2009. For comparison, foreign direct investments have involved only 5,7 billion USD for the period from 1999 till 2004 [9]. This comparison proves the attractiveness of Ukraine from investors prospective. What is more, general statement of political parties, which were accepted by the Highest Rada of Ukraine on the 24th of February in 2013, supports Ukraine's integration into European Union and contributes to the growth of country's reliability and competitiveness. When Lithuania joined EU back in 2004, it also had positive influence for foreign direct investments. The investment of other countries has increased 3 times from 2000 to 2012. Foreign direct investment has increased from 2,524 million EUR in 2000 to 11,9 million EUR in 2012. The fast growth of attracted investments are related mainly with EU countries, that have invested around 78 % of foreign direct investments in Lithuania [13]. On the other hand, scientific researches and discussions show that competitiveness evaluation of country is associated with the scale of shadow economy. Countries, which wants to attract more foreign investments, additional capital or to keep great international communication, needs to maintain good image and opinion about economic situation in the country. According to Donici (2012), high level of shadow economy is the sign of low competitiveness. What is more, the evaluation of shadow economy includes such variety of methods as: *fiscal audit* that was used by Internal Revenue Service (IRS) in USA from the beginning of 1963 (Feld, et al., 2007). Mogensen et al.

(1995), Lithuanian Institute of Free market (2012) measures shadow economy by *survey and questionnaire approach*. Tiho, Hyun (1998) adjusted *discrepancy between national expenditure and income approach*. Shneider, Enste (2000) has used *transaction method*. Garvanlieva et al. (2012), Kyle, et al. (2001) adapted *electricity consumption approach*. *The labor force approach* was applied by Nastav and Bojnec (2007). Tanzi (1983), Chatterjee et al. (2006) have measured shadow economy with *currency demand approach* that was used for many analyses of OECD countries. The latent variable approach – *MIMIC* – was practiced by Shneider, Enste (2000), Klarić (2011) and Dell'Anno (2003, 2007). The methods of shadow economy, that are widely used by various scientists and organizations, cause the discussions about their influence for country's economy, concurrency, because of different results of methods. The **aim of this article** is to do the theoretical analysis of shadow economy methods and to reveal the advantages and disadvantages of these methods. **Methodology**. The author has used theoretical (systematical analysis of scientific literature, comparison analysis, summarize analysis) methods in the article.

The valuation of shadow economy scale in Lithuania and Ukraine. The variety of shadow economy approaches and complexity of measurement creates mismatches - different methods provide different results. The inaccuracy of results can be easily seen in Lithuanian shadow economy analysis, that is executed by Lithuanian Institute of Free Market (LLRI) and Lithuanian Department of Statistics in Table 1.

Table 1 - The Scale of Shadow Economy in Lithuania, proc. from GDP [9;18]

Method \ Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Survey of experts	20	20	21	21	21	18	18	23	29	27	27
Statistics of Lithuania method	19	17	16	14	13	12	13	20	-	-	-

According to Lithuanian Institute of Free Market, that is the main evaluator of shadow economy in Lithuania, the shadow economy is measured using the survey of experts [18]. According to V. Žukauskas (2009), Lithuanian Department of Statistics also tried to measure the shadow economy, but there is no official information about its methodology [21]. There is a gap between the results of both institutions in Table 1. As a result, it can be assumed, that other methods would provide different results as well.

Table 2 - The Scale of Shadow Economy in Ukraine, % of GDP [6]

Method \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Electricity consumption approach	18.3	26.8	31.9	41.8	62.5	74.9	84.3	86.5	84.3	81.4
Household electricity approach	19.5	28.1	37.4	47	54.6	52.8	-	-	-	-

D. Hryshko (2001) has done the research for measuring shadow economy in Ukraine for the period of 1990-1999 by using electricity consumption and household electricity consumption methods (see Table 2). As it is seen in Table 2, the results of diverse approaches also differ, although the period was the same. One of the most well-known researcher of shadow economy nowadays – F. Shneider (2011, 2012) is executing comprehensive research of shadow economy for many countries by using MIMIC approach (see Table 3).

Table 3 - The Scale of Shadow Economy by MIMIC approach in Ukraine and Lithuania, % from GDP [11; 15; 16]

Country \ Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
The results according to Shneider (2011, 2012)											
Lithuania	32.8	32	31.7	31.1	30.6	29.7	29.1	29.6	29.7	29	28.5
Ukraine	50,8	49,7	48,8	47,8	47,3	46,8	46,2	46,2	45.1	44,6	44,0
The results according to Naraškevičiūtė, Daukšaitė (2013)											
Lithuania	32.8	32	31.7	31.0	30.4	29.7	29.1	29.6	29.7	29	28.2
Ukraine	50,8	49,7	48,8	47,8	47,3	46,8	46,9	49.4	48,6	48,4	49,0

The comparison of Table 1 and Table 3, shows that the data of the same period, which measure shadow economy, differ a lot. Naraškevičiūtė, Daukšaitė (2013), have applied MIMIC approach and added additional variables for the shadow economy valuation in Lithuania and Ukraine. Their research and measurements provides quite similar results in comparison to Shneider (2012) research (see Table 3).

