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**Introduction**  
**by the Governor of the National Bank of the Kyrgyz Republic**

Dear Readers,

Let me present to you the first Working Papers Series carried out within the research of the National Bank of the Kyrgyz Republic.

Realizing the importance of using the fundamental scientific basis in practical activities, the National Bank conducts researches on topical issues of economic and financial systems, using techniques of macroeconomic modeling in conjunction with expert judgment. The use of scientific methods allows creating and implementing monetary policy more effectively.

This series includes research works carried out both by internal resources and in collaboration with external experts. Structural shifts occurring in the economy after independence, periodically emerging global and regional economic shocks, and the short period of accumulated statistical data series have imposed certain restrictions on the ability to analyze and develop econometric models.

Despite the fact that research activity is a relatively new trend in the National Bank of the Kyrgyz Republic, there are already some results which are summarized in this series, and the National Bank continues to carry out works on other subjects.

I hope that the series of working papers of the National Bank of the Kyrgyz Republic will be a useful source of information for experts, scholars, graduate and undergraduate students and the general audience.

Sincerely,

Z.M. Asankojoyeva

Governor

## FISCAL ISSUES IN CONDUCTING MONETARY POLICY IN THE KYRGYZ REPUBLIC

Gulnur Aidarbekovna Kerimkulova

*This paper describes some indicators that evaluate the macroeconomic effect of fiscal policy and therefore enable more effective coordination of fiscal and monetary policies. The paper estimates such indicators as fiscal impulse and marginal excess burden of taxation that can further serve as the basis for assessing the results of ongoing fiscal policy in Kyrgyzstan and formulating policy recommendations.*

**Key words:** *macroeconomic stabilization policy, fiscal policy, fiscal impulse, excess burden of taxation, effectiveness of tax policy.*

### INTRODUCTION

In recent years macroeconomic analysis in the Kyrgyz Republic has increasingly focused on fiscal policy. The main reason is persistent risk for macroeconomic stability posed from fiscal policy. In its turn, these fiscal policy developments have a direct influence on National Bank's monetary policy implementation.

Thus, public finance sector in Kyrgyzstan should be considered in a wider context, with the use of new additional indicators. A fiscal analysis with a wider toolbox will allow evaluating in more detail the effect of fiscal policy on macroeconomic developments and therefore enables more effective coordination of monetary and fiscal policies.

In this paper the fiscal policy is analyzed and assessed by two different indicators: fiscal impulse and marginal excess burden of taxation<sup>1</sup>.

Fiscal impulse is a measure of whether government fiscal policy decisions are loosening or tightening, and therefore it can provide a first round impact indication of whether they are adding to, or subtracting from, aggregate demand pressures in the economy. While conducting and formulating a monetary policy program this information is useful for assessing the impact of fiscal policy on inflation.

Marginal excess burdens of taxation enables assessing the government tax policy from the point of its effectiveness. Namely, how the actual tax policy affects the optimal allocation of resources and, therefore, the welfare of citizens. The obtained results allow formulating practical recommendations on further tax reform to promote economic growth.

This paper is organized as follows: each indicator is discussed in a separate section (Sections I and II), which in its turn, in general, adhere to the following common structure - definitions and theoretical review, methodology or its brief description, estimations of indicators for Kyrgyzstan, main results and conclusions.

### I. Estimates of Fiscal Impulse Indicator for Kyrgyzstan

#### 1.1. Definition of the Fiscal Impulse

Actual nominal budget deficit, more precisely its changes downwards or upwards, not always fully characterizes the changes in public finance sector. This is largely because developments in the actual balance reflect both changes in fiscal policy as well as how changes in the economy influence tax revenue and government spending. Put it differently, if only tracking the direction in deficit changes, it is not always clear whether it is a cause or result of changes in economic cycles.

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<sup>1</sup> Official statistics of public authorities was used when assessing these indicators, which may slightly distort the real situation due to a high level of the shadow economy in Kyrgyzstan.

