

ASSESSMENT OF FISCAL POLICY IMPACT ON INCOME INEQUALITY ELIMINATION AND POVERTY ALLEVIATION

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Introduction. Political and public figures and international organizations in the last years attach much importance to issues of uneven distribution of income as a primary challenge nowadays and the economists constantly alert their increasing scales and socio-economic consequences.

State tax policy is the main instrument of budget policy and financial means. It is reinforced by the country's constitution, laws, tax code, normative legal acts and other documents. It expresses the applied tax types, tax rates, tax privileges, taxpayer groups and definitions of specific frames, as well as by means of specific mechanisms of taxation. State tax policy is the basis of the comprehensive functions of the state to lay and collect taxes. The main goal of the tax policy is the satisfaction of financial requirements of the state and society, financial requirements of the society, redistribution of income for the benefit of distinct social groups of society and provision of the sustainable and regular development of the economy. The content and goals of the tax policy are defined by the socio-economic structure of the society and specific programs of socio-political groups governing the state.

Methodology. Theoretical basis of the research were standpoints on fiscal policy defined by classical and modern economists and assessment analyses on the influence of fiscal policy aimed at overcoming income inequality and poverty. Informative basis of the research were RA laws, government decisions, RA Ministry of Finance, RA Central Bank and statistical data of RA Statistics Committee. Regression analysis by means of the Least Squares Method was implemented to assess the influence of the fiscal policy on income inequality and poverty in the paper.

Scientific novelty. The scientific novelty of the research is the model that assess the impact of fiscal policy on poverty and inequality and the prediction of the impact of certain fiscal policy instruments on poverty and inequality based on the results of those models,. The model was constructed by regression analysis using the least squares method. The model was calculated using the EViews software package.

Literature Review. There are different approaches to income formation issues of society members and according to them, there are different classifications as well. According to one classification, the sources for income formation are considered to be:

1. Income from employment
2. Income from self-employment
3. Income from ownership
4. Income from transfers.

Income from employment is considered to be the one received by employees and entrepreneurs in the form of salaries and profits. Income from self-employment is the income received by individuals, farmers, and traders as a result of their activities done. Income received from ownership is the rental income on a property, for instance, income from land rent lease, interest on loan capital etc. Income on transfer payments is the one that is received from pension payments from the state, temporary unemployment benefits, childcare allowances, provision of medical care, payments to insecure families, and transfer payments to unemployed people.

The Statistics Committee of Armenia divides the income of the households into two groups, namely monetary income and non-monetary income, and divides monetary income into the following groups:

- Income from the job done,
- Income from self-employment,
- Income from the sale of agricultural produce and domestic animals,
- Income from ownership (rent payments, interest payments and dividends),
- Income from pensions and benefits,
- Income from transfers, and
- Other monetary income.

According to state statistic data, the non-monetary income is divided into two groups, namely foodstuff consumption from personal household and free non-food items and services. The uneven distribution of income is typical of households, independent of the fact that their activities are implemented in the market economy or in centralized planned systems. There are different approaches on the uneven distribution of income and the approaches of the economists on the reasons of income inequality are different. According to M.N.Chepurin, the causes of income inequality are as follows: [Chipurina, Kiselevoj, 2011, p. 675].

- *Difference of people's mental and physical abilities* and this is the reason that they cannot have the same level of productivity, therefore cannot have the same contribution in the production process of goods. This consequence can be observed from the quantitative and qualitative viewpoint. The quantitative refers to the fact that people with better mental and physical abilities are more productive in any time period, thus can produce or design more goods. The qualitative refers to the fact that some people design the same products of better quality and get higher salary and are paid higher for the design of the same goods when compared to the others.

- *Heritage* – the wealth is inherited from one generation to the other, thus creating unequal baseline conditions for other economic entities. Capital, land, financial means, natural resources are forms of ownership and they are an important source of income for any economic entity.

- *Differences in educational levels* – members of society are distinct from each other by their educational level. There are some kinds of job in any economy that require specific qualifications and specialization. Therefore, individuals having high educational abilities will get higher salary than those individuals who do not have such abilities. Therefore, they get higher income compared to the others.

