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SHADOW ECONOMY: STATE OF THE ART

Inroduction. Each year there are enormous numbers of cash transactions in the market without the government's observes and regulations. This phenomenon was known as the “underground economy” and “shadow economy” [1]. As shadow economic activities are a fact of life around the world, most societies attempt to control these activities through various measures like punishment, prosecution, economic growth or education. Gathering statistics about who is engaged in shadow economy activities, the frequencies with which these activities are occurring and the magnitude of them, is crucial for making effective and efficient decisions regarding the allocations of a country's resources in this area. Unfortunately, it is very difficult to get accurate information about these shadow economy activities on the goods and labor market, because all individuals engaged in these activities wish not to be identified. Hence, the estimation of the shadow economy activities can be considered as a scientific passion for knowing the unknown [2].

“System D.” The fact that the shadow economy is on the rise in the middle of a global financial crisis should be no surprise to economists.

A recent post on Steven Levitt and Stephen Dubner's Freakonomics blog discussed the growth of the shadow economy across the world. Freakonomics: “In 2009, the OECD concluded that half the world's workers (almost 1.8 billion people) were employed in the shadow economy. By 2020, the OECD predicts the shadow economy will employ two-thirds of the world's workers. This new economy even has a name: ‘System D’.”

In a recent article for Foreign Policy magazine, Robert Neuwirth argues that “the $10 trillion global black market is the world's fastest growing economy – and its future”. Neuwirth discusses that the phrase “System D” comes from a slang phrase used in French-speaking Africa and the Caribbean. The “D” stands for the French word “debrouillard”. Neuwirth: “To say a man is a debrouillard is to tell people how resourceful and ingenious he is”. Thus, self-starting entrepreneurs who go out on their own for business purposes without being regulated by bureaucracy and / or without paying taxes are part of “l'economie de la debrouillardise”, or “Systeme D” on the street. Neuwirth writes that System D is a global phenomenon, transporting products across the planet ranging from machinery to computers to mobile phones. Neuwirth explains that based on estimates, the total value of System D globally is close to $10 trillion. In comparison, the US has a GDP of $14 trillion. Thus, were System D a sovereign nation, it would be an economic superpower – the second largest economy in the world.

Aside from the legal aspects of the black market, the shadow economy has negative implications in terms of tax revenue. In a July 2010 article from Bloomberg Businessweek, Chris Prentice discussed how the rise of the shadow economy affects tax revenue for nations.

Based on estimates, Prentice quotes Austrian economist Friedrich Schneider, “Taxation and regulation increased in most countries over the past 10 years… reducing the tax burden is the best policy measure to reduce the shadow economy, followed by a lessening of fiscal and business regulation” [3].

Model-based methods to estimate shadow economy. Model-based methods use statistical tools to estimate the shadow economy as an “unobserved” variable. Three such methods are most widely used in the literature: i) the currency demand method (Feld and Schneider, 2010; Schneider and Enste, 2000); ii) the electricity consumption method (e.g. Kaufmann and Kaliberda, 1996; Johnson et al., 1997); and iii) the multiple indicators and multiple causes (MIMIC) model (e.g. Schneider, 2007; Vuletin, 2008):

i. The currency demand method assumes that cash transactions account for the bulk of informal transactions (e.g. Schneider, 1997 and Johnson et al., 1998). The crucial assumption underlying this method is that a change in the size of the shadow economy (or the amount of money demand) is caused by changes in taxation and government regulations. As a first step, a money demand equation - where the dependent variable is typically the ratio of cash holdings to current and deposit accounts - is estimated as a function of the most known determinants of money demand (e.g. real income, interest rates, payment habits etc.), as well as the tax burden and government regulation. In turn, an estimate of the size and development of the shadow economy can be calculated by comparing the development of cash when taxes and government regulations are at their lowest values among the countries included in the analysis, with the development of cash at the higher levels of taxation and regulations.