Moreover, such an indicator as the acceleration or deceleration in the rate of growth of aggregate demand becomes important when making decisions on macroeconomic stabilization policy. The indicator which characterizes the relative change in fiscal policy towards tightening or loosening is required to determine the influence of public finance on this index. Accordingly, comparing the fiscal impulse indicator with the economic cycle indicator (e.g., GDP gap), one can make some preliminary conclusions on whether fiscal policy implements its stabilization function. As a reminder, *ceteris paribus*, maintaining macroeconomic stability from fiscal side means stimulating the economy in recession periods and, conversely, contracting in “overheating”. In other words, fiscal policy is usually considered to be stabilizing when it is counter-cyclical.

Taking into account the aforesaid, it is clear that there is a need to expand the fiscal analysis for decision-making on macroeconomic policy.

Therefore, in economic literature (Heller et al. (1986), Blanchard (1990), Wells (1995) et al.) attempts to use alternative measures that would allow to assess in more detail the influence of fiscal policy on aggregate demand have been widely developed. *The fiscal impulse* is one of such indicators that can be a useful component in the analysis and interpretation of ex post and ex ante changes in the fiscal sector.

The positive (negative) fiscal impulse in this paper means more expansionary (contractionary) fiscal policy in the current period compared to the previous one.

### **1.2. Disadvantages and Limitations**

As Blanchard (1990) points out in his study on disadvantages of short-term fiscal indicators, first, the assessment of fiscal policy impact on the economy should not be limited to any one indicator.

Second, Blanchard draws a distinction between the initial and final effect of fiscal policy. In this case, in his opinion, if the fiscal impulse plays a role in determining the effect of fiscal policy on aggregate demand, it is only to assess the initial effect. For example, increase in public spending in the first stage may have some stimulating effect on the economy from the demand side. However, these government measures may cause firms and households to change their behavior in terms of investment and consumption. A simple single indicator cannot capture these second-round changes. Therefore, consideration of dynamic indicators through time, that is only possible with more complex macroeconomic models, is also required.

According to Heller et al. (1986), the calculation of the fiscal impulse should be considered as a first step in the fiscal analysis. This indicator, at best, reflects the direction of fiscal policy, that is whether it is focused on tightening or loosening, but not on the actuating magnitude of the budget.

Generally, as fairly noted by R. Philip and J. Janssen (2002), an indicator of fiscal impulse shall not be considered by government authorities as the motive for action or inaction. Ideally, government fiscal measures should be based on estimation results of the general macroeconomic model. Moreover, since the measure of fiscal impulse plays more informative role, estimates of fiscal impulse alone cannot imply a fundamental shift in the selected mid-term fiscal policy – there should be a clear awareness of the nature of fiscal impulse indicator in order to prevent its improper use.

### **1.3. Estimation Methodology**

Using the methodology of the International Monetary Fund (Heller et al., 1986), the fiscal impulse will be estimated in several steps:

The first step is to estimate the adjusted fiscal balance, which, first of all, will maximally exclude revenue and expenditure admittedly having no impact on the domestic

demand. These are, for example, interest payments on external debt, membership fees to the international organizations, funding agencies and diplomatic missions, etc.

Secondly, all operations of public sector, including the budget of the Social Fund of the Kyrgyz Republic, should be considered, where possible. While assessing the adjusted budget balance, quasi-fiscal operations should be also included. Quasi-fiscal deficit has been calculated in the electricity industry of Kyrgyzstan since 2002. It represents the size of the hidden subsidies paid by the government to the electricity sector, calculated as the difference between the actual income earned by state regulated tariffs and the income required to cover full costs of production and capital investment.

The second step is to decompose the adjusted actual budget deficit into cyclically neutral component and fiscal stance. Cyclically neutral budget assumes that government revenue increase proportionately with increases in nominal GDP, and increases in government expenditure are proportional with increases in potential GDP. The fiscal stance is the difference between cyclically neutral and actual budget balance. *In this paper the change in fiscal stance is defined as the measure of fiscal impulse.*

The cyclically neutral budget is calculated under the assumption of unitary elasticity of expenditure and revenue in relation to the potential and nominal GDP respectively, because the calculation of elasticity for each tax is more suitable for a stable tax system, while disaggregated methodology is not easily applicable to regularly-changing systems (Spilimbergo, 2005) to which Kyrgyzstan refers.

Estimation of potential GDP is also required to perform the calculations described in the previous step. The potential output was estimated using the Hodrick-Prescott time series filtering method.