- *Diligence* – people differ by their diligence and hard-working skills. People of the same professional education can have different income level due to their diligence, ambitions and single-mindedness.

- *Luck and success* – some members of the society can get income from casinos and lotteries as well as can lose everything, all their wealth, because of gambling.

- *Composition and structure of the family* – senior people, disabled people and children in the family lead to the fact that the share of the income received by the working members of the family lessens per each member of the family.

James Gortny has also expressed his viewpoint on the reasons of the uneven distribution of income while researching the economy of the USA in the time period between 1960 and 1990 and concluded the following: [Gwartney, Stroup, 2005, p. 803].

- The growing correlation of number of families under the care of a single parent and the other family with two adults earning their income led to the increase of income polarization. In 1960-1990, in the USA, the nature of families has changed to a great extent and the principle of work distribution inside them. In 1994, children in 22% of families were under the care of a single parent. This indicator exceeded the one in the 1960s twofold. At the same time, proportion of married women in the labor force comprising 40% in 1970 increased up to 61% in 1994. Therefore, families with only one parent have lower income compared to the families where two parents have employment.

- Income difference of employees also increases depending on the level of professional skills. In 1960, income of employees having higher education in the USA exceeded the income of individuals without higher education by 27%. This indicator has reached 72% by 1993. The constantly increasing competition in both internal and external markets is its reason. As a result of the competition, companies not only compete for more customers, but also for recruitment of qualified employees. This causes the companies to constantly increase salaries of more qualified labor force.

- Expansion of companies' markets, shift from national to global ones, the continuing decrease of communication and transportation expenses resulted in increase of the companies. Income of only a small number of managers and owners has increased along with it, thus increasing income polarization compared to the employees.

2019 Nobel Prize laureates B.Kremer, E.Duflo and A.Banerjee distinguished 5 reasons causing unequal distribution of income and poverty that are education, health, behavioral biases, gender and politics and credit [Kremer, Duflo, Banerjee, 2019, p. 11]. On the macro level, the main causes of income inequality are: [Dabla-Norris, Kochhar, Suphaphiphat, Frantisek-Ricka, Tsounta, 2015, p. 18].

- *Labor market and its institutions* – income inequality currently emerges first of all from the labor market, so salary allocation as well as “rules of the game” operating in the labor market (minimum salary, role of Labor Unions and social security) is capable of playing a core role in the allocation of society’s income.

- *State policy of income redistribution* – progressive taxes and social transfers can be considered the most significant factors capable of having huge influence on the level of income inequality.

- *Scientific and technological policy and industrial policy* - on the one hand, new information technology leads to the increase of general welfare and labor productivity, but on the other hand it can cause increase of income inequality from employment, due to the fact that it leads to disproportionate increase of high quality labor force requirements and reduction of work places at the same time resulting from automation of production processes.

- *Trade globalization* – trade globalization in many countries has become the driving force of competition increase but the lack of trade can influence the level of income inequality and on the other hand, the increase of trade flows leads to salary increases of high quality employees, thus to the increase of inequality, but it can also lead to inequality decrease because of demand for low level employees and salary increases.

- *Education sphere policy* – education sphere policy can play a significant role in decreasing income inequality, due to the fact the education determines choice of the profession, access to workplaces, salary size, as well as it informs on capabilities and productivity of employees in the labor market.