ii. The electricity consumption method relies on the fact that economic activity and energy consumption have been observed to be highly correlated. Assuming that electricity consumption can be used as a proxy for total (i.e. formal and informal) economic activity, the difference in the growth of official GDP and GDP predicted on the basis of electricity consumption can, therefore, yield an estimate of the shadow economy (e.g. Kaufmann and Kaliberda, 1996; Lackó, 1998; Schneider and Enste, 2000). 5 This approach has been employed widely to measure the shadow economy, particularly for

countries whose data collection lags behind the rest of the world and hampers more data-intensive methods to measure shadow economy.

iii. The Multiple Indicators Multiple Causes (MIMIC) method hypothesises that the size of the shadow economy can be modelled as a latent variable. Even though this variable is unobservable, its causes (e.g. an increase in the tax and regulatory burden) and effects (e.g. an increase in demand for cash or electricity) can be observed (Feld and Schneider, 2010; Dell'Anno and Schneider, 2008). In practice, the basis of the MIMIC model is a system of simultaneous equations. While one set of equations models the effects as a function of the latent (shadow economy) variable, the other set of equations models the shadow economy as a function of the causal variables. After estimating the system, a measure of the size of the shadow economy is obtained from the fitted values of the latent variable [4].

The dynamics. Many obstacles must be overcome to measure the size of the shadow economy and to analyze its consequences on the official economy, although some progress has been made. This article it is shown that although it is difficult to estimate the size of the shadow economy, it is not impossible. We have demonstrated that with the various methods – the currency demand method, the electricity consumption method, the Multiple Indicators Multiple Causes (MIMIC) method some insights can be provided into the size and development of the shadow economy of countries. Each approach has its specific strengths and weaknesses and can provide specific insights and results. The general impression from the results of these estimates is that, for all countries investigated, the shadow economy has reached a remarkably large size. Although the different methods provide a rather wide range of estimates, there is a common finding that the shadow economies of most transition and all investigated OECD countries have been growing over the past decade. The same can be said for the labor market in the shadow economy, which is attracting growing attention due to high unemployment in European OECD countries [5].

In a recent study Schneider calculated the size of the shadow economy in 31 European countries including Malta. In 2011, according to Schneider, the average size of the shadow economy in these countries was 19.3% of official GDP. Malta's black economy's size is calculated at 25.8% of GDP – significantly higher than the average for these countries. The smallest shadow economy is to be found in Switzerland with 7.9% of official GDP, while the highest is in Bulgaria with 32.3%.

Conclusion. Based on the Schneider study, shadow economy has been decreasing since the highest level of 23.2% in 2003. This decrease would seem to be due to the fact of the recovery from the world wide economic and financial crises. The only exception is Greece, where the recession of the official economy is so strong, that it even reduced the demand of the shadow economy activities due to the severe income losses (Fig. 1).

The size of the shadow economy can be reduced by:

• Reducing the financial attractiveness of undeclared work through better design of tax and benefit systems, and stricter controls in the social protection system with regard to the performing of undeclared work:

– ensuring adequate levels of income support, recognition of the link between rights and contributions, by controls on welfare beneficiaries and adequate financial sanctions for tax and social security fraud;

– areas to watch include (i) the taxation of overtime, (ii) the respect of minimum wages or wages set by collective agreements and their possible role as levels of reference for envelope wages, (iii) tax distortions between the status of employee and self-employed, and (iv) the

