REGIONAL ECONOMIES

THE MACROECONOMIC EFFECTS OF BUDGET SPENDING IN AZERBAIJAN'S ECONOMY

Ilkin ASLANOV

Ph.D. Candidate at the Chair of State Economic Regulation, the Academy of Public Administration under the President of the Republic of Azerbaijan (Baku, Azerbaijan)

ABSTRACT

This article analyzes the changes in the amount and structure of budget spending in Azerbaijan's economy in 2000-2013. It assesses the impact of budget spending on the dynamics of the economy's non-oil sector, personal income, employment, poverty, inflation, import, and human development indicators. On the basis of the calculations carried out, it establishes that even if the multiplier of hypothetic spending in the country's economy is equal to 2.6, the multiplication effect of budget spending amounts to 1.4 in the non-oil sector and 1.8 in personal income, respectively. In addition, a 1% increase in budget spending in real terms leads to a real increase of 0.47% in the non-oil sector and of 0.56% in personal income. Every billion manats of budget spending creates 28,000 new jobs and releases approximately 190-200,000 people from the grips of poverty. At the same time, an abrupt increase in budget spending will stoke inflation and cause an increase in import: a rise in budget spending by 10% increases inflation by 2.1% and import volume by 6.1%.

KEYWORDS: ***budget spending, non-oil sector, inflation, employment, Azerbaijan.***

Introduction

In the current debates relating to fiscal policy for developing countries, experts think that a tight fiscal policy is required. According to the prevailing opinion, a budget deficit should be avoided because it "crowds out" private investments and is inflationary. On the other hand, it is an effective tool for stimulating an economy facing an economic slowdown when the standard Keynesian models of economic and fiscal policy are at hand.[1]

Of course, the economic role of fiscal policy, particularly of one of its most important elements—budget spending, is not limited to this. State budget spending could play an important role in ensuring the production of social benefits,[2] protecting economic stability,[3] fighting the crisis,[4] and maintaining economic growth.[5]

Under the impact of the oil boom that began in 2005, an unusual fiscal dominance has been forming in Azerbaijan's economy, and this process is continuing today. The state budget, with its abrupt increase in spending, which has essentially become the main channel of money injections into the economy, is also the key element of non-oil aggregate demand. It goes without saying that these changes have been accompanied by a whole series of macroeconomic effects in the non-oil sector, personal income, employment, inflation, poverty, and so on. The purpose of this article is to assess the impact of these macroeconomic effects, as well as analyze how they emerged. The article consists of three sections: the first analyzes the main trends and dynamics of budget spending in Azerbaijan's economy; the second assesses the impact of budget spending on economic growth, employment, poverty, inflation, import, and the human development indices in the country; and the third sums up the results obtained during the study.

1. Analysis of the Main Trends and Dynamics of Budget Spending

Since 2005, against the background of the accelerated growth of the production industry as a result of the oil boom, budget revenue has been on the constant rise. This has been the consequence of economic growth and a corresponding increase in tax revenue, on the one hand, and the abrupt increase, beginning in 2006, of transfers to the budget from the State Oil Fund, on the other.

The state's rapidly increasing fiscal opportunities and the growing challenges that accompany this today have prompted the state to assume even greater economic and social responsibility, which has been expressed in an increase in budget spending (see Fig.1).

In 2013, state budget spending amounted to more than 19.1 billion manats, which is 12.7 times higher than in 2004, directly before the oil boom, and 25 times higher than in 2000. Of course, this is

---

[1] See: Sh. Spiegel, *Macroeconomic and Growth Policies*, United Nations DESA/UNDP, New York, December 2006, p. 15.

[2] See: J. Stiglitz, *Ekonomika gosudarstvennogo sektora*, Moscow University Publishers, Moscow, 1997, pp. 120-129. (J. Stiglitz, *Economics of the Public Sector*, 3rd ed., W.W. Norton & Company New York, 2000).

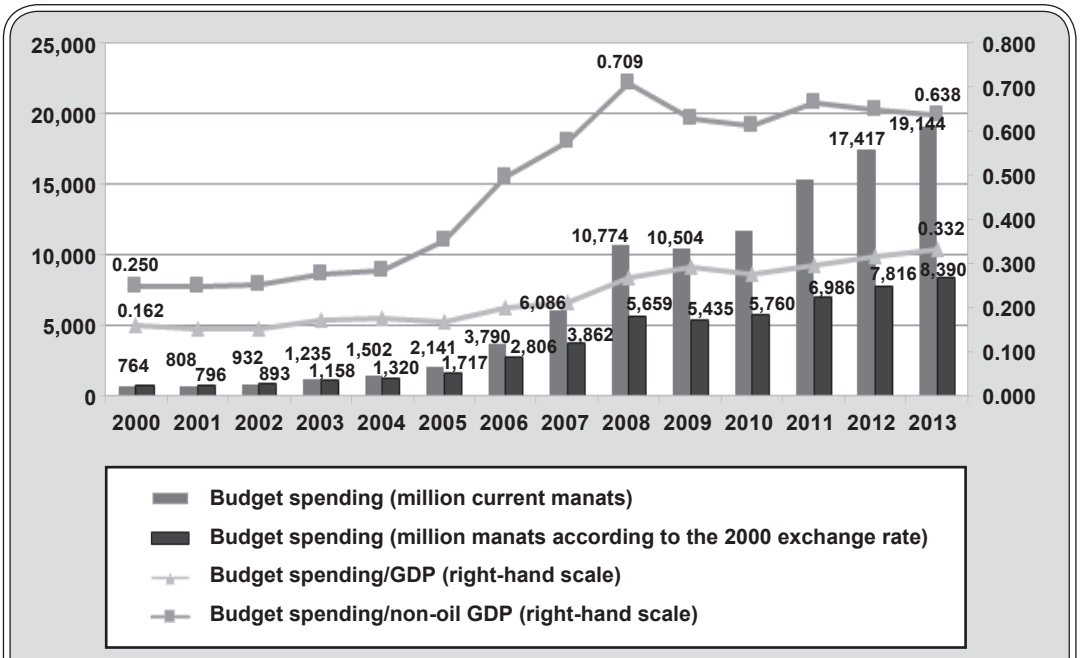
[3] See: A.J. Auerbach, "The Effectiveness of Fiscal Policy as a Stabilization Policy," July 2005, available at [http://eml.berkeley.edu/~auerbach/effective.pdf].

[4] See: A. Spilimbergo, St. Symansky, O. Blanchard, C. Cottarelli, "Fiscal Policy for the Crisis," IMF Staff Position Note, SPN 08/01, 29 December, 2008, available at [https://www.imf.org/external/pubs/ft/spn/2008/spn0801.pdf].

[5] See: W. Easterly, S. Rebelo, "Fiscal Policy and Economic Growth: An Empirical Investigation," NBER Working Paper Series, Working Paper No. 4499, October 1993, available at [http://www.nber.org/papers/w4499.pdf].

Figure 1

Dynamics of Total Budget Spending in Nominal, Real, and Relative Indices (2000-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

growth in nominal terms, and its large share is explained by the permanent depreciation of money. Nevertheless, real growth (that is, inflation-free) is also rather high: in real terms, budget spending in 2013 was 6.4 times higher than in 2004, and 11 times higher compared to 2000.

