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EVALUATION ALGORITHM OF INSTITUTIONAL RESERVES INFLUENCE ON THE QUALITY OF LIFE

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Abstract: The paper describes the evaluation algorithm of the institutional reserves influence on the quality of life, which includes the following stages: evaluation of the institutional environment influence on the quality of life; the evaluation of the influence of an institutional reserve on the change in the quality of life; the comparison of the degree of influence of institutional reserves and institutes on the quality of life, the evaluation of financial security of official institutes; the evaluation of the influence of financial security of official institutional reserves; the evaluation of the efficiency of the implemented official institutional reserves; the comparison of the efficiency of institutional reserves and institutes.

Evaluation of the influence of institutional reserves on the quality of life can be represented in the form of several successive stages.

The first stage is the evaluation of the influence of the institutional environment on the quality of life.

The formula (1) allows determining the number of institutes on the quality of life necessary to provide the quality of life at level of one

$$X = Q_i / Y, \quad (1)$$

X is an indicator of the number of institutes of the quality of life necessary for maintenance of the quality of life at unit level; Q_i is the number of institutes of the quality of life; Y is a degree of quality of life.

The smaller is the value of indicator X the higher is the efficiency of institutional system as it is able to provide a certain degree of the quality of life

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under the minimum number of the institutes of the quality of life. In this case we assume that each additional institute on the quality of life represents financial expenses and (or) time expenses.

To evaluate the institutional environment on the quality of life it is also possible to use formula (2) which allows determining the average contribution of each institute to the degree of the quality of life of the population for the given period of time

$$X_1 = Y/ Q_{\text{i}}, \tag{2}$$

X_1 is an indicator of the average level of the quality of the life provided by one institute; Y is a degree of the quality of life; Q_{i} is the number of institutes of the quality of life.

The bigger (smaller) is the value of indicator X_1, the higher (lower) is the efficiency of the institutional system, as each of the institutes brings bigger (smaller) average contribution to the degree of the quality of life.

The second stage is the evaluation of the influence of an institutional reserve on the change of the quality of life.

After the evaluation of the institutional environment has been made, it is possible to estimate the influence of an institutional reserve on the quality of life. The influence of an official and informal institutional reserve on the quality of life can be determined as the difference between the quality of life before the implementation of an institutional reserve and the quality of life after its implementation (formula (3), (4))

$$X_2 = y_1 - y; \tag{3}$$

$$X_2 = (y_1 - y)100\ \%, \tag{4}$$

X_2 is an indicator of the change of the degree of the quality of life after the implementation of an institutional reserve; $y_1 = f(x, x_1, x_2, \ldots, x_n, x_{n+1})$ is the degree of the quality of life after the implementation of an institutional reserve x_{n+1}; $y = f(x_1, x_2, x_3, \ldots, x_n)$ is the degree of the quality of life before the implementation of an institutional reserve.

The bigger (smaller) is the value of the indicator X_2 the bigger (smaller) is the influence of an institutional reserve on the quality of life.

The evaluation of the influence of a certain institutional reserve on the quality of life is not a simple procedure as the changes in the institutional environment occur much more often, than the statistical evaluation of the indicators used for the calculation of the index of the quality of life. Thus, for the evaluation of the degree of influence of institutional reserves on the change of the quality of life it will be more practical to use a certain period of time for which it is possible to collect the corresponding statistical information, for example, a month, a quarter, a half-year or a year. For evaluation of an average influence on the quality of life of an institutional reserve we will use the formula (5)

$$X_3 = (y_1 - y)/ Q_{\text{rir}}, \tag{5}$$

X_3 is an indicator of an average influence of each institutional reserve on the change of the quality of life; $y_1 = f(x, x_1, x_2, \ldots, x_n, x_m)$ is a degree of the quality of life after the implementation of a certain number of institutional reserves (x_m) over the period of time (k); $y = f(x_1, x_2, x_3, \ldots, x_n)$ is a degree of the quality of life before the implementation of institutional reserves; Q_{rir} is the number of implemented institutional reserves.

The value of the indicator X_3 allows determining the relation between the introduction of institutional reserves and the quality of life.

1. The relation between the introduction of institutional reserves and the quality of life will be positive, i.e. the introduction of institutional reserves will be accompanied by the growth of the quality of life if the indicator X_3 takes the value of more than zero.

2. The relations between the introduction of institutional reserves and the quality of life will fail, if the value of the indicator X_3 is equal to zero.

3. The relation between the introduction of institutional reserves and the quality of life will be negative, i.e. the introduction of institutional reserves will be accompanied by the decrease in the quality of life if the indicator X_3 takes the value of less than zero.

The bigger (smaller) is the value of the indicator X_3, the bigger (smaller) is the average influence on the quality of life by the realized institutional reserves.

Formula (6) allows determining the quantity of the institutional reserves necessary for maintenance of the quality of life at the level of unit

$$X_4 = Q_{\text{rir}} / (y_1 - y), \tag{6}$$

X_4 is an indicator of the number of the institutional reserves necessary for maintenance of the quality of life at the level of unit; Q_{rir} is the number of the implemented institutional reserves; $y_1 = f(x, x_1, x_2, \ldots, x_n, x_m)$ is the degree of the quality of life after the implementation of a certain number of institutional reserves (x_m) over the period of time (k); $y = f(x_1, x_2, x_3, \ldots, x_n)$ is the degree of the quality of life before the implementation of institutional reserves.

