

## Review

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Volume 2 : Issue 1

Article Ref. #: 1000SBRPOJ2109

### Article History

Received: March 1<sup>st</sup>, 2017

Accepted: April 25<sup>th</sup>, 2017

Published: April 26<sup>th</sup>, 2017

### Citation

Musaeva KM. Impact of the shadow activity on social and economic relationships, income level and welfare of the population. *Soc Behav Res Pract Open J.* 2017; 2(1): 27-32. doi: [10.17140/SBRPOJ-2-109](https://doi.org/10.17140/SBRPOJ-2-109)

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# Impact of the Shadow Activity on Social and Economic Relationships, Income Level and Welfare of the Population

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## ABSTRACT

The main purpose of the literature review is an analysis of the impact of shadow activity on social and economic relations and the welfare of the population. The scientific novelty of the research is in the development and realization of the model of interaction of the state and population as a factor contributing to the shadow economic activity. It was shown that shadow economy promotes an increase in the welfare of the population only in case of one representative and on the contrary it decreases the welfare of the population when represented by many representatives. The direct dependence of the growth of the state debt and the growth of a share on the shadow economy was elaborated. The social reasons underlying the growth of shadow activity and the level of its impact on the welfare of the population was analyzed in various countries. It was reasoned that the high-level of shadow economy in the Russian Federation intensifies the social inequality and discrepancies associated with the income and property of its population. The scale and differentiation of the shadow activity was distinct in the constituent territories of the Russian Federation, including the Republic of Dagestan.

**KEY WORDS:** Excess profits; Shadow economy; Industrial and developing countries; Impact; Russian Federation; Labor relations; Disguised employment; Income level; Social differentiation; Welfare of population; Model simulation.

## INTRODUCTION

In the modern world, problems associated with the shadow economy is a very significant concern for Russia and many foreign countries. Thereby, some branches of the shadow activity (financing of extremism and terrorism, drug business, and corruption) were recognized as potential threats to the national economic stability of the state structure. These issues were fairly included in the list of global problems affecting the modern world.

The shadow economy is typical of all methods of production and is an essential characteristic of the social and economic processes. There are many possible definitions of the "shadow economy". The most distributed definition of the shadow economy in the academic circles was formulated by Thomas who stated that: "...*shadow economy is an economic activity such that the income derived from it avoids government regulations, taxation and control*".<sup>1</sup>

It is noteworthy that, developed industrial countries have been solving the problems of shadow economic activity for a long time already. Among the works of the leading specialists who dedicated their studies to this topic and are worth being mentioned are P Willis, D Gershuni, D North, M Carter, E De Soto, K Simisa and K Hart. Among the soviet and Russian scientists, a significant contribution was made by scientists as S Menshikov, A Krylov, Yu Korchagin, S Golovnin, N Bokun, A Abalkin, A Ponomarenko and many others, towards research concerning shadow economy problems.

Despite the fact that social and economic research of the shadow economy has been investigated over several decades, its specific attributes have still not been properly studied. In particular, the problems associated with the impact of shadow economy on the level of income differentiation and welfare of the population and economic interests, that forms the basis of shadow economic activity has not been studied in great detail.

## DISCUSSION

There are many possible reasons supporting the shadow economic activity that is studied in great detail in the world practice. The shadow economy arises under the conditions when it is profitable to hide the economic activity from the general public. The shadow economy, as a rule, is rather closely connected to the official economy. Presently, there has been a mention of a new stage in the development process of the shadow economy, such that an institutionalization of the relations of the shadow economy with the authorities was established. The shadow economic activity has already moved beyond the official economy and has become parasitic in all the spheres of society life: from household economies to large companies, including state activity and the changing level and living standards of the population of the country.<sup>2</sup>

One of the contributing factors in the development of shadow economy is attributed to social factors. These factors are associated with the inability to fulfill the social orientation obligations by the state, availability of social and psychological climate and objectives in the society, existing social and economic problems of the society. Reports of domestic and also the foreign experience show that as soon as this system is destroyed and fails, the shadow economy obtains the additional stimulus for development. Contradictions between the demands of economy development and state policy also significantly affect the process of formation of the shadow economy.

