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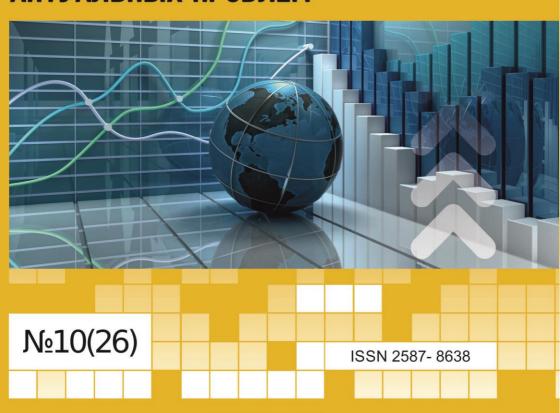
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ВОПРОСЫ УПРАВЛЕНИЯ И ЭКОНОМИКИ: СОВРЕМЕННОЕ СОСТОЯНИЕ АКТУАЛЬНЫХ ПРОБЛЕМ

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SECTION 1.

ECONOMY AND MANAGEMENT OF A NATIONAL ECONOMYSECTION

ESTIMATING THE SIZE OF THE SHADOW ECONOMY IN AZERBAIJAN

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The shadow economy is recognized by several names. The hidden economy, gray economy, black economy, lack economy, cash economy, informal economy, non-observed and unofficial economy are synonyms and related to some type of shadow economy activities [1].

The shadow economy involves those economic activities which should be included in the GDP, but for several reasons are not covered in the national accounts. The shadow economy consists of four components. The first component of unofficial economy is unreported income arising from legal activities where transactions are partly concealed from the tax authorities or lower than true values. It might be possible that, legal activities have totally been hidden from officials. Unreported income arising from illegal activities includes illegal goods, services, narcotics and prostitution is a second component. A third element is the production of goods for own use. This is legal activity and there is no reason for agents to hide their activities. It may be neglected from the national accounts only because there are no observable transactions between venders and buyers. The fourth component of the unofficial economy is named the "statistical underground". To be more precise, the statistical assessments and the official records that supply the basic data for the national accounts are imperfect. It could be related to national statistics data design or poor statistical practices in which a cut-off point might be used to exclude the smallest enterprises [2].

The shadow economy is a global challenge and observed more or less in all countries. Even highly developed and industrialized economies experience the shadow economy problems to some extent. A high level of the shadow economy has undesirable economic and social impacts. Decreased tax revenues, lower quantity or quality of public goods, distortions in fair market competition, the degradation of economic and social institutions, and eventually lower economic growth are adverse impacts of shadow economy [3].

In fact, it is very difficult issue to measure the size of shadow economy. Because taxpayers those dealing with tax evasion using all possible mechanism to be undetected by authorities [1]. Within limited time and resources it is impossible for authorities to find directly people who are engaging in the shadow economy and obtaining accurate results regarding the size of that. However, there are several indirect methods to estimate the scale of hidden economy in a given country. One of the most widely used indirect methods is currency ratio or Peter Gutmann's method. By implementing currency ratio method, we estimate unofficial economy using 1991-2018 annual data.

The conceptual reasoning for estimating shadow economy by the currency ratio methods is that currency is supposed as a main instrument of exchange for transactions. To be more precise, cash transactions are not recorded anywhere, therefore it is an attractive tool for agents dealing with illegal activities.

The hypothesis of simple currency ratio is shown below [4, 5].

• Cash outside the banks or C is equal to sum of currency used in official and unofficial economy ($C=C_o+C_u$).

• Velocity of money is calculated as a GDP divided to M1 money aggregate and considered that velocity of money in official and unofficial economy is the same ($V_o=V_u$).

• ($\frac{C}{D}$=K) increase in K leads to expansion of unofficial economy where D indicates demand deposits.

• It is considered that, there is no shadow economy for the base year and K_o gains the lowest value in that year.

• The currency circulating in an unofficial economy is identified through difference between currency used outside the banks and currency used in an official economy ($C_u= C$-C_o).