The rapid increase in budget spending, which is much higher than the growth rates in the non-oil sector, led to a sharp rise in the budget share in the economy and indirectly increased the budget's impact on the economy. In 2000-2013, the ratio of budget spending to GDP increased by 17% and reached 33.2%. In the non-oil sector, this correlation already amounts to 63.8%, which is 38.8% higher than in 2000. But this is not the highest level of budget spending ratio to GDP in the non-oil sector. The peak was recorded in 2008 at 70.9%. As a result of the abrupt drop in oil prices under the impact of the global financial crisis, there was a relative decline in budget oil revenue and a corresponding decrease in spending (2.5%). Maintaining dynamic growth in the non-oil sector led to a drop in 2009 of the ratio of budget spending to GDP in the non-oil sector of 8.1%; in subsequent years, it has remained more or less the same.

An analysis of the data for 2001-2013 shows that during this period the budget spending growth rates were very high and just as volatile. During the indicated period, the mean value of this index amounted to 30.5%. During the oil boom and subsequent period (2005-2013), the growth rates different significantly from the previous period (2001-2004). Whereas before the oil boom, the average budget spending growth rates amounted to 18.8%, during the oil boom and in subsequent years, they reached an average of 35.6%.

In so doing, the budget spending growth rates have demonstrated a high volatility: the difference between the highest growth indicator (77.1% in 2006) and the lowest (–2.5% in 2009) is equal to 79.6 percentage points. Another indicator of volatility is variability (standard deviation) of total budget spending, amounting to 26.6 percentage points, which is a rather high indicator (see Table 1).

Table 1

Analysis of the Growth Rates in the Main Vectors of Budget Spending (2001-2013)

	Total Budget Spending	*On the Economy*	*On Sociocultural Undertakings*	*On Science*	*On Maintaining Courts, Law-enforcement Agencies, and Prosecutor General's Offices*	*On Maintaining Legislative and Executive Power Branches*	*Other Spending*
Average growth rates, %	**30.5**	**49.0**	**20.8**	**22.5**	**23.3**	**19.6**	**34.2**
Growth rates before the oil boom (2001-2004), %	**18.8**	***36.3***	***14.0***	***22.1***	***20.6***	***24.9***	***16.3***
Growth rates during the oil boom and after it (2005-2013), %	**35.6**	***54.7***	***23.9***	***22.7***	***24.5***	***17.3***	***42.2***
Median, %	**21.7**	**33.8**	**19.0**	**20.5**	**23.8**	**21.4**	**24.1**
Maximum %	**77.1**	**180.4**	**59.1**	**45.6**	**54.7**	**39.2**	**110.7**
Minimum, %	**–2.5**	**–11.8**	**0.2**	**0.3**	**3.0**	**–7.0**	**–11.7**
Variations (percentage points)	**26.6**	**53.3**	**15.7**	**16.2**	**14.0**	**14.2**	**35.4**
Cumulative increase (2013/2000 in times)	**25.1**	**91.8**	**10.7**	**12.6**	**14.1**	**9.4**	**31.2**

Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

Among the budget spending vectors, investments in the economy are growing the fastest (the main part of this spending, around 98.5% in recent years, constituted investments in basic capital). The average growth rates during this period amounted to 49% in this vector, while in total between 2000 and 2013, spending in this vector has increased 91.8-fold. It appears that this is why the highest volatility of growth rates is observed in this vector. For example, at an average level of volatility of 53.3 percentage points, the corridor (the difference between the maximum and minimum values of growth rates) for spending on economic needs amounted to 192.2.

The "other spending" section ranks second, both in terms of growth rates and volatility. During the period under analysis, the average growth rates for this spending amounted to 34.2%, the corridor

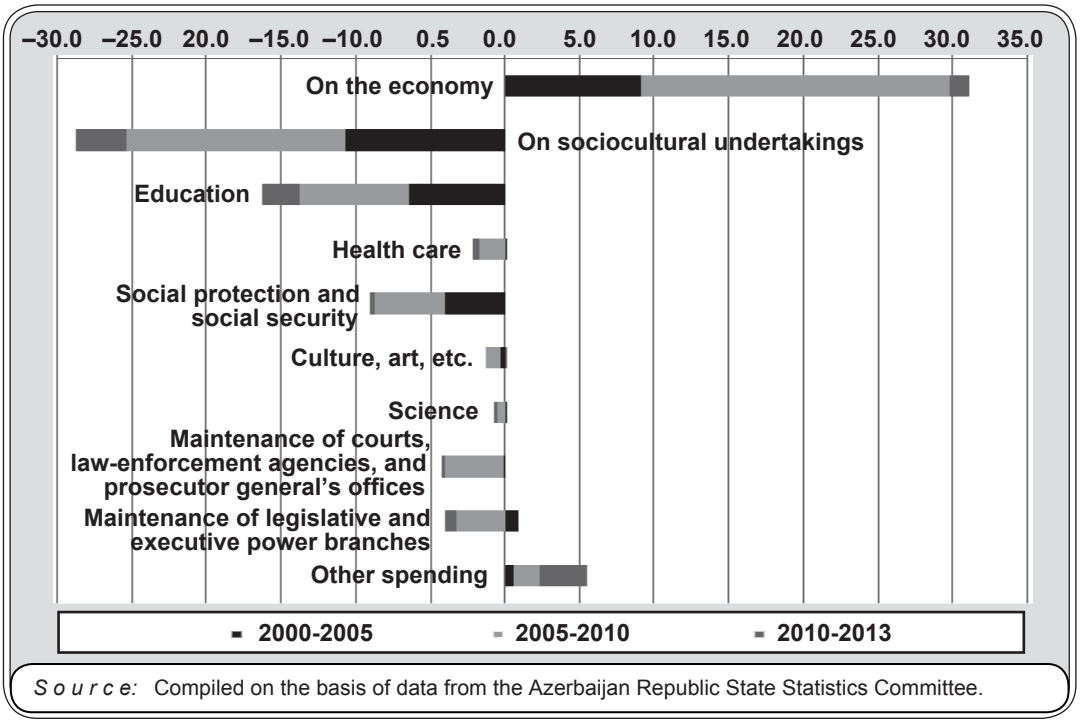
of growth rates to 122.4, and the variability to 35.4 percentage points, while this kind of spending increased on the whole 31.2-fold.

The average spending growth rates, as well as their volatility in other areas of budget spending—sociocultural undertakings,[6] science, and maintenance of state structures—proved close: in the range of 19.6-23.3% and 14-16.2%, respectively.

The higher growth rates for "spending on the economy" and "other spending" over the growth rates in other spending areas is the reason for the significant changes in the budget spending structure (see Fig. 2).

Figure 2

Change in the Share of Budget Spending in the Main Vectors (2000-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

The shares of "spending on the economy" and "other spending" in the budget have grown by 31.2 and 5.5 percentage points, respectively, while the shares of all the other budget spending items have significantly decreased.

The share of spending on sociocultural undertakings has decreased the most—28.8 percentage points. In this vector, the share of spending on education and social protection and social security underwent the greatest drop—by 16.3 and 9.1 percentage points, respectively. The share of spending on health care decreased by only 2.1 percentage points.

