Evaluation of the Regional Budgetary Effect of Reducing the Level of Non-Observed Economy (An Example, Subjects of the Far Eastern Federal District)

O S Kolesnikova

1Amur State University, Blagoveshchensk, Russia

E-mail: kolesnikova.o.s@yandex.ru

Abstract.
Research subject. The article discusses the concept of the budgetary effect of reducing the level of non-observed economy. The author's approach to assessing the scale of this indicator is given and it is tested on the example of the Amur Region.
Goal. The purpose of the study is to develop a method for assessing the regional budgetary effect of reducing the level of non-observed economy.
Methodology. The research methodology is based on the economic and statistical method, computational and constructive method, and comparative analysis. To assess the additional costs and potential revenues from reducing the level of non-observed economy, the author's technique is used, the description of which is presented in previously published articles.
Results. The author has calculated the budgetary effect of reducing the level of non-observed economy in the Amur Region. It is established that in the period from 2010 to 2015 the budgetary effect is consistently increasing, and the share of additional expenses in the amount of potential revenues, on the contrary, decreases, which is a positive thing.
Conclusions. The study has indicated the possibility of applying the presented method at a regional level. At the same time, it is important to understand that the indicator of the budget effect depends on a large number of factors; accordingly, its decrease or growth cannot be assessed unequivocally.
Directions for further research. It is planned to develop a model for assessing the impact of reducing the level of non-observed economy on the budget.

1. Introduction
Today, the problem of the impact of a non-observed (shadow) economy on a budget is of particular importance. This is largely due to the crisis state of the Russian economy, a decrease in federal budget revenues due to lower oil prices, as well as the need to find additional reserves to balance the budget of the country and the budget of each region.

The relevance of this study is enhanced by the fact that non-observed economy can have a dual effect on the budget [1], [2]. On the one hand, a non-observed economy can reduce tax revenues of the budget, and on the other hand, ensure the viability of some companies, which without the use of shadow market services, could possibly have ceased to exist [3].

Considering the above, the main goal of this study is to evaluation the budgetary effect of reducing the non-observed economy an example of the Amur Region (one of the regions of the Russian Far East).
2. Method

The concept of the budgetary effect is most often used to justify financial support for an investment project at the federal, regional or local levels [4], [5], [6]. In the context of the impact of the non-observed economy on the budget, the budgetary effect is the difference between the potential budget revenues resulting from the withdrawal of a portion of the income from the «shadow» and additional costs (losses) of the budget from the implementation of measures to reduce the non-observed economy:

$$BE_{NE} = R_P - C_A,$$

where $BE_{NE}$ – budgetary effect of reducing non-observed economy, $R_P$ – potential budget revenues from a decrease in the level of non-observed economy, $C_A$ – additional costs from reducing the non-observed economy.

Potential budget revenues from a decrease in the level of non-observed economy is calculated as the difference between a theoretically estimated sum of the tax revenue ($T_t$) devoid of the influence of the shadow economy, and the actual revenue earned by the government over the same period ($T_a$) [7]:

$$R_P = T_t - T_a$$

As additional costs from reducing the non-observed economy, we consider the total amount of unemployment benefits for people employed in the informal sector, who, when liquidating the informal sector, will have to go to an employment center for the period of searching for work in the formal sector:

$$C_A = E_{NE} \times B_E,$$

where $E_{NE}$ - population employed in the non-observed economy, $B_E$ – unemployment benefits.

At the same time, the population employed in the non-observed economy is determined with the following formula [8]:

$$E_{NE} = W_{ag} / W_{pc},$$

where $E_{NE}$ – population employed in the non-observed economy; $W_{ag}$ – total annual wages of the population employed in the shadow economy; $W_{pc}$ – annual nominal wages of an employee employed in the non-observed economy.

3. Results and discussion

We used the proposed method to evaluation of the regional budgetary effect of reducing the level of non-observed economy in Amur Region.

The choice of this region is justified by the results of previous studies on the spatial distribution of the non-observed economy in the constituent entities of the Russian Federation, according to which the Amur region belongs to regions with high risks of the development of shadow activity [9].

At the same time, the main factors contributing to an increase in the non-observed sector are the degree of depressiveness of the region, the location bordering on China, and the presence in the production structure of activities characterized by a high probability of development of the shadow economy [10].