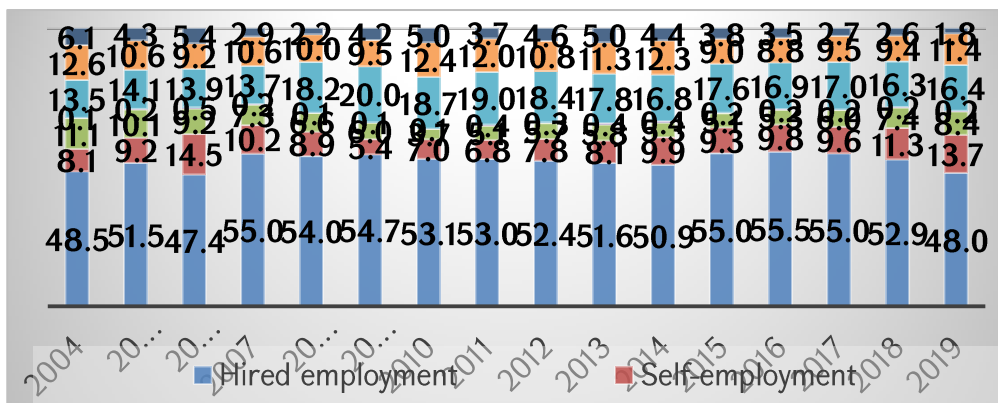


Figure 1. Income composition in 2004-2019

Analysis. Prior to studying income inequality and poverty indicators it is necessary to examine income sources of the population. Figure 1 presents the income composition for 2004-2019 and shows wages constitute the greatest proportion of household income. On average, in 2004-2019 the proportion of wages was in the 50% range, while this indicator was upwards of 70% in developed countries. The second largest source of household income is state pensions and benefits. This proves the government function of income redistribution to be highly significant. Transfers¹ are another source of household incomes and the greatest part of them comes from abroad showing the dependence on the external world.

After studying the income composition we should first understand income distribution among various population segments in order to examine income inequality. Figure 2 presents incomes of the population by decile groups. The data show that the money income of the first decile group rose from 2266 drams in 2004 to 10021 in 2019, i.e. recording an increase of approximately 4.4 times. The income of the tenth decile group rose from 47061 drams to 173781 drams for the same period showing an increase by 3.6 times. This means that the first decile group income rises faster than those of the tenth decile group in the same period. This indicator virtually means income inequality among various decile groups has decreased to a certain extent.

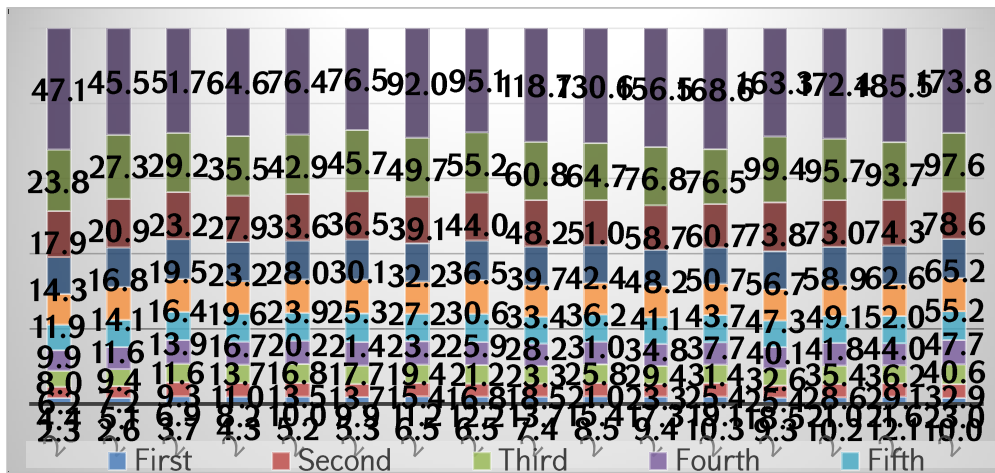


Figure 2. Population income by decile groups (per capita, average, monthly, 1000 drams)

As one of the methods of assessing income distribution inequality is the Gini coefficient, in figure 3 we present it for Armenia in 2004-2019. As the figure shows before the crisis of 2008, though economic growth was high, the supplemental income was unevenly distributed throughout the population and the Gini coefficient recorded an upward trend. During the pre-crisis period the Gini coefficient rose from 0.359 in 2005 to

¹ Transfers from abroad constitute 85-90% of general transfers

0.389 in 2008. As a consequence of the crisis, income inequality among various segments of the population decreased. After the crisis the Gini coefficient increased till 2016 reaching 0.375, and then fell to 0.359 in 2017. In 2019 it rose again to 0.381.



Figure 3. Changes in the Gini coefficient in 2004-2019

Other indicators of uneven income distribution of the population are decile and quantile coefficients. Figure 4 shows the change in decile and quantile coefficients during 2004-2019. The decile and quantile coefficients also indicate that income inequality widened during the pre-crisis period (the decile coefficient rose from 13.9 in 2006 to 15.1 in 2007, and the quantile coefficient increased from 7.6 in 2006 to 8 in 2007). After the crisis these 2 coefficients didn't undergo significant changes till 2019. In 2019 the decile coefficient rose from 15.4 to 17.3.