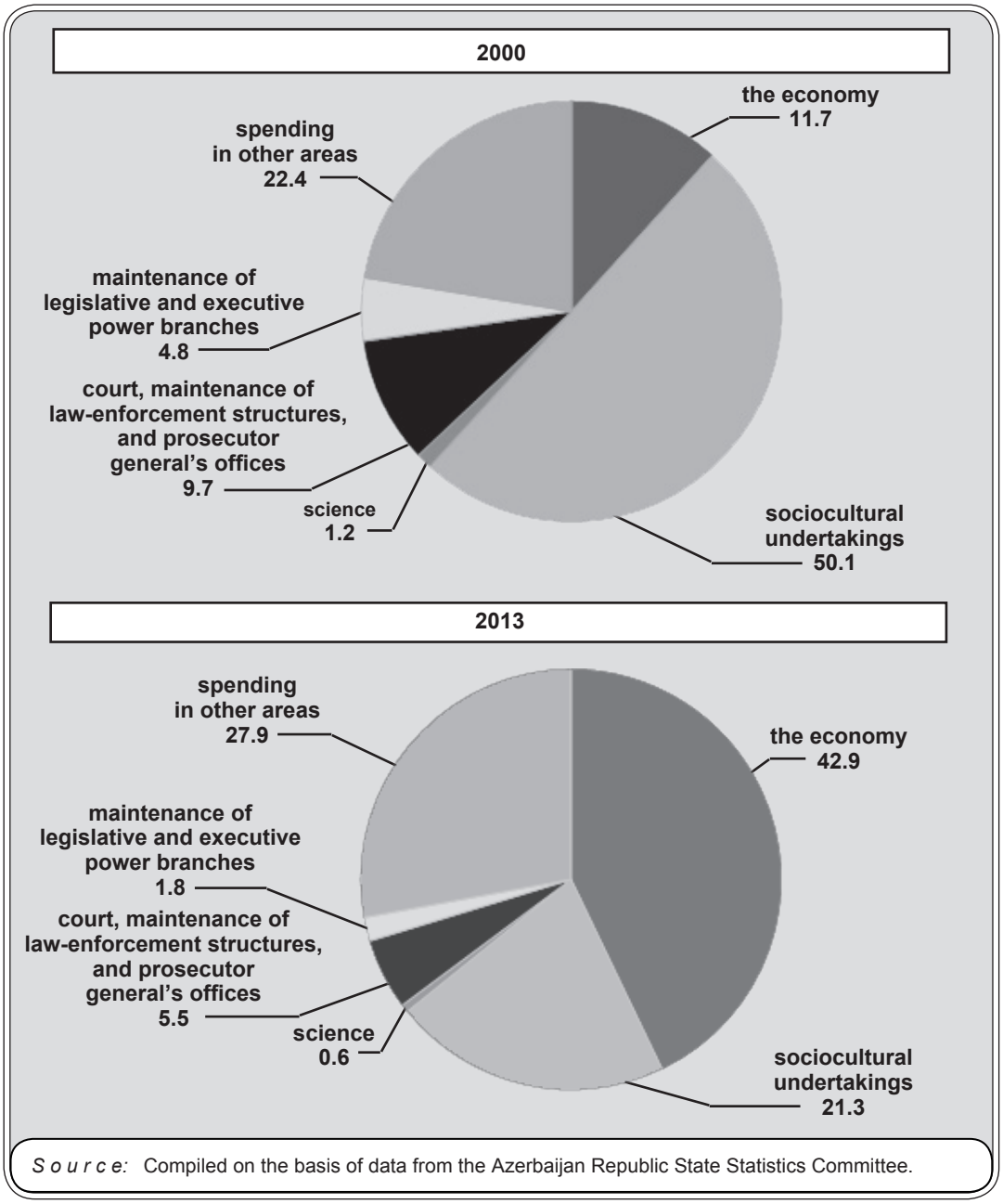
In a separate analysis of the changes in vectors of budget spending (in the budget) during three periods (2000-2005, 2005-2010, and 2012-2013), it can be seen that the main changes occurred in

[6] This section includes spending on education, health care, social protection and social security, culture, art, physical culture, and other similar spending.

2005-2010. Due to an overall drop in budget spending growth rates, during the third period (2010-2013), the shares of the separate spending areas changed the least (see Fig. 3).

Figure 3

Shares of Budget Spending in the Main Vectors: Results of the Changes (Comparisons for 2000 and 2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

Whereas in 2000, exactly half of the budget was spent on sociocultural undertakings, in 2013, this spending amounted to a little more than 1/5 of the budget (21.3%). Spending on the economy, which amounted to approximately 1/9 of the budget in 2000, currently forms up to 43% of budget spending.

Since 2006, the largest part of budget spending has gone to the economy. That year, the country's budget became investment-oriented, and the large-scale construction work financed by the state that continues to this day began.

As we have already noted, the share of the "other spending" item has also increased. It was relatively high as early as 2000 (22.4%), while during the period under review it increased to 27.9%. There are several possible reasons for this increase. The first hypothesis is that the diverse nature of the economic and social problems in the modernization phase and the state's leading role in their resolution are making it necessary to engage in more vigorous spending of budget funds in very different areas. The second hypothesis lies in the fact that this change in the spending structure is the result of efficient redistribution. However, it is rather difficult to theoretically justify and assess the efficient distribution of spending. Another hypothesis might be related to the increase in corruption, although in light of the fight against corruption going on in the country, this hypothesis does not seem very realistic.

The share of spending on science, which has always been the most modest (1.2% in 2000), decreased even more and, in 2013, amounted to 0.6% of the total sum of budget spending.

An analysis of the dynamics of change in the budget spending structure makes it possible to draw two important intermediate conclusions.

- *First,* the rapid growth in budget spending, particularly in expenditures on the economy, is generated by the imperative need for economic modernization, and the state has assumed the main responsibility for solving this task. Since 2005, the accelerated growth in the corresponding items of budget spending has significantly raised the budget's role in Azerbaijan's economic development, particularly of the non-oil sector.
- *Second,* the high volatility of budget spending growth rates and particularly the 2.5% cutback in total volume of budget spending during the crisis, which was even higher, around 12%, in terms of the areas that accounted for the largest share of spending ("on the economy" and "other spending"), gives reason to claim that the country's budget is of a pro-cyclical, and not counter-cyclical nature. This is an extremely important point that must be kept in mind with respect to raising the stability of both the budget and the economy as a whole during possible crises.

Nevertheless, although Azerbaijan's economy managed to emerge from the recent world financial crisis essentially unscathed, the "lost economic opportunities" in 2008-2009, according to some estimates, took a toll of 83 billion manats, of which the non-oil sector accounted for 2.5 billion manats.[7] The non-oil sector demonstrated real "losses" only in 2009, and it stands to reason that the cutback in total budget spending for that year of 270.4 million manats, as well as in spending on the economy of 585 million manats, had a significant impact on this.

We will try to examine the impact this spending has on the economy.

[7] See: B. Ahmadov, "Opportunity Cost of the Crisis: Crisis Loss Ranking for the CIS Countries," *The Caucasus and Globalization*, Vol. 4, Issue 3-4, 2010, pp. 76-87.