Defining a base period is also an important methodological aspect. A range of developed countries define the base year ( $t=0$ ) as a year when the economy is at its estimated potential level. However, this approach, even if the practical difficulties are not taken into account, has substantial risks that changes in fiscal stance in any particular year may be neglected or skewed by changes in following years. These risks are particularly common for the countries with transition economies, where the reform is an ongoing process. Therefore, a very popular version of the “moving” base period, implying that any data sequence of period  $t$  are used as base for estimating the fiscal impulse in period  $t+1$ , has been applied in this paper.

Finally, the fiscal impulse is calculated as follows:

$$\left. \begin{aligned} B &= (t_0 Y - g_0 Y^p) - FS \\ B &= T - G \end{aligned} \right\} \Rightarrow FS = -(T - G) + (t_0 Y - g_0 Y^p),$$

$$FI = \Delta FS$$

where

$FI$  – measure of fiscal impulse;

$FS$  – measure of fiscal stance;

$B$  – budget balance;

$t_0 = T_0 / Y_0$ , the ratio of revenue of the base period to GDP in the base period;

$g_0 = G_0 / Y_0$ , the ratio of expenditure of the base period to GDP in the base period;

$T$  – government revenue;

$G$  – government expenditure;

$Y$  – nominal actual GDP;

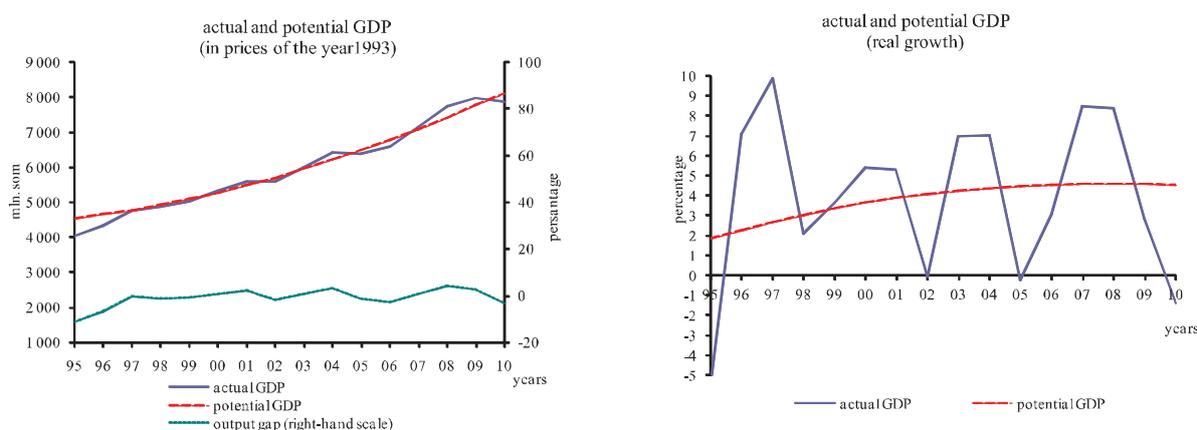
$Y^p$  – nominal potential GDP.

#### 1.4. Estimates of Fiscal Impulse for Kyrgyzstan

Estimates of the potential output from 1995 to 2010 (Figure 1.1) indicate that actual GDP as a whole has been growing faster than the potential one. Average real growth rate of actual GDP for this period is 4.0 percent, while that of potential GDP is 3.8 percent (in 2006-2010 potential GDP grew by 4.6 percent annually<sup>2</sup>).

Potential GDP growth was above actual GDP growth rates in 1995, 1998, 2002, 2005-2006 and 2010 which is largely understandable if we recall the defining factors in the economy during these years. For example, impact of the Russian crisis of 1998, a failure at the “Kumtor” Gold Mine in 2002 and political instability in the country in 2005-2006 and 2010.

**Figure 1.1. Potential GDP Estimates for Kyrgyzstan**



The calculation results, first of all, allow assuming of inflationary pressure in the economy, since actual GDP is growing faster than the potential one. Moreover, estimated potential growth rate of 3.8 percent is regarded as being quite low and is indicating a need for further structural reforms in the economy.