Studies conducted by researchers from different countries confirm that the degree of impact of a shadow sector on social and economic relations weakens while the economy develops. The first comparative study of the volumes of shadow economy in different countries was performed in 1991 by the UN Economic Commission. The next project was implemented together with Eurostat from September 2001 till June 2002. Only 9 countries participated in the 1<sup>st</sup> project while in the 2<sup>nd</sup> project, 29 countries took part. According to the results of the project, the volume of the shadow economy was: Canada – 3% of GDP, Ireland – 4% of GDP, Belgium – 3-4% of GDP, Italy – 15% of GDP, Croatia – 8% of GDP, Macedonia – 14% of GDP. The states that were included in the EU after May 01, 2001, had the following levels of shadow economic activity: Czech Republic – 9% of GDP, Poland – 13% of GDP, Bulgaria and Hungary – 16% of GDP each, Latvia – 17% of GDP, Lithuania – 18% of GDP, Slovakia – 22% of GDP. CIS countries have a higher volume of the shadow economy: Belarus – 12% of GDP, Turkmenistan – 14% of GDP, Kazakhstan – 27% of GDP, Armenia – 29% of GDP,

Moldova – 31% of GDP and Kirghizia – 48% of GDP.<sup>3</sup>

According to the research undertaken by the World Bank for 2014, the shadow economy is: China – 13% of GDP, Switzerland – 8% of GDP, Israel – 7% of GDP, Russian Federation – 43% of GDP. As the statistics and its analysis indicate, developed industrial countries have a comparably low-level of shadow economy relative to the developing countries (40-48% of GDP).

In the Russian Federation, the shadow economic activity is widely distributed in terms of labor relations. About 51% of the total entrepreneurship in Russia, is presently working on the shadow economy.<sup>4</sup> In case of the absence of official registration of the business, labor relations are not regulated by legal norms and labor contracts, and are based upon informal agreements. The development of shadow relations in the employment sphere decreases sharply the level of guarantee for an employee and does not ensure him of the legal protection of his rights. This condition influences various aspects of economy:

- Remuneration of labor (discretionary establishment of the salary, that often does not correspond to the real labor contribution);
- Mode of work (non-standard working day without any compensation for overtime works and work during holidays and weekends);
- Working conditions (insanitary conditions, non-observance of labor safety norms);
- Dismissal procedure (absence of the preliminary notice and the non-payment of the dismissal compensation, lack of protection from the discretionary dismissal);
- Social guarantees (refusal to provide a regular annual leave and monetary compensation during the period of temporary disability);
- Pension coverage (off the record wages are not taken into account for the pension calculation).

According to the estimations of the Centre of Macroeconomic Research of the Russian Federation, published in 2014, about 20 million Russians worked in the “informal” sector of the economy of Russia, which is 10% less in number than in 2011. However, about 4 million of them were self-employed. Eventually, 16 million people were employed without any registration in accordance to the labor legislation in 2014 that was 20% of the working-age population of the country. At the same time, for 91% of the people belonging to this category of employees, the informal salary is a main source of their income.

In Russia, the volume of the shadow economic activity was differentiated mainly according to the constituent entities of the Federation. Thus, the shadow employment is minimal in the north-east of the Russian Federation. For instance, in 2015 only 2% of the population was employed in Saint Petersburg, Russia.<sup>5</sup> In Moscow, this indicator was about 3.5%. The shadow employment in the republics of the North Caucasian district is the

highest.<sup>4</sup> For example, in the Republic of Dagestan, the shadow employment was more than 12% for the employed population of this region. Also, high-level of unemployment is a typical characteristic for the Republic of Dagestan (according to the methodology of the International Labour Organization for 2015, in the Republic of Dagestan where 11.9% of the economically active population were unemployed). The high rates of unemployment typical to the Republic of Dagestan as well as for other regions of the North Caucasian Federal District (excluding the Stavropol Territory) is estimated by the faster growth of labor resources, absence of significant number of permanent working places especially in the rural area.<sup>6</sup> In the Republic of Dagestan, the number of unemployed people registered in the state institutions of employment service was 38 people per vacant position in December 2015.<sup>7,8</sup>

One of the existing problems of the modern society is social differentiation that results in the growth of the shadow and criminal activity. The shadow activity “attracts” a large number of deprived people due to the existence of deformed, destructive relations in the social sphere.<sup>9</sup> The number of potential participants of the shadow economy is determined from the structure of the society. The representatives of the low-income and marginal layers are mainly involved: youth, unemployed people, workers-immigrants, etc. According to their number, they constitute the main layer of participants of the shadow economy. The availability of these or other “groups of risk” among the population composes the “shadow potential” of the society and this provokes the growth of the shadow economic activity. Most of the work force of the criminal economic actions constitutes the low-income marginal layers of the population. The heavy social situation triggers young people to participate in criminal organizations, mostly leading the unemployed people to indulge in the shadow business such that the workers-immigrants look for working places mostly in the shadow sector of the economy.