2. Assessment of Macroeconomic Effects of Budget Spending

2.1. Impact of Budget Spending on Economic Growth

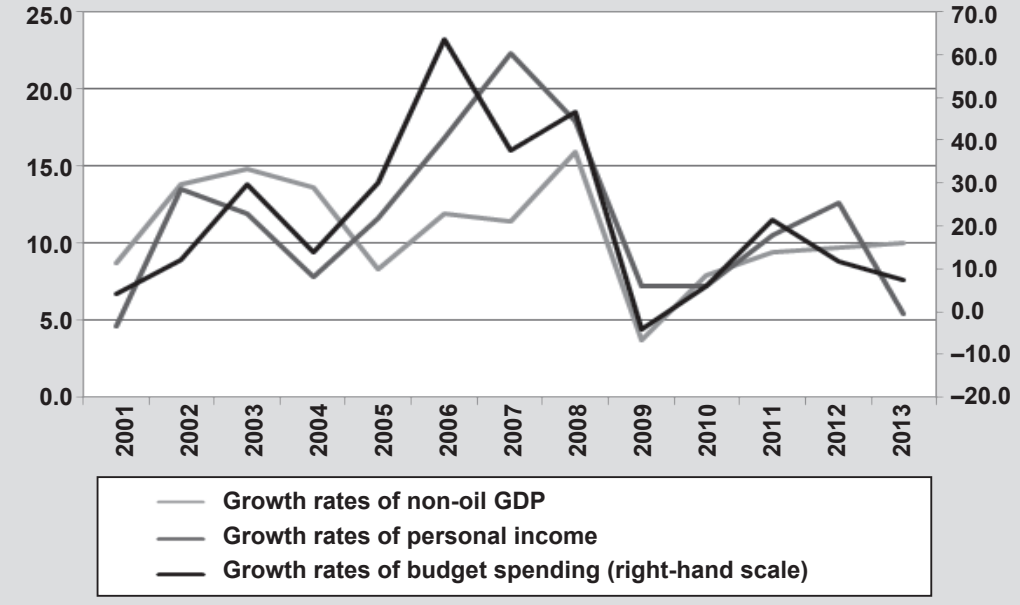
Azerbaijan's state budget is mainly formed by means of the oil sector (for example, in 2013, 72.3% of the budget revenue was formed by means of transfers of the Oil Fund and tax revenue from the oil industry), while it redirects revenue to the non-oil sector. So we will analyze the impact of budget spending on the non-oil sector and the formation of personal income.

In Azerbaijan's economy, budget spending performs the function of aggregate demand in the non-oil sector. According to the data of 2013, the ratio of total budget spending to GDP produced in the non-oil economy amounts to 63.8%, which means that the state manages approximately two thirds of the financial flows in this sector of the economy. What is more, the share of state investments in the non-oil sector is quite high (63.3%).

In turn, personal income mainly consists of the profit formed in the non-oil sector (equivalent of non-oil GDP), oil-sector revenue siphoned by means of budget spending into the non-oil economy (transfer through budget revenue from the oil sector to the non-oil sector), and income of the population employed in the oil sector. They, particularly the first two, are directly or indirectly formed by budget spending.

Figure 4

Real Growth Rates of Budget Spending, Non-Oil GDP, and Personal Income (2001-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

For these reasons, there is a close tie among budget spending, non-oil GDP, and personal income both in nominal and real terms. For example, coefficients of correlation between the pairs "budget spending-non-oil GDP" and "budget spending-personal income" in nominal terms will be 0.997 and 0.998, respectively. The coefficients of correlation between these pairs in real terms is also very high: 0.987 and 0.995 (between 2000 and 2013), respectively. It stands to reason that in this case, there should also be some similarity between the dynamics of the growth rates of the mentioned indices (see Fig. 4).

As Fig. 4 shows, in 2001-2013, there was a noticeable similarity among the growth rates of budget spending, non-oil GDP, and personal income.

For example, the increase in budget spending growth rates since 2005 also led to an increase in personal income the same year, and in non-oil GDP growth rates the following year. Each of these three indices continued to grow at the same rate right up until 2009, after which they decreased slightly under the impact of the global financial crisis, but recovered as early as 2010. The similar dynamics of budget spending, non-oil sector GDP, and personal income is related not only to the fact that budget spending constitutes the main part of financial receipts into the non-oil economy, but also to the multiplier effect created by this spending.[8] For example, depending on the level of marginal propensity to consume (in other words, the extent to which an increase in personal income by one unit leads to an increase in spending on consumption), budget spending is causing an increase greater than its own amount both in the non-oil economy and in personal income.

According to the calculations done for Azerbaijan's economy, the coefficient of the marginal propensity of the country's population to consume is equal to 0.62. This means that every 100 manats of income growth may cause an increase in consumption spending of 62 manats.

The latter means that every manat spent from the budget (not counting transfers) has the potential to create 2.6 manats of income in the economy. That is, the coefficient of the hypothetical multiplier of budget spending is equal to 2.6; at the same time, the coefficient amounts to 1.6 (see Table 2) for spending on budget transfers.

Table 2

Coefficients of the Hypothetical Multiplier Calculated for Azerbaijan's Economy

Name of the Indicator	Calculated Coefficient	Calculation Order
Coefficient of the marginal propensity to consume*	**0.62**	***c***
Spending multiplier	**2.6**	**1/(1-*c*)**
Tax multiplier	**–1.6**	**–*c*/(1-*c*)**
Transfer multiplier	**1.6**	***c*/(1-*c*)**

* Coefficient of the marginal propensity to consume $C_t = a_0 + c^*Y_t + u_t$, calculated on the basis of the equality of regressions. Here C_t—spending on end consumption, Y_t—personal income, a_0—autonomous consumption (part of consumption that does not depend on changes in income), *c*—coefficient of the marginal propensity to consume, u_t—model remnants. The model calculated on the basis of the 2005-2013 statistics can be presented as follows: $C = 602{,}5 + 0{,}616^*Y$, $R^2 = 0{,}997$ (effective at a level of significance equal to 0.01); $DW = 2{,}06$; effective when the coefficient of the marginal propensity to consume is at a level of significance equal to 0,01, while the fixed model threshold (autonomous consumption) is *0,1*.

Source: Compiled on the basis of the author's calculations.

[8] See: F.K. Langdana, *Macroeconomic Policy: Demystifying Monetary and Fiscal Policy*, Second edition, Springer 2009, pp. 70—71.

In reality, the multiplier coefficient is lower than the hypothetical level (taxes, import, and other similar reasons). The coefficients of the real multiplier calculated for Azerbaijan's economy are presented in Tables 3 and 4, in which the impact of a change of one unit of budget spending on income in the non-oil sector and personal income is expressed. Moreover, these tables present the calucations of coefficients of elasticity of the non-oil sector and personal income in relation to budget spending.

According to the assessments (see Table 3), a nominal increase in budget spending of 1 manat leads to an increase in GDP in the non-oil sector of an average of 1.4 manats (all other things being equal). In other words, the multiplier effect created by budget spending in the non-oil economy is equal to 1.4. In real terms (keeping in mind inflation), an increase in budget spending of 1 manat leads to an increase in GDP growth in the non-oil sector of 0.94 manats.

Table 3

Results of a Regression Analysis of the Effect of Budget Spending on the Non-Oil Economy

	Budget Spending	*Constants*	R^2	*DW*
Non-oil GDP	1.40	***2,445.8***	***0.997***	***1.44***
***Ln* (Non-oil GDP)**	0.68	***3.5295***	***0.997***	***2.07***
Real non-oil GDP	0.94	***3,455.4***	***0.986***	***1.45***
***Ln* (Real non-oil GDP)**	0.47	***5.0478***	***0.993***	***2.00***

Note: Every line in the table expresses the regression equation: in the first column— dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively. Here *Ln* expresses the logarithmic level indicator (natural logarithm) included in the calculations. At the same time, since the logarithmic level and real value (at the level of 2000 prices) were used in the equations with the dependent variable, the logarithmic level and the real value of the budget spending were included in its calculations, respectively.

Source: Compiled on the basis of the author's calculations.