A significant factor in the growth of the non-observed sector in this area is the high level of poverty due to the predominant employment of the population in low-paid branches of the economy [11].

The estimation results are presented in Fig. 1.
Figure 1. Regional budgetary effect of reducing the level of non-observed economy in the Amur Region, mln. RUB.

The figure shows that from 2010 to 2015 the budgetary effect of reducing the level of the non-observed economy consistently increases. It is important to understand that this trend is largely due to an increase in potential budget revenues from the non-observed economy, that is, growth in the non-observed sector in the region (during the period under review, the level of the non-observed economy in the Amur Region increased from 1,801 mln. RUB in 2010 to 1,305 mln. RUB in 2015).

In turn, the tendency to reduce the budgetary effect in the subsequent period is due to a decrease in the number of people employed in the «shadow», as well as some decrease potential budget revenues (from 13075.4 mln. RUB in 2015 to 8757.7 mln. RUB in 2016).

If we talk about the ratio of additional costs and potential revenues from the implementation of measures to eliminate the shadow economy, it is important to note that this indicator tends to decrease. It is important to understand that an increase in unemployment benefits from 2019 [12] may lead to a decrease in the budgetary effect.

4. Conclusion
Evaluation the regional budgetary effect of reducing the level of non-observed economy is a very important problem for assessing the effectiveness of the implementation of measures to eliminate the non-observed sector. However, the solution of this problem poses a number of difficulties:

1) an accurate estimate of the potential income from a reducing the level of non-observed economy is problematic;
2) it is impossible to accurately predict the consequences of reducing the non-observed economy of the region, both for the budget and for the economy as a whole;
3) the regional budgetary effect is influenced by both economic, and political, social and psychological factors.

Thus, additional research is needed in the field of assessing the effectiveness of measures to reduce the non-observed economy.

References
[1] Schneider F, Buehn A 2017 Shadow Economy: Estimation Methods, Problems, Results and Open questions Open Economics 1–29
[2] Schneider F 2012 The Shadow Economy and Work in the Shadow: What Do We (Not) Know? Discussion Paper 6423 1-73
[3] Kolesnikova O S 2017 Influence shadow economy on the assessment of tax potential: regional aspect (An example of Amur region) Regional Economics and management: electronic scientific journal 1(49) http://eee-region.ru/article/4926/
[4] Veretennikova O V 2015 Methodical approaches to evaluating the effectiveness of the use of investments for the reproduction of a regional society Regional economy: theory and practice 24(399) 23-34
[5] Novoskolceva U U, Shemetova N K 2016 Methodical aspects of a comprehensive assessment of the effectiveness of investment projects Management issues 273-278
[6] Udalov A N 2016 Systematization of approaches (procedures) for evaluating the effectiveness of regional investment projects Science studies 3
[7] Kolesnikova O S 2018 Determination of budget tax losses from the non-observed (shadow)
economy at the regional level AEBMR-Advances in Economics Business and Management Research Atlantis Press

[8] Kolesnikova O S 2018 Assessment of the population employed in the shadow sector of the economy: regional aspect *Russian Economics online-journal* 2 http://www.e-rej.ru/Articles/2018/Kolesnikova.pdf

[9] Tsepelev O A, Kolesnikova O S 2017 Assessment of the impact of shadow economy on the amount of tax revenue: A regional perspective *Regional economy: theory and practice* 5(440) 832–844

[10] Tsepelev O A, Simutina N L 2006 Measuring the non-observed economy in the region: a monograph (Blagoveshchensk) Amur state University

[11] Tsepelev O A 2014 Factors of formation and differentiation of the level of poverty of the population: regional aspect *Bulletin of PNU* 1(32) 225–232

[12] Resolution of the Government of the Russian Federation of 15/11/2018 N 1375 «On the size of the minimum and maximum values of unemployment benefits for 2019» N 1375

[13] URL: http://www.consultant.ru/document/cons_doc_LAW_311375

**Acknowledgments**

This study was supported by a grant from the RFBR № 18-010-00792 «Research the spatial differentiation factors of the non-observed economy, ensuring balanced development of the Russian Far East». 