Italian scientist, Dell'Ano (2003) measured, collected and systemized data about the variety of shadow economy methods in Italy and other countries. His analysis shows that the level of shadow economy can differ from 3,9% to 27.2% in period 1976-1980 according to chosen approach [1]. The scale of shadow economy by using diverse methods was such as: by using fiscal auditing - 3.9 %, discrepancy between national expenditure and income – 4,3%, labor force method – 18,4%, currency demand approach – 15,9%, transaction approach reached 26,4%, MIMIC approach – 10.5% [1]. It is proved that various methods can generate absolutely different results, so it is not recommended to rely on single approach. Countries can be evaluated in other perspective of foreign direct investments, competitiveness, and the authority in market because of the shadow economy interpretation.

The analysis of shadow economy assessment methods: theoretical aspect. The measurement methods of shadow economy can generate not only various results, but also different attitude about shadow economy. The direct approaches (fiscal audit, survey) provide data about participation of physical and juridical persons in shadow economy by using special statistical researches and sampling methods. Indirect approaches (transaction, labor force, currency demand, electricity consumption, discrepancy between national expenditure and income approaches) use monetary, economic, social sources to measure the shadow economy. Econometrical, MIMIC approach is based on latent variables theory, that considers about several causes and indicators of shadow economy. Variety of methods that generate different results and lack of global standard can provide inaccurate scale of shadow economy. So it is very important to separate the features of shadow economy methods (see Table 4).

Table 4 - The Features of shadow economy measurement methods

Approach	Author, country	Advantages	Disadvantages
Fiscal audit	Internal Revenue Service (1963) USA.	Comprehensive results; determination of insolvent business sectors, markets;	Sampling errors; measurement only the part of shadow economy; revelation moment results; unreability of results; difference of audits quality; difficulties to separate real shadow activities.
Survey/questionnaire	Mogensen, H. K. et. all. (1995) Denmark, Lithuanian Institute of Free Market (2013) Lithuania.	Detailed information about the structure of shadow economy; Possibility to classify the results by age, economic activity, sex etc.	Results of lower reliability; lack of openness of respondents; complexity of survey structure; discomfort to tell about unfair activities; false perception of the terms.
Discrepancy between national expense and income	Tiho, Y., Hyun, J. K. (1998) Korea, Taiwan.	Simplicity of method; availability of statistics, simple methodology.	Errors in national accounts; method does not reveal the real situation of shadow economy.
Labor force approach	Nastav, B., Bojnec, Š. (2007) Slovenia, Croatia.	Attractiveness of theoretical methodology; Research about labor market.	Discrepancies in labor force can be influenced by other factors; people can work in both markets; results of method are not reliable.
Transactions approach	Schneider, F., Enste, D.(1999) Canada, Germany, USA	Application and attractiveness of theoretical methodology part.	Inaccessibility of statistical data, Critics of base year, when shadow economy does not exist.
Electricity consumption method	Kyle, S., et al (2001) Bulgaria; Garvanlieva, V., et.all.(2012) Macedonia.	Availability of statistics; one of the best physical approaches; elasticity between electricity consumption and GDP is close to 1.	Usage of other energy resources; impact of technical progress; difference of elasticity in various countries; inaccuracy of method.
Currency demand/monetary approach	Tanzi, V.(1983) JAV, Chatterjee, S., et al (2006) India	One of the most used and applicable methods; Availability of statistics.	The assumption of single factor – currency; shadow economy is not implemented only in form of cash; Critics of base year without shadow economy; complexity of assessment of money velocity.
MIMIC approach	Shneider, F., Enste, D.(2000) the majority of countries; Klarić, V. (2011) Croatia; Naraskeviciute, V. Dauksaite, A. (2013), Lithuania, Ukraine; Dell'Anno, R., (2003, 2007) Italy, Portugal.	Inclusion of more than one cause; application of many authors in many countries; evaluation of causes and indicators; comprehensive approach.	Possibility for dominance of single variable; large amount of data; results depend on chosen causes; need of base year.

Selection of appropriate method for shadow economy assessment can provide comprehensive results for actions in order to sustain long term healthy growth of country economy, at the same time increasing its competitiveness and attraction of foreign direct investments.

Conclusions. For countries that have already joined EU and for those that are planning to do so, competitiveness problem is becoming very topical in order to attract foreign direct investments. Also in order to stimulate countries economic environment it is important to measure, correctly, countries shadow economy level, because by the measuring scale of shadow economy different experts uses different shadow economies measuring methods, that generates different outputs. Investigation of Lithuanian and Ukraine shadow economies measuring analysis showed that the scale of shadow economy, in these countries, can be interpreted in different way depending on the method that was used. Same conclusion was drawn by the R. Dell'Anno (2003) investigation that was done in Italy. By valuating countries competitiveness and focusing on the shadows economy level in the country, it is being

recommended to pay great attention to the method that being used to measure shadow economy and also in the methods advantages, disadvantages and on analysis results.

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Ключевые слова: теневая экономика, метод, Литва, Украина, привлекательность страны, иностранные инвесторы, оценка конкурентоспособности.

Ключові слова: тіньова економіка, метод, Литва, Україна, привабливість країни, іноземні інвестори, оцінка конкурентоспроможності.

Keywords: shadow economy, method, Lithuania, Ukraine, the attractiveness of the country, foreign investors, the evaluation of competitiveness.