On the basis of the rating for the complex living standards of the Legatum Institute in 2015, the first ten countries have been ranked in the following order: Norway, Switzerland, Canada, Sweden, New Zealand, Denmark, Australia, Finland, Netherlands, and Luxemburg. They received an advantage in comparison to the economically developed countries such as Singapore, Hong Kong and Japan due to a lower share of the shadow economy and high efficiency of the state. Thus, according to the level of the shadow activity in order of its increase, Slovenia ranks 24, Czech Republic – 34, Estonia – 36, Slovakia – 38, Hungary – 41, Lithuania – 43, Kazakhstan – 47, Latvia – 48, Bulgaria – 49, China – 51, Croatia – 53, Romania – 55, Mongolia – 57, Belarus – 58, Georgia – 84 and unfortunately, the Russian Federation ranks 88. According to the gross domestic product (GDP) level per capita, Russia is ahead of many countries that rank much higher than it, though this key factor has been decreased under the conditions of crisis and a fall in the rouble exchange rate. This situation can be explained by the fact that a major aspect of the national wealth of Russia is con-

centrated in the hands of several hundreds of families with the highest income. Consequently, in the Russian Federation, there is a huge differentiation and inequality between the incomes of the population. The coefficient of funds (ratio of the average salary of the employed people with the highest salary to the average salary of 10% of the employed people with the lowest salary) is 20% though it should have been lower than 8-10%. In the USSR, this coefficient was 4% only. As the examples and experience in history show, such situations should be considered as critical.

By now, in the Russian Federation, the system of legal coverage of activity was formulated to prevent, reveal and suppress economic crimes. The shadow economic activity is a rather negative phenomenon in the modern world. With regards to this phenomenon, the primary objective of the state should be to eliminate and legalize the shadow incomes.

At the modern stage, the problems in research as an impact of the shadow economy on the welfare of the population (utility function) of taxpayers are insufficiently studied and disputable. To study this impact, in the present research, the simulations of the game model were realized allowing for the estimations of the shadow economy for the randomly selected initial parameters and the corresponding values of the utility function of the population. We considered the following situations:

- Population can hide its incomes ( $m \geq 0$ );
- Population cannot hide its incomes ( $m = 1$ ).

Model simulations show that at non-boundary balance values, the utility function of the population is maximal in case of one representative ( $n=1$ ). The calculations of the estimation of the impact of the shadow economy on the size of the welfare of the population performed by us on the base of the model simulation are shown in Table 1.

The value of the utility function of the population at  $n > 1$  in 99.9% cases is less than the value of the utility function when the shadow economy is absent. Thus, on the basis of our research, the availability of the shadow economy decreases the welfare of every person, at  $n > 1$  (in 99.9% cases) and increases in case of one representative ( $n=1$ ).

This result can be illustrated by the example described by Hardin<sup>10</sup> in the work “Tragedy of the Commons”. The author considered the problem of the collective use of limited resources that are in general use. To elucidate this problem, the scientist, Hardin Garrett considered the example of the common pasture in which he mentioned that every stock breeder pastures his animals on the common pasture; he can increase the stock and use the pasture more intensively but at the same time its fertility will be decreased. To make its utility function maximal, every stock breeder will pasture the maximal number of animals and this will ruin the pasture. The problem arises due to the fact that as a result of the use of the pasture (public goods), every individual

derives the profit for himself and all the expenses are incurred by the society.

A taxpayer has to make a choice: he can maintain the volume of the hidden incomes or increase them by decreasing the amount of revenues to the state budget. The increase of the hidden incomes by all taxpayers will decrease significantly the budget revenues and will lead to the decrease of volume of the generated state public goods that will decrease the individual utility functions of the taxpayers. Besides, if the shadow economy grows, the state will experience a deficit of resources for the full financing of the provided budget expenses and use the borrowings which will further increase the state debt. This, at the end, will also lead to a decrease in the welfare of the population. And, alternatively, the increase in the tax revenues in the budget system, as a rule, increases the volume of the public goods generated by the state.

Model simulations led to the conclusion that the shadow economy has a positive impact on the society only when the volume of the hidden incomes is regulated by the public, that is, when all the members of the population rests the function of regulation of the size of the shadow economy on one representative. In this model, it corresponds to the situation when  $n=1$ .

Let us perform the comparative analysis of the utility functions of the population yielding different results, in different balance points. We shall consider three situations:

- balance in case of the population size  $n=1$  ( $n$  is simulated by the geometrical distribution with the success probability 0.02);
- balance in case of the representative of the population (medial representative);
- balance in case of absence of the shadow economy (situations when the shadow economy cannot exist).

At this, such coefficients as  $g1$ ,  $g2$  and  $t$  are used, where;

- $g1$  is a coefficient of the specific weight of the tax revenues in the utility function of the state that depends upon the general policy of the acting government;
- $g2$  is a coefficient of the specific weight of the public goods

generated by the state, in the utility function of the  $i^{th}$  person;

- $t$  is a coefficient of the expenses of the population (punitive sanctions charged by the taxation authorities during the shadow activity and non-payment of the taxes)

The coefficient of the specific weight of the tax revenues in the utility function of the state is a positive value ( $g1 > 0$ ), the growth of the tax revenues increases the utility function of the state, all parameters being equal.