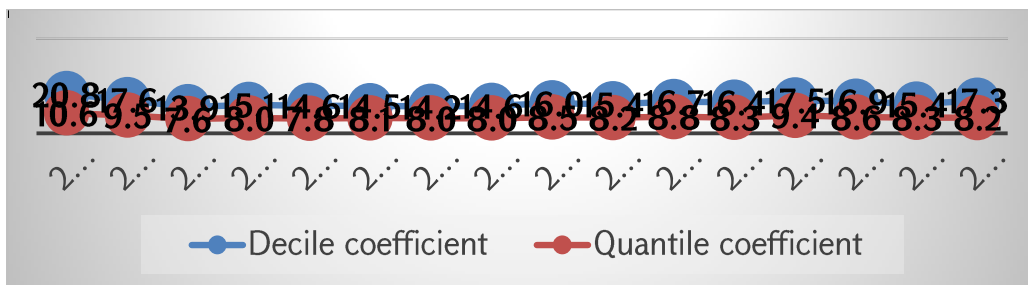


Figure 4. Changes in the decile and quantile coefficients in 2004-2019

Figure 5 presents another indicator assessing income inequality – the Theil Index and the Mean Log Deviation (MLD) for Armenia for the period of 2004-2018. They also show an increase in inequality before the crisis and a decrease after the crisis.

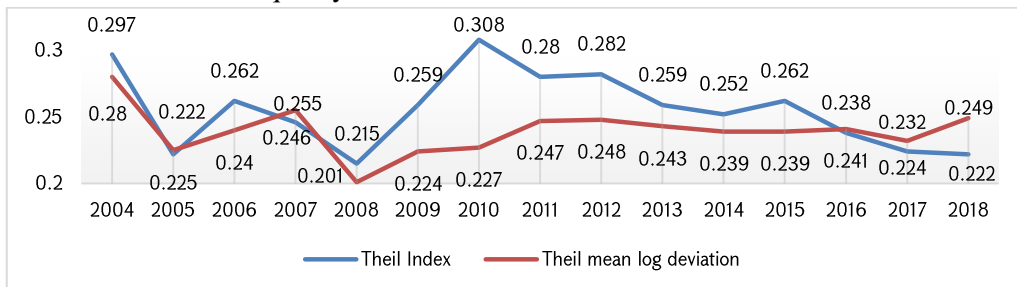


Figure 5. Change in the Theil Index and the Mean Log Deviation in 2004-2018

Poverty rate is one of the quantitative indicators assessing welfare and living standards of the population. Poverty is a socio-economic state of certain segments of the population lacking minimum resources for survival as defined by specific social norms [Kirakosyan, 2009, p. 469].

Poverty takes various forms and touches different aspects of life: consumption, food security, health, education, and rights including rights to vote, security, dignity and dignity of labor. According to the Statistical Committee of the RA one of the indicators of poverty assessment are the food poverty line, the highest and the lowest lines. Table 1 shows their rates for the period of 2004-2019.

Table 1. Changes in food poverty line, the highest and the lowest lines

	Food poverty line	The lowest poverty line	The highest poverty line
2004	12651	20704	25386
2005	13186	19197	24113
2006	13810	19972	25011
2007	14147	20450	25605
2008	17644	24388	29903
2009	17483	25217	30920
2010	19126	27410	33517
2011	21306	29856	36158
2012	21732	30547	37044
2013	22993	32318	39193
2014	23384	33101	40264
2015	24109	34234	41698
2016	23313	33418	40867
2017	24269	34253	41612
2018	24827	35071	42621
2019	23763	35054	53043 ¹

The poverty rate is calculated taking into consideration food poverty, the highest and the lowest lines of poverty.

Poverty depth and severity are other indicators of poverty measurement. Figure 7 presents poverty depth and severity indicators for the period of 2004-2018.

Thus, as it was previously mentioned, the credit policy aims at income redistribution and elimination of income inequality and poverty. To understand what tools of credit policy affect and how they affect income inequality and poverty, it is necessary to identify what factors influence them in general.