As for the coefficient of elasticity of the non-oil economy with respect to budget spending, the calculations show that a 1% increase in budget spending in nominal terms leads to a 0.68% increase in non-oil GDP. In real terms, the coefficient of elasticity of the non-oil economy with respect to budget spending is equal to 0.47, that is, an increase in budget spending for each percent in real terms causes economic growth in the non-oil sector of 0.47%. The latter expresses the significant dependence of non-oil economic growth on a real increase in budget spending.

This also means that to maintain a minimum average annual economic growth in the non-oil sector of 7%, set forth as the goal in the Development Concept "Azerbaijan 2020: A Look Into the Future," in current conditions, budget spending should be increased by approximately 15% in real terms.

According to the results of similar calculations for personal income (see Table 4), every additional manat of budget spending in nominal terms raises personal income by 1.82 manats (that is, according to the hypothetical multiplier, less than 0.78 manats).

Moreover, every additional manat of budget spending in real terms raises personal income by 1.52 manats in real terms.

At the same time, in compliance with the results of the measurements of elasticity, in nominal terms personal income, with respect to budget spending, is identical to the indices of elasticity in the

Table 4

Results of a Regression Analysis of the Effect of Budget Spending on the Increase in Personal Income

	Budget Spending	*Constants*	R^2	*DW*
Personal income	1.82	*3,487.3*	*0.996*	*2.05*
***Ln* (Personal income)**	0.68	*3.8667*	*0.998*	*2.23*
Real personal income	1.52	*3,752.9*	*0.997*	*1.86*
***Ln* (Real personal income)**	0.56	*4.6733*	*0.996*	*2.13*

Note: Every line in the table expresses the regression equation: in the first column— dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively. Here *Ln* expresses the logarithmic level indicator (natural logarithm) included in the calculations. At the same time, since the logarithmic level and real value (at the level of 2000 prices) were used in the equations with the dependent variable, the logarithmic level and the real value of the budget spending were included in its calculations, respectively.

Source: Compiled on the basis of the author's calculations.

non-oil sector (0.68). In other words, every 1% increase in budget spending raises personal income by 0.68%. In real terms, elasticity of the personal income-to-budget spending ratio is much higher than in the non-oil sector—a real 1% increase in budget spending leads to an increase in personal income of 0.56%. This means that in order to maintain the average annual growth rates (9%) of personal income in the post-crisis period (since 2009), real budget spending growth rates must be at a level of 16%.

2.2. Impact of Budget Spending on Employment

Budget spending directly (through government investments and purchases) and indirectly stimulate aggregate demand in the economy and, in so doing, play an important role in fighting unemployment. These opportunities of budget spending are being actively used in Azerbaijan's economy, particularly since 2005.

Moreover, an Employment Strategy[9] for 2006-2015 has been drawn up in the country that was implemented at the first stage by the State Program[10] for 2007-2010, while at present, the second stage is being implemented by the State Program for 2011-2015.[11] According to the results of the first stage, with an increase in the size of the economically active population of 185,400 people, the number of jobs rose by 218,300. This led to a decrease in the number of unemployed of 32,900. The level of unemployment amounted to 5.6%, dropping by one percentage point (see Table 5).

[9] See: Azerbaijan Republic Employment Strategy (2006-2015).
[10] See: State Program on Implementation of the Azerbaijan Republic Employment Strategy (2007-2010).
[11] See: State Program on Implementation of the Azerbaijan Republic Employment Strategy (2011-2015).

Table 5

Preliminary Results of the Implementation in Azerbaijan of the Employment Strategy: Changes in the Labor Market in 2007-2013

	Change in the Size of the Economically Active Population, *thou. people*	Change in the Size of the Employed Population, *thou. people*	Change in the Size of the Unemployed Population, *thou. people*	Unemployment Level, %	Domestic Investments in the Non-oil Sector, *million manats*	Investments by Means of Budget Funds, *million manats*	Share of Budget Investments in Domestic Investments in the Non-oil Sector, %
2007	41.3	51.4	–10.1	6.3	3,665.4	1,852.4	50.5
2008	34.4	53.3	–18.9	5.9	6,670.5	3,859.9	57.9
2009	54.2	56.2	–2	5.7	5,227.3	2,705.9	51.8
2010	55.5	57.4	–1.9	5.6	6,082.6	3,255.3	53.5
2007-2010	185.4	218.3	–32.9	Drop of 1 percentage point	21,645.8	11,673.6	53.9
2011	38.7	46.1	–7.4	5.4	8,779.3	5,466.5	62.3
2012	62.3	70.1	–7.8	5.2	10,618.0	6,849.0	64.5
2013	69.4	75.9	–6.5	5.0	11,736.5	8,080.4	68.8
2011-2013	170.4	192.1	–21.7	Drop of 0.6 percentage points	31,133.8	20,395.9	65.5
2007-2013	355.8	410.4	–54.6	Drop of 1.6 percentage points	52,779.6	32,069.5	60.8

Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

Table 6

Results of a Regressive Analysis of the Impact of Budget Spending on Employment

	Budget Spending, *million manats*	*Ln* (Budget Spending)	*Constants*	R^2	*DW*
Employed population, *thou. people*	**0.028**		***3,976.4***	***0.984***	***1.606***
***Ln* (Employed population)**		**0.043**	***7.980***	***0.979***	***1.757***

Note: Every line in the table expresses the regression equation: in the first column—dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively. Here *Ln* expresses the logarithmic level indicator (natural logarithm) included in the calculations.

Source: Compiled on the basis of the author's calculations.

According to the results of the second stage of the "Employment Strategy" for the first three years (2011-2013), implementation of the "State Program" (2011-2015) has led to an increase of 192,100 people in the number of employed with an increase in the size of the economically active population of 170,400 people, as a result of which the number of unemployed decreased by 21,700 people. The level of unemployment dropped by 0.6 percentage points and amounted to 5%. All in all, in seven years (2007-2013), with an increase in the size of the economically active population of 355,800 people, there was an increase in the size of the employed population of 410,400 people, as a result of which the number of unemployed decreased by 54,600 people and amount to 236,600 people (5% of the size of the economically active population).

During implementation of the "Employment Strategy," the state, as well as dealing with organizational issues, assumed an additional financial burden and mobilized funds from the budget to guarantee investment activity in the country.

At the first stage of the "Employment Strategy" (2007-2010), 11.7 billion manats (53.9%) of the 21.6 billion manats of domestic investments in the non-oil sector were realized by means of the budget, while during the first three years (2011-2013) of the second stage, 20.4 billion manats of 31.1 billion manats (65.5%) were realized.

According to the estimates (based on data that cover 2000-2013), for each billion manats of budget spending, the size of the employed population increases by 28,000 people. According to the results of the measurements of elasticity between these two indicators, a 10% increase in budget spending leads to an increase in the number of employed of 0.43% (see Table 6).

An increase in the employment level, in turn, means the participation of a large part of the population in the economic processes and the opportunity for an increasingly larger number of people to take advantage of the fruits of these processes, while the latter has an impact on the drop in the poverty level in the country.