The value of indicator X_4 allows determining the relation between the introduction of institutional reserves and the quality of life.

1. The relation between the introduction of institutional reserves and the quality of life will be positive, i.e. introduction of institutional reserves will be accompanied by the growth of the quality of life if indicator X_4 takes the value of more than zero.

2. The relations between introduction of institutional reserves and the quality of life will fail, if the value of indicator X_4 equals to zero.

3. The relation between the introduction of institutional reserves and the quality of life will be negative, i.e. the introduction of institutional reserves will be accompanied by the decrease in the quality of life if indicator X_4 takes the value of less than zero.

The bigger (smaller) is the value of indicator X_4, the fewer (more) institutional reserves are required to maintain the quality of life at the unit level.

The third stage is the comparison of the degree of influence of institutional reserves and the institutes on the quality of life.

To compare the degree of influence of institutional reserves and institutes on the quality of life we will use formulas (7) – (10):

$$X_5 = X_3/X_1; \quad (7)$$

$$X_5 = X_3/X_1 \cdot 100\ \% \quad (8)$$

X_5 is an indicator to determine many times the introduced institutional reserves have bigger (smaller) influence on the quality of life, than the existing institutes; X_3 is an indicator of average influence of an institutional reserve on the change of the quality of life; X_1 is an indicator of the average level of quality of life provided by one institute.

It is possible to compare the degree of influence on the quality of life of institutional reserves and institutes by the value which indicator X_5 takes.

1. The degree of influence of institutional reserves on the quality of life is higher than the degree of influence of institutes if indicator X_5 takes the value of one or more than 100 %.

2. The degree of influence of institutional reserves on the quality of life equals to the degree of influence of institutes if indicator X_5 takes the value which equals to one or 100 %.

3. The degree of influence of institutional reserves on the quality of life is lower, than the degree of influence of institutes if indicator X_5 takes the value of less than one or less than 100 %.

The bigger (smaller) is the value taken by indicator X_5, the bigger (smaller) is the influence on the quality of made by institutional reserves in comparison with institutes:

$$X_6 = X_4/X; \quad (9)$$

$$X_6 = X_4/X \cdot 100\ \%, \quad (10)$$

X_6 is an indicator to determine how many times the introduced institutional reserves have bigger (smaller) influence on the quality of life than the existing institutes; X_4 is an indicator of the number of the institutional reserves necessary for maintenance of the quality of life at the level of one; X is an indicator of the number of institutes of the quality of life, necessary for maintenance of the quality of life at level one.

It is possible to compare the degree of influence of institutional reserves and institutes on the quality of life by the value which indicator X_6 takes.

1. The degree of influence of institutional reserves on the quality of life is bigger than the degree of influence of institutes if indicator X_6 takes the value of less than one or less than 100 %.

2. The degree of influence of institutional reserves on the quality of life equals to the degree of influence of institutes if indicator X_6 takes the value which equals to one or 100 %.

3. The degree of influence of institutional reserves on the quality of life is smaller than the degree of influence of institutes if indicator X_6 takes the value of more than one or more than 100 %.

The bigger (smaller) value indicator X_6 takes, the more (fewer) institutional reserves are required for maintenance of the quality of life at level of one in comparison with institutes.

The fourth stage is the evaluation of financial security of official institutes.

Evaluation of the average financial security of one official institute is possible by means of formula (11) which shows a parity of size of expenses and quantity of institutes.

$$X_7 = S_{\text{eroi}}/Q_{\text{oi}}, \quad (11)$$

X_7 is an indicator of the average financial security of one official institute; S_{eroi} is the amount of expenses for implemented official institutes; Q_{oi} is the number of official institutes.

The bigger (smaller) is the value of indicator X_7, the higher (lower) is the average financial security of official institutes.

One can evaluate the amount of expenses necessary to maintain the quality of life at the level of one by formula (12)

$$X_8 = S_{\text{eroi}}/Y, \quad (12)$$

X_8 is an indicator of the amount of expenses for the institutes to maintain the quality of life at the level of one; S_{eroi} is the amount of expenses for the implemented official institutes; Y is a degree of the quality of life.

The lower (higher) is the value of indicator X_8, the lower (higher) is the efficiency of the institutional environment as less (more) financial resources are required to maintain the quality of life at the level of one.

Formula (13) enables to evaluate the degree of the quality of life provided by 1 ruble of expenses

$$X_9 = Y/S_{\text{eroi}}, \quad (13)$$

X_9 is an indicator of the average level of the quality of life which is provided by 1 ruble of expenses; Y is a degree of the quality of life; S_{eroi} is the amount of expenses for the implemented official institutes.

The bigger (smaller) is the value of indicator X_9, the higher (lower) is the efficiency of the institutional environment, as the average level of the quality of life provided by 1 ruble of expenses is higher (lower).