**Table 1.1. Measure of Fiscal Impulse for Kyrgyzstan**

	2002	2003	2004	2005	2006	2007	2008	2009	2010
	<i>(bln som, if not indicated)</i>								
Real GDP growth, percent	0.0	7.0	7.0	-0.2	3.1	8.5	8.4	2.9	-1.4
Real potential GDP growth, percent	4.1	4.3	4.4	4.5	4.6	4.6	4.6	4.6	4.6
Actual GDP, nominal	75.4	83.9	94.4	100.9	113.8	141.9	188.0	201.2	212.2
Potential GDP, nominal	76.8	83.3	91.4	102.4	117.1	140.7	180.0	195.8	218.8
Actual balance of the state budget	-3.8	-3.8	-4.2	-4.1	-3.8	-2.3	-0.1	-2.9	-10.8
Actual balance of the consolidated budget	-3.7	-3.6	-4.1	-3.7	-3.3	-1.0	1.6	-2.7	-13.1
Adjusted balance of the consolidated budget	-16.3	-14.8	-15.4	-14.2	-13.3	-13.8	-11.8	-24.4	-35.7
	<i>(percent to GDP)</i>								
Actual balance of the state budget	-5.0	-4.5	-4.5	-4.1	-3.3	-1.6	0.0	-1.4	-5.1
Actual balance of the consolidated budget	-4.9	-4.3	-4.4	-3.7	-2.9	-0.7	0.8	-1.3	-6.2
Adjusted balance of the consolidated budget	-21.6	-17.7	-16.3	-14.1	-11.7	-9.7	-6.3	-12.1	-16.8
Cyclically neutral budget balance		-21.3	-16.4	-16.8	-15.2	-11.4	-8.1	-5.4	-13.3
Fiscal stance		-3.7	-0.1	-2.7	-3.5	-1.7	-1.8	6.7	3.5
<b>Fiscal impulse</b>			<b>3.5</b>	<b>-2.6</b>	<b>-0.8</b>	<b>1.8</b>	<b>-0.1</b>	<b>8.5</b>	<b>-3.2</b>

Source: NSC, MoF data and author's calculations

<sup>2</sup> Reference: Adapted from the seminar “The use of models and macroeconomic tools, financial programming and public debt management”, held in Bishkek on June 3-5, 2010; potential GDP in Kyrgyzstan, calculated by the method for constructing of production functions, constituted approximately 4.5 per cent.

Finally, Table 1.1 shows the results of the calculation of fiscal impulse indicator in the economy of Kyrgyzstan. We used the following initial values:

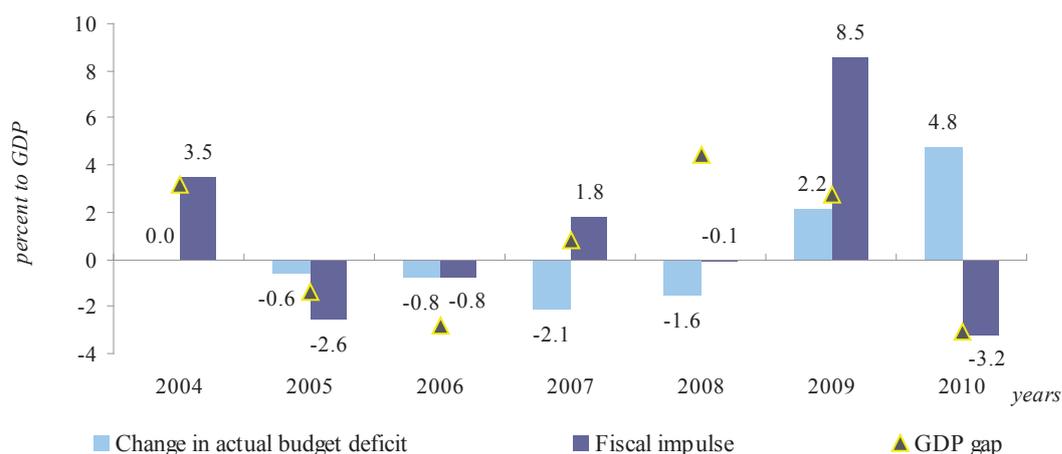
- actual and potential GDP;
- adjusted government expenditure (including quasi-fiscal deficit in the electricity and Social Fund expenditure, and excluding expenditure on interest payments on the external debt and membership fees to the international organizations, funding diplomatic agencies, representative offices and travel expenses);
- adjusted government revenue (including Social Fund revenue, and excluding foreign grants, revenue from Ganci Air Base).