2.3. Impact of Budget Spending on Income Distribution (Poverty)

One of the main functions of the budget is to redistribute the income created in the economy and, in so doing, provide social security for the impoverished strata of the population. In this respect,

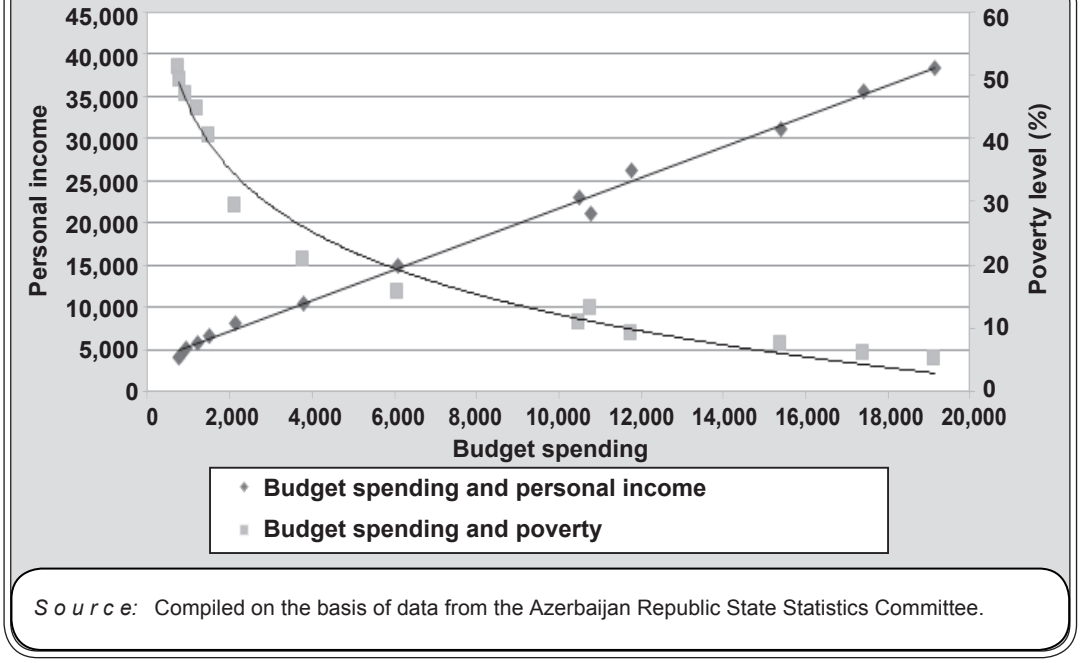
budget spending is one of the main tools for implementing this function. Since 2005, the abrupt increase in budget spending has been playing an important role in reducing poverty in the country.

Implementation of the "State Program to Reduce Poverty and Promote Economic Development (2003-2005)" in the country led to significant achievements in lowering the poverty level. At present, these processes are continuing by means of the "State Program to Reduce Poverty and Promote Sustainable Development in the Azerbaijan Republic in 2008-2015" approved in 2008.

Implementation of the first "State Program" led to a drop in the country's poverty level from 47% in 2002 to 29%, and approximately 1.4 million people were released from the grips of poverty. The second "State Program," beginning from the time it was created in 2008 right up until the end of 2013, lowered the poverty level by 11 percentage points, reducing it to 5%. This led to the number of people who have an income higher than the poverty level increasing by 885,000. Stepping up the poverty-combating measures carried out as a whole since 2000 and particularly beginning in 2003 led to a decrease in the poverty level in the country of 46 percentage points (3.6 million people). It stands to reason that these achievements are the fruit of budget spending. For this reason, a direct link is seen among the mentioned indicators.

Figure 5

Depiction of the Ties among Budget Spending, Personal Income, and the Poverty Level (2000-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee.

As can been seen from Fig. 5, which shows the ties among budget spending, personal income, and poverty level, there is a strict linear tie between budget spending and personal income (we examined the quantitative parameters of this tie earlier), while at the same time, there is a close dependence between budget spending and the poverty level at the logarithmic level.

Table 7 below shows the results of an econometric analysis of the impact of budget spending on poverty.

Both a direct (by means of regression equality expressing the ties between these two indicators) and an indirect (in the form of coefficients expressing the ties between budget spending and personal income and between personal income and the number of impoverished people) measurement of the impact of the changes in budget spending on the size of the population living below the poverty line gave close results.

Table 7

Results of an Econometric Analysis of the Ties among Budget Spending, Personal Income, and Poverty (2000-2013)

	Budget Spending, *million manats*	Personal Income, *million manats*	*Ln* (Budget Spending)	*Ln* (Personal Income)	R^2	*DW*
Size of the impoverished population, *thou. people*	**–0.200**				***0.956***	***1.920***
Size of the impoverished population, *thou. people*		**–0.105**			***0.974***	***1.842***
***Ln* (Size of the impoverished population)**			**–0.645**		***0.983***	***1.683***
***Ln* (Size of the impoverished population)**				**–0.943**	***0.995***	***1.778***
Personal income, *million manats*	**1.820**				***0.996***	***2.049***
***Ln* (Personal income)**			**0.675**		***0.998***	***2.234***
Size of the impoverished population (indirect*)	**–0.190**					
***Ln* (Size of the impoverished population) (indirect*)**			**–0.637**			

* Indirect coefficients for measuring the impact of budget spending on poverty and personal income, as well as the impact of personal income on the number of poor people.

Note: Every line in the table expresses the regression equation: in the first column—dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively.

Source: Compiled on the basis of the author's calculations.

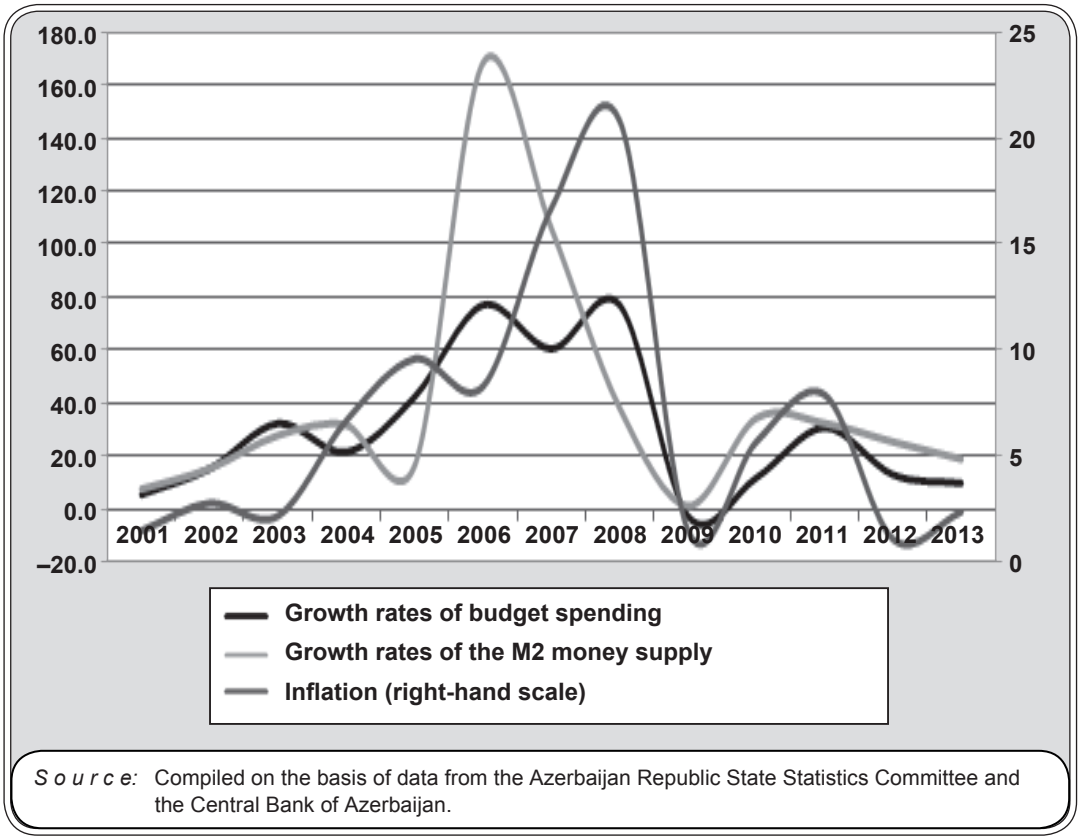
According to the estimates, an increase in budget spending of 1 billion manats leads to a drop in poverty of the population by 200,000 people. At the same time, an increase in personal income of 1 billion manats causes a decrease in the number of poor people of 105,000. As for the elasticity indices, the estimates show that every 1% increase in budget spending leads to a decrease in the impoverished population of 0.65%, and a 1% increase in personal income leads to a decrease in the impoverished population of 0.94%. According to the indirect measurements, an increase in budget spending of 1 billion manats reduces the number of poor people by 190,000 people, while a 1% increase leads to a decrease of 0.64%.