The value  $g2$  depends upon the efficiency of the government in power. In particular, it depends on its ability to generate the public good, the size of the criminal economic activity and corruption and also upon the general mentality of the population. This coefficient characterizes how much the people want to use the public goods generated by the state in the form of the paid taxes.<sup>11</sup> Within the framework of this game model, the shadow economy is understood as a hidden economic activity. With an increase in the criminal economy, the coefficient  $g2$  is decreasing.

First, the variables  $g1$ ,  $g2$ ,  $t$  and  $n$  are generated randomly. Then, the equal sizes of the shadow economy and the tax rates for every case are measured. Then, the utility functions of the population are calculated and compared to each other. The situations of non-boundary values are considered:

$$ng > g2, t > \frac{4(ng1 - g2)(g2 + n + 1)}{2(1 + g1)(n + 1)} \text{ and } m > \frac{g1}{1 + g1}$$

The results of the simulation described by us during the research are shown in Table 1.

Thus, from the simulation performed by us, it follows that the welfare (utility function) of the population is maximal in case of the single representative of the population (medial representative). The welfare of the population in case of the absence of the shadow economy is higher than the utility function of the population in 99.9% of the cases, if the size of population when  $n > 1$ , in 100% cases when  $n > 2$ .

**Table 1:** Comparative Analysis of the Utility Function of the Population in Different Balances.

No.	Balances	$n > 1$ of population	$n = 1$	Absence of shadow economy
1	$n > 1$ of population	100%	0%	0.09%(0% at $n > 2$ )
2	$n = 1$	100%	100%	100%
3	Absence of shadow economy	99.9% (100% at $n > 2$ )	0	100%

**\*Note:** The model considers the situations when the utility function at balance in the lines is bigger or equal to the utility function at the balance in the columns, %.



**CONCLUSIONS**

The main conclusions and proposals of this review are the following:

1. The analysis of the world shadow economy showed that the developed countries have a rather low-level of the shadow economy (3-15%). The states with the transition economy are characterized by a rather high-level of share of the shadow economy and are distinguished into 2 types in terms of GDP that do not cross: the countries of Eastern Europe (10-22%) and the countries of the Commonwealth of Independent States (13-48%). Despite the tendency for the decrease, a share of the shadow economy in the Russian Federation is high. In the Russian Federation, the size of the shadow activity, to a great extent, is differentiated according to the territories (the shadow activity is minimal in the north-east of the country and it is maximal in the regions of the North Caucasian Federal District).
2. One of the main problems of the modern society is still the social differentiation of the society. The shadow activity "attracts" a huge amount of deprived people due to the existence of the deformed, destructive relations in the social sphere. A number for the potential participants of the shadow economy is determined from the structure of the society. The representatives of the low-income and marginal layers are widely involved in the shadow economy. As a result of the high-level of shadow economy, there is a huge differentiation and inequality between income and property in the Russian Federation.
3. The research conducted by us on the basis of the game model analyzing the interaction of the state with the population helped formulate the mechanism of formation of the shadow economy. The following properties of the shadow economic activity are revealed and described mathematically:
  - The shadow economy contributes to the increase in the welfare of the population only in case of a single representative in the population. The shadow economy decreases the welfare of the population if the population presents the set (more than one) of the representatives;
  - The size of the shadow economy depends on the size of the population in the country, all parameters being equal;
  - The growth of the shadow economy leads to an increase in the state debt and, all parameters being equal, to the decrease in the welfare of the population;
  - The improvement of the quality of the state services will lead to a decrease in the shadow economy.

At the modern stage, especially in the conditions of the Russian Federation, it is necessary to develop appropriate measures to ensure the legalization of the shadow sector, first of all, for the efficient control of social and economic develop-

ment, growth of the investment activity of the region, provision of the employment, increase of the living standard of the citizens, the complete implementation of the human potential and thereupon the enlargement of the taxation base. The analysis of information associated with law enforcement, statistic and fiscal authorities concerning the forms of shadow activity in the Republic of Dagestan allowed us to conclude that at the bottom of the objectively existing reasons there is a breach of the economic self-interests of economical entities. The main cause of attractiveness of the shadow sphere is in its easy access to business activity and the possibilities to completely satisfy economic self-interests. Thus, there is an economic and tax potential that can be, if supported, used for the welfare of the region and the state as a whole.

**ACKNOWLEDGEMENTS**

The study was undertaken within the framework of the state assignment implementation of the Ministry of Education and Science of the Russian Federation, the topic of the research "Social and economic and ideological and psychological reasons of the formation of extremism and terrorism among young people".

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