The fifth stage is the evaluation of financial security of official institutional reserves.

Financial security of an official institutional reserve can be determined by the amount of the expenses provided in the budget.

To determine the average financial security of official institutional reserves we will use formula (14)

$$X_{10} = S_{\text{eroi}}/Q_{\text{roir}}, \quad (14)$$

X_{10} is an indicator of the average financial security of official institutional reserves; S_{eroi} is the amount of expenses for the implementation of official institutional reserves; Q_{roir} is the number of the implemented official institutional reserves.

The bigger (smaller) is the value of indicator X_{10} the higher (lower) is the average financial security of the implemented official institutional reserves.

The sixth stage is the evaluation of the efficiency of the implemented official institutional reserves.

To evaluate the efficiency of the implemented official institutional reserves we will use formulas (15) and (16)

$$X_{11} = S_{eroi}/(y_1 - y), \quad (15)$$

X_{11} is an indicator of the amount of financial resources of the official institutional reserve necessary for the maintenance of the quality of life at the level of one; S_{eroi} is the amount of the expenses for the implemented official institutional reserve; y_1 is a degree of the quality of life after the implementation of an official institutional reserve; y is a degree of the quality of life before the implementation of an official institutional reserve.

The lower (higher) is the value of indicator X_{11}, the higher (lower) is the efficiency of an official institutional reserve as it provides the quality of life at the level of one under lower (higher) financial expenses

$$X_{12} = (y_1 - y)/S_{eroi}, \quad (16)$$

X_{12} is an indicator of the average level of the quality of life provided by 1 ruble of expenses of an official institutional reserve; y_1 is a degree of the quality of life after the implementation of an official institutional reserve; y is a degree of the quality of life before the implementation of an official institutional reserve; S_{eroi} is the amount of expenses for the implemented official institutional reserve.

The bigger (smaller) is the value of indicator X_{12}, the higher (lower) is the efficiency of an official institutional reserve as it provides the higher (low) degree of the quality of life for 1 ruble of expenses.

The seventh stage is the comparison of the efficiency of institutional reserves and institutes.

To compare the efficiency of institutes and institutional reserves one can use formula (17) – (20):

$$X_{13} = X_{11}/X_8; \quad (17)$$

$$X_{13} = X_{11}/X_8 \cdot 100\ \%, \quad (18)$$

X_{13} is an indicator of the comparative efficiency of institutional reserves and institutes; X_{11} is an indicator of the amount of financial resources of the institutional reserve necessary for the maintenance of the quality of life at the level of one; X_8 is an indicator of the amount of expenses for the institutes required to maintain the quality of life at the level of one.

It is possible to compare the efficiency of institutional reserves and institutes by the value which indicator X_{13} takes.

1. The efficiency of institutional reserves will be higher than the efficiency of institutes if indicator X_{13} takes the value of less than one or less than 100 %.

2. The efficiency of institutional reserves will be equal to the efficiency of institutes if indicator X_{13} takes the value which equals to one or 100 %.

3. The efficiency of institutional reserves will be lower than the efficiency of institutes if indicator X_{13} takes the value of more than one or more than 100 %.

The smaller (bigger) value indicator X_{13} takes, the higher (lower) is the efficiency of institutional reserves in comparison with the institutes.

$$X_{14} = X_{12}/X_9; \quad (19)$$

$$X_{14} = X_{12}/X_9 \cdot 100\ \%, \quad (20)$$

X_{14} is an indicator of the comparative efficiency of institutional reserves and institutes; X_{12} is an indicator of the average level of quality of life provided by 1 ruble of expenses of an official institutional reserve; X_9 is an indicator enabling to determine the average level of quality of life which is provided by 1 ruble of expenses for the institutes.

It is possible to compare the efficiency of institutional reserves and institutes by the value which indicator X_{14} takes.

1. The efficiency of institutional reserves will be higher than the efficiency of institutes if indicator X_{14} takes the value of more than one or more than 100 %.

2. The efficiency of institutional reserves will be equal to the efficiency of institutes if indicator X_{14} takes value which equals to one or 100 %.

3. The efficiency of institutional reserves will be lower than the efficiency of institutes if indicator X_{14} takes the value of less than one or more than 100 %.

The bigger (smaller) value indicator X_{14} takes, the higher (lower) is the efficiency of institutional reserves in comparison with institutes.

The represented algorithm of evaluation of the influence of institutional reserves on the quality of life, on the one hand, enables to reveal the most significant aspects of the given process, but on the other hand, it is not finalized and can be developed by adding new indicators.

Алгоритм оценки влияния институциональных резервов на качество жизни

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Ключевые слова и фразы: институциональные резервы; качество жизни.

Аннотация: Описан механизм оценки влияния институциональных резервов на качество жизни, который включает следующие этапы: оценка институциональной среды по качеству жизни; оценка влияния институционального резерва на изменение качества жизни; сравнение степени влияния на качество жизни институциональных резервов и институтов; оценка финансовой обеспеченности официальных институтов; оценка финансовой обеспеченности официальных институциональных резервов; оценка эффективности, реализуемых официальных институциональных резервов; сравнение эффективности институциональных резервов и институтов.