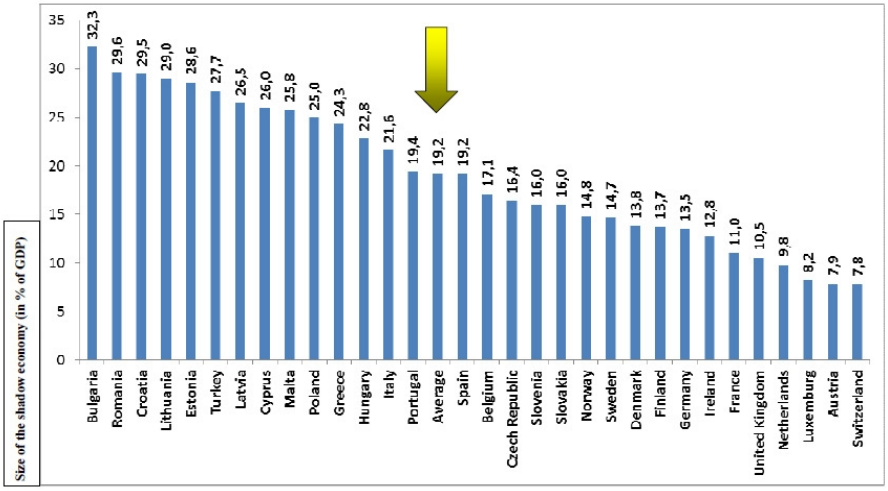

Fig. 1. Size of the shadow economy of 31 European Countries in 2012, % of GDP

Source: Schneider, F. (2011), "Size and development of the Shadow Economy from 2003 to 2012: some new facts"

reduction of fiscal burden on low skilled jobs.

• Administrative reform and simplification, with a view to reducing the cost of compliance with regulations:

– further improvement of labour law and administrative systems to better cope with short-term needs and shortages in the labour market;

– sector-specific approaches to transform undeclared work into regular work (especially in hotels and restaurants, agriculture, home services);

– enforcement of the Community acquis on the free movement of workers;

– further exploiting the possibilities of e-government, online registration and exchange of information between administrative databases;

• Strengthening the surveillance and sanction mechanisms, with the involvement of labour inspectorates, tax offices and social partners:

– exemptions from the practice of written labour contracts should be limited to the minimum;

– sector-specific solutions to control and regularise undeclared work with the involvement of the social partners;

– cooperation between the various bodies in charge of tax, labour, and immigration, as well as on the enforcement of legislation and sanctions.

• Trans-national cooperation between Member States, and Awareness raising activities:

– increasing awareness among the public on the risks and costs to society linked to undeclared work, particularly as far as sanctions are concerned; social partners have a key role to play in this respect;

– informing citizens about the positive effects of full payment of taxes and about the insurance nature of social security contributions [6].

Most studies of the shadow economy focus on the influence on the allocation of resources and the loss of revenue for the state. But the impact on official institutions, norms, and rules is even more important. The shadow economy can be seen as an indicator of a deficit of legitimacy of the present social order and the existing rules of official economic activities [5]. The informal economy is complex as it involves a number of different activities, making measurement a challenge. With few exceptions, existing empirical research into the impact of policies on informality tends to be conducted at the national level, and can be criticised for relying on unreliable proxy variables – such as self employment – or model based estimates that already take into account the impact of tax and regulatory settings [4].

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Родіна О. Г., Батула В. Ф. Тіньова економіка: сучасний стан

У статті відображено сучасний стан проблеми тіньової економіки в світі, узагальнено останні дослідження провідних вчених у цій сфері. Запропоновано декілька методів визначення об'єму тіньової економіки, визначено її сучасну динаміку, наведено методи для зменшення долі тіньової економіки, що запропоновані Європейською комісією.

Ключові слова: тіньова економіка, тіньовий ринок, економічна активність, система "Д".

Родина О. Г., Батула В. Ф. Теневая экономика: современное положение

В статье отражено современное положение проблемы теневой экономики в мире, проведен обзор последних исследований ученых в этой сфере. Предложено несколько методов определения объема теневой экономики, выявлена ее современная динамика, приведены методы для уменьшения доли теневой экономики, предлагаемые Европейской комиссией.

Ключевые слова: теневая экономика, теневой рынок, экономическая активность, система "Д".

Rodina O. G., Batula V. F. Shadow Economy: State of the Art

This article represents the current state of the shadow economy in the world. It also contains scientists' researches. Offers several advanced methods to estimate the amount of the shadow economy. The article also represents modern dynamics methods for reducing the share of the shadow economy, proposed by European Commission.

Key words: shadow economy, shadow market, economic activity, system "D".

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