¹ Indicators for 2019 are calculated based on revised poverty assessment methodology of ILCS conducted in 2019

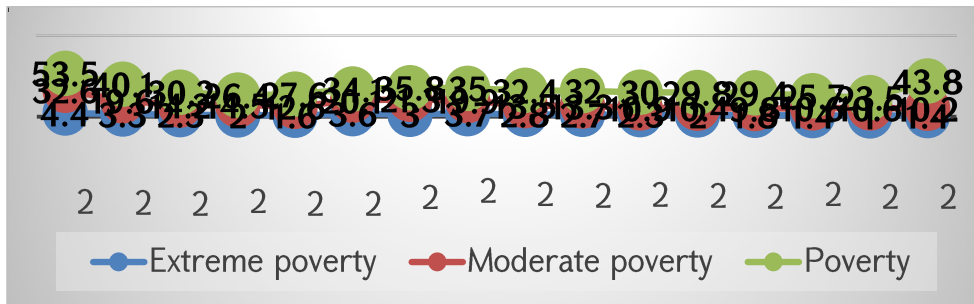


Figure 6. Changes in the levels of extreme poverty, moderate poverty and poverty in 2004-2019¹

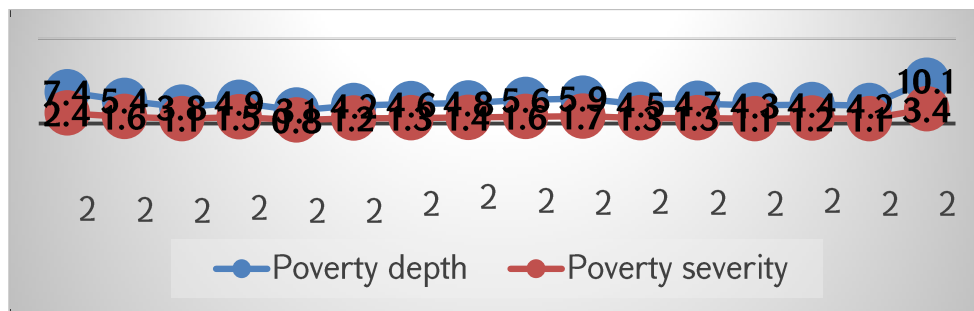


Figure 7. Changes in poverty depth and severity in 2004-2019²

First, forces affecting the change in income inequality were examined. A linear regression model was developed for this purpose. In this model the rates of state-collected income tax, average monthly pension, social costs incurred by the government and monthly nominal income in the sphere of construction were chosen as independent variables. While as a dependent variable the quantile coefficient was selected. As compared with the previous years all the indicators presented growth trends. The stationarity of all indicators were tested with the help of the tools provided by *Eviews*. Thus, the interaction model among variables used takes the following form:

$$Q_t = B_0 + B_1 * IT_t + B_2 * P_t + B_3 * SC_t + B_4 * CW_t + \varepsilon_t \text{ where}$$

Q_t – increase in the quantile coefficient in the year t

IT_t – increase in the rates of income tax in the year t

P_t – increase in the average monthly pension in the year t

SC_t – increase in the rates of social costs in the year t

CW_t - increase in average monthly nominal wage in construction in the year t

B_0 - B_4 -unknown parameters of the model

ε_t – error of the model

¹ Indicators for 2019 are calculated based on revised poverty assessment methodology of ILCS conducted in 2019

² Ibid

By applying the least square method, the model assessment will take the following form:

$$Q_t = 107.6 + 0.11 * IT_t + 1.11 * P_t - 0.22 * SC_t - 1.1 * CW_t$$

The results of the model prove that social costs and the average monthly wage in the construction sphere negatively affect the quantile coefficient, i.e. they have a positive impact on the elimination of income inequality. 1% increase in social costs reduces the quantile coefficient by 0.22%. This shows that the state credit policy, especially social costs that are incurred, greatly contributes to the elimination of income inequality. Nominal wages in the sphere of construction as an independent variable were selected for 2 reasons. First, construction provides work mainly to people with low education level and the latter constitute the first and second decile groups of the population. Second, the construction sphere is characterized by capital investments, so the study of the impact of the construction is equivalent to the study of the effects of capital investments. 1% change in nominal monthly income in construction reduces the quantile coefficient by 1.1%. Income tax and average monthly pension levels have a positive influence on the quantile coefficient. 1% change in the income tax rate results in the change of the quantile coefficient by 0.11%. This means that the income tax doesn't contribute to the decrease in income inequality. This in turn implies that the income tax is non-progressive that leads to the widening of inequality. 1% change in average monthly pension rate changes the quantile coefficient by 1.11%. This proves that the pension system doesn't operate properly thus contributing to the increase in income inequality.