Based on above mentioned hypothesis, the formula for estimating shadow economy is written in equation 1.

$$Y_u=Y_0 \times \frac{(C-K_0\times D)}{C+D}=Y_0 \times \frac{(C-K_0\times D)}{M_1} \tag{1}$$

Y_u − GDP (unoffical economy)
Y_0- GDP (official economy)

There are some weaknesses of Gutmann's method. The hypothesis of a base year in which it is considered that there isn't shadow economy is disputed issue. Gutmann assumes that the velocity of money in both sectors (official and unofficial) is same. He is criticized that, velocity of money is higher in the hidden economy. Furthermore, increasing cash in the circulation could be related to economic growth and damaged trust of people towards the banking sector [6].

Table 1.

Shadow Economy in Azerbaijan [Base year 1992, K_o=0.8]
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Years	Cash outside the banks (M(0) or C)	Demand deposits	C/D	GDP	Currency used in official economy (K_0*D)	Currency used in unofficial economy C_u=(C-C$_o$)	Velocity of money	Shadow economy	The share of shadow economy in GDP
1991	0,6	0,1	6	0,5	0,1	0,5	1	0,4	74%
1992	0,8	1	0,8	4,8	0,8	0,0	3	0,0	0%
1993	7,7	6,1	1,3	31	5	3	2	6	20%
1994	55,2	25	2,2	375	20	35	5	164	44%
1995	120	65	1,9	2 134	52	69	12	794	37%
1996	173	62	2,8	2 733	49	124	12	1 441	53%
1997	234	73	3,2	3 158	59	175	10	1 800	57%
1998	185	55	3,3	3 441	44	141	14	2 017	59%
1999	227	51	4,5	3 775	41	187	14	2 533	67%
2000	270	46	5,9	4 718	36	234	15	3 493	74%
2001	294	44	6,7	5 316	35	259	16	4 077	77%
2002	334	60	5,6	6 063	48	286	15	4 406	73%
2003	408	92	4,5	7 147	73	335	14	4 789	67%
2004	478	180	2,7	8 530	144	334	13	4 337	51%
2005	547	200	2,7	12 523	160	387	17	6 482	52%
2006	1 311	528	2,5	18 037	423	889	10	8 714	48%
2007	2 714	908	3,0	26 815	727	1987	7	14 711	55%
2008	4 146	959	4,3	40 137	767	3379	8	26 562	66%
2009	4 175	1 065	3,9	34 579	852	3323	7	21 928	63%
2010	5 456	1 263	4,3	41 575	1 010	4445	6	27 506	66%
2011	7 158	1 638	4,4	50 069	1 310	5848	6	33 288	66%
2012	9 257	1 865	5,0	54 744	1 492	7764	5	38 216	70%
2013	10 459	2 278	4,6	58 182	1 823	8636	5	39 449	68%
2014	10 152	2 678	3,8	59 014	2 142	8010	5	36 843	62%
2015	4 776	2 121	2,3	54 380	1 697	3079	8	24 275	45%
2016	6 377	2 583	2,5	60 425	2 067	4310	7	29 066	48%
2017	7 490	3 054	2,5	70 135	2 443	5047	7	33 571	48%
2018	7 601	4 673	1,6	79 797	3 739	3863	7	25 112	31%

As it seems from table 1, C/D obtains the lowest value in 1992. That is why 1992 is supposed to be the base year. Based on Gutmann's methods the highest value of sahdow economy in Azerbaijan is recorded 77% of GDP for the year of 2001. On the other hand, since 1993 minimum value of shadow economy has been observed in 2018 which comprises 31% of GDP.

It is a good news that, in 2018 we observe substantial decrease in the scale of sahdow economy compared to 2017. This result may related to several positive changes in Azerbaijan tax system. Since the begining of the 2018, new taxpayers approaches have been implemented in terms of stimulating voluntary tax reporting and decreasing considerably the number of field audits. From the january 2019, tax code of Azerbaijan Republic incurred noticeable changes. According to new regulations several tax exemptions are entitled for private and non-oil sectors of the economy. It is assumed that, new tax rules will be an important aspect for the decreasing size of shadow economy in the forthcoming years.

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