2.4. The Impact of Budget Spending on Inflation

In Azerbaijan's economy, budget spending acts as the main channel for siphoning money into the economy. At the same time, budget spending also plays a decisive role in forming personal income (as can be seen from the estimates presented earlier). For this reason, there is a close linear dependence between the growth rates of budget spending and inflation. This can be seen from Fig. 6, which shows the general movement of these indicators for 2001-2013.

Figure 6

General Movement of the Growth Rates of Budget Spending, Money Supply, and Inflation (2001-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee and the Central Bank of Azerbaijan.

As Fig. 6 shows, since 2005, budget spending growth rates have been increasing the volume of the money supply and been accompanied by an increase in inflation.

The peak of budget spending and consumer price growth came in 2008, following which, under the impact of the world financial crisis of 2009, both indices demonstrated an abrupt drop. Since 2010, parallel to the restoration in budget spending growth rates, money supply growth rates have also been undergoing restoration, which also caused a slight increase in inflation.

According to the results of an econometric analysis of the impact of the growth rates of budget spending, personal income, and the money supply (separately) on inflation in Azerbaijan's economy,

Table 8

Results of an Econometric Analysis of the Impact of the Growth Rates of Budget Spending, Personal Income, and the Money Supply on Inflation (2001-2013)

	Budget Spending Growth Rates, %	Personal Income Growth Rates, %	M0 Money Supply Growth Rates, %	M1 Money Supply Growth Rates, %	M2 Money Supply Growth Rates, %	R^2	*DW*
Inflation, %	**0.212**					***0.817***	***1.74***
Inflation, %		**0.782**				***0.876***	***1.87***
Inflation, %			**0.116**			***0.477***	***2.04***
Inflation, %				**0.093**		***0.481***	***2.08***
Inflation, %					**0.079**	***0.450***	***2.03***

Note: Every line in the table expresses the regression equation: in the first column—dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively.

Source: Compiled on the basis of the author's calculations/

a 10% increase in growth rates of budget spending could lead to an additional 2.1% of inflation. At the same time, a 7.8% increase in nominal personal income creates 10% of inflation. In turn, a 10% increase in the growth rates of the money supply according to M0, M1 and M2 increases inflation by 1.2%, 0.9%, and 0.8%, respectively. As we see, inflation in Azerbaijan reacts more to changes in budget spending growth rates than to money supply growth rates (see Table 8).

2.5. The Impact of Budget Spending on Import

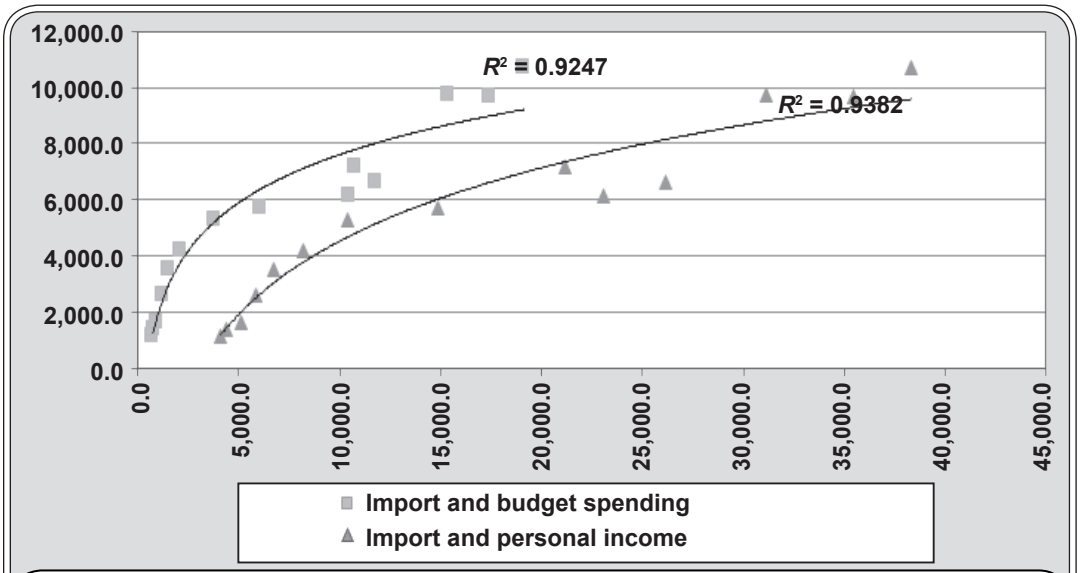
Budget spending not only has an impact on personal income, but also stimulates domestic demand, which leads to an increase in demand for imported production. An analysis of the ties among budget spending, personal income, and import for 2000-2013 shows a close tie between "budget spending-import" and "personal income-import" (see Fig. 7).

According to the estimates, each additional manat of budget spending leads to an increase in import of $0.52. An increase in personal income of 1 manat leads to an increase in import of $0.28. If we measure the dependence of import on budget spending indirectly, the result will be almost the same. As we already know from previous calculations, an increase in budget spending of 1 manat leads to an increase in personal income of 1.82 manats. At the same time, a similar change in personal income leads to an increase in import of $0.51 (see Table 9).

As for the elasticity of import with respect to budget spending and personal income (separately), according to the measurement results, a 1% increase in budget spending leads to an increase in import of 0.61%.

Figure 7

Ties among Budget Spending, Personal Income, and Import (2000-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee and the Central Bank of Azerbaijan.

Table 9

Results of an Econometric Analysis of Ties among Budget Spending, Personal Income, and Import (2000-2013)

	Budget Spending, *million manats*	Personal Income, *million manats*	*Ln* (Budget Spending)	*Ln* (Personal Income)
Import, *$m*	**0.52**			
Import, *$m*		**0.28**		
***Ln* (Import)**			**0.61**	
***Ln* (Import)**				**0.94**
Personal income	**1.82**			
***Ln* (Personal income)**			**0.68**	
Import (indirectly*)	**0.51**			
***Ln* (Import) (indirectly*)**			**0.64**	

* Indirect coefficients for measuring the impact of budget spending on import and personal income, as well as the impact of personal income on import.

Note: Every line in the table expresses the regression equation: in the first column—dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively.

Source: Compiled on the basis of the author's calculations.

In so doing, the elasticity of import with respect to personal income is higher (this can be clearly seen in Fig. 7)—a 1% increase in personal income leads to an increase in import of 0.94%.

The results of indirect measurement of the elasticity of import with respect to budget spending are close to the results of direct measurements: as we know from the previous calculations, a 1% increase in budget spending causes an increase in personal income of 0.68%, while a similar increase in personal income is accompanied by an increase in import of 0.64%.

2.6. The Impact of Budget Spending on Human Development

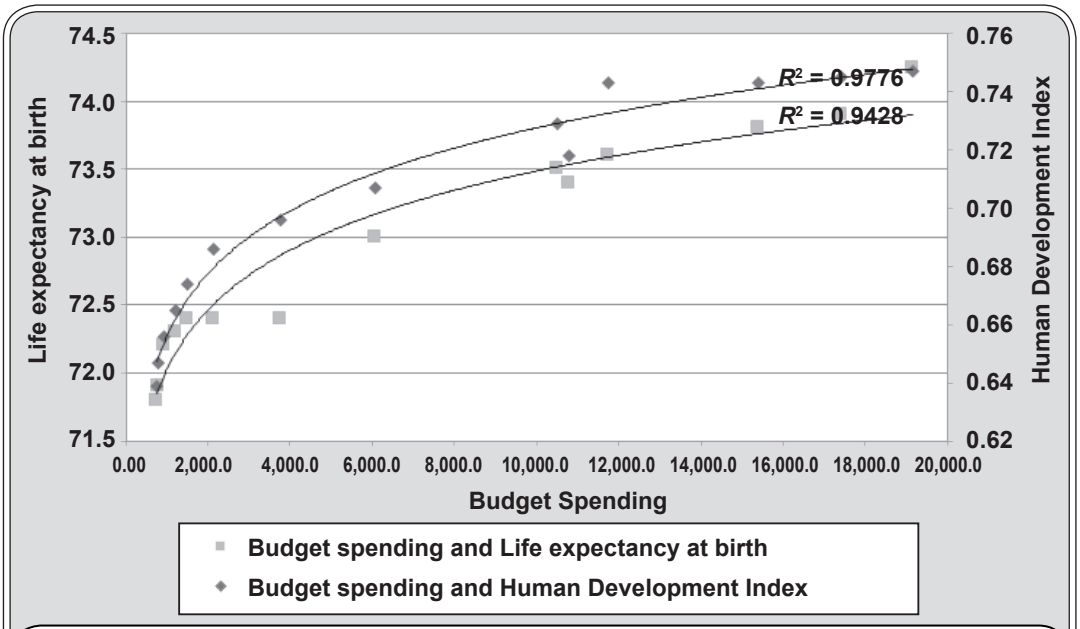
On the one hand, budget spending is used to increase income, as well as to provide the population with social benefits that are very important for strengthening the material basis of human development. On the other hand, direct budget spending on health care maintains an even more important human life condition—health.

For this reason there is a close dependence between human development and budget spending. In particular, keeping in mind the size of the country's economy and budget, Azerbaijan's rather high budget spending on education and health care is having a direct positive impact on human development.

As can be seen from Fig. 8, there is a tie between budget spending and the human development index offered by UNDP and one of its sub-components—life expectancy at birth; an increase in budget spending is accompanied by an increase in both indices, but over time they will react weakly to a budget spending increase. In other words, stronger index inertia is occurring.

Figure 8

Depiction of Ties among Budget Spending, the Human Development Index, and Life Expectancy at Birth (2000-2013)



Source: Compiled on the basis of data from the Azerbaijan Republic State Statistics Committee and the United Nations Development Program (Human Development Report 2014).

Against the background of the abrupt increase in budget spending in Azerbaijan in 2000-2013 (from 764 million manats to 19.1 billion manats), significant success was achieved in human development, as a result of which the country's human development index rose by 0.108 points (from 0.639 to 0.747). At the same time, such an abrupt increase in budget spending along with an improvement in the standard of living, as well as rise in quality of medical services provided by the state, created conditions for increasing life expectancy at birth by 2.4 years (from 71.8 years to 74.2 years).

According to the calculations done on the basis of the data for 2000-2013 (see Table 10), an increase in budget spending of 1 billion manats leads to an increase in the Human Development Index of 0.006 points (at present, in accordance with the U.N. Human Development Report 2014, Azerbaijan ranks 76th among 187 countries with an index of 0.747).

Table 10

Results of a Regressive Analysis of the Impact of Budget Spending on Human Development (2000-2013)

	Budget Spending, *billion manats*	*Ln* (Budget Spending)	Budget Spending in Health Care	R^2	DW
Human Development Index	**0.006**			***0.965***	***2.437***
***Ln* (Human Development Index)**		**0.046**		***0.984***	***1.168***
Life expectancy at birth	**0.116**			***0.969***	***1.840***
Life expectancy at birth			**0.004**	***0.958***	***1.153***

Note: Every line in the table expresses the regression equation: in the first column—dependent-variable, in the first lines—free variable budget spending and its stable threshold. R^2 and *DW* express the coefficient of determination of the models and Durbin-Watson statistics, respectively.

Source: Compiled on the basis of the author's calculations.

At the same time, each additional billion manats of budget spending increases life expectancy at birth by 0.12 years. An increase in budget spending of 1 billion in the "Health Care" item raises life expectancy at birth by an average of 4 years. As we can see from the indices, budget spending in Azerbaijan plays an important role in the country's human development potential.

Conclusion

Budget spending in Azerbaijan's economy plays an exclusively important role in modernizing the country's economic and social infrastructure, ensuring employment, and implementing large-scale programs aimed at reducing poverty and promoting regional development. What is more, budget spending is the largest component of non-oil aggregate demand and, consequently, has a rather high impact on the macroeconomic processes in the country.

According to the results obtained during an assessment of the macroeconomic consequences of budget spending, it can be said that almost all the changes (99%) both in GDP, produced in the non-oil sector, and in personal income are explained by changes in budget spending. At the same time, 98% of the changes in employment, 96% of the changes in the size of the poor groups of the population, 82% of the changes in inflation, and 98% of the changes in import can be explained by changes in budget spending.

Moreover, the calculations determined that if the multiplier of hypothetical spending in the country's economy is equal to 2.6, budget spending will create a multiplier effect in the non-oil sector of

1.4, and in personal income of 1.82. In so doing, an increase in budget spending of 1% in real terms leads to a real increase in the non-oil sector of 0.47%, and in personal income of 0.56%. Along with the fact that an increase in budget spending of 1 billion manats leads to an increase in employment of 28,000 people, it also releases 190,000-200,000 people from the grips of poverty. At the same time, an acute increase in budget spending gives rise to such economic consequences as accelerated inflation and an increase in import: for example, an increase in budget spending of 10% raises inflation by 2.1% and import by 6.1%.

At the same time, according to the calculations, to achieve an increase of at least 7% in the non-oil sector (in real terms), the annual rates of a real increase in budget spending must amount to 15%. The rates of real growth of budget spending of 15-16% were also enough to ensure average annual growth rates of personal income in the post-crisis (2010-2013) period.

If we keep in mind the inflation pressure caused by budget spending, in the long term, an increase in budget spending in nominal terms of approximately 20% a year will be enough to achieve minimum growth goals in the non-oil sector. Although the nominal average annual budget growth rate in 2005-2008 was three times higher (64.3%), an annual increase in budget spending of 20% is still high enough for the current development level. Moreover, such a rapid increase over a long period, along with a decrease in the country's financial resources, is one of the reasons for chronic inflation and could become a risk factor for macroeconomic stability in the country. For this reason, it is important for the future development of the non-oil sector that it not be oriented toward an increase in budget spending, but rely on its own internal dynamics.