With the help of a linear regression model, factors affecting changes in poverty were studied. In this model the rates of unemployment, state-collected income tax and average monthly wages in the construction field were selected as independent variables, while volumes of income of the first quantile groups were selected as dependent variables. The first quantile group income level was selected as an independent variable as this group constitutes the poor segment of the population. The stationarity of all indicators were tested with the help of the tools provided by *Eviews*. Thus, the interaction model among variables used takes the following form:

$$FQ_t = B_0 + B_1 * IT_t + B_2 * UR_t + B_3 * CW_t + \varepsilon_t \text{ where}$$

FQ_t – increase in the incomes of the first quantile group in the year t

IT_t – increase in income tax rates in the year t

UR_t – increase in unemployment rates in the year t

CW_t - increase in the average monthly nominal wage in construction in the year t

B_0 - B_4 -unknown parameters of the model

ε_t – error of the model

By applying the least square method the model assessment will take the following form:

$$FQ_t = 51.8 - 0.04 * IT_t - 0.29 * UR_t + 0.87 * CW_t$$

The results of the model prove that changes in the state-collected income tax and unemployment rates have a negative effect on the income rates of the first quantile

group. 1% change in the income tax rate changes the income of the first quantile group by 0.04%. As in the case of the model of variables affecting income inequality, this proves that income tax system has no progressivity and it negatively influences income inequality as well as the first quantile group income. 1% change in unemployment rate changes the first quantile group income by 0.29%. This is natural, as the study of income composition proves that wages constitute the largest part of population income. Consequently, the increase in unemployment rate will contribute to the decrease in income rates of the population. Average monthly income in the sphere of construction positively affects the income rates of the first quantile group. Its 1% shift changes income rates of the first quantile by 0.87%. People with low education level are engaged in construction and they constitute the first and second decile groups of the population. As a consequence, the change in wages of those working in construction positively influences both the elimination of income inequality and the increase in the income of the first quantile group.

Conclusion. After studying the income composition by decile groups we have revealed that the first decile group income increases faster than those of the tenth decile group, so income inequality gap widens in the period under study. Taking into consideration the analysis of poverty indicators we can conclude that there is a certain progress towards the elimination of poverty. The proportion of the poor and moderately poor segment has significantly reduced, while that of the extremely poor population has reached 1%.

The results of the models assessing income inequality impacts show that the state social costs and average monthly nominal wages have a positive effect on income inequality. Income inequality is negatively affected by the increase in average monthly pension rates and state-collected income taxes. Taking into account the results of the model assessing factors that influence poverty, it becomes obvious that average monthly wages in the construction sphere have a positive effect on the income of the poor segment of the population, while state-collected income tax volumes as well as unemployment rates have a negative effect on them.

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Assessment of fiscal policy impact on income inequality elimination and poverty alleviation poverty

Key words: income inequality, poverty, taxes, budget, fiscal policy

The paper analyzes the impact extent of individual instruments of the monetary policy on income inequality and poverty alleviation. Therefore, we firstly studied the stand-points presented by various economists on income inequality and poverty, the nature of income inequality and poverty, its consequences and the main causes. Then the movement of indicators characterizing income inequality and poverty in Armenia during the last decade were studied, the current state of those problems and the main reasons for their drastic changes were analyzed. The article also developed two models and performed a regression analysis using the Least Squares Method. First, the model assesses the impact of monetary policy on income inequality, examines the main reasons for individual monetary policy instruments impact. Then, through the other model, the extent of the impact of individual instruments of monetary policy on poverty was calculated, and the main reasons of the impact extent of individual instruments of the monetary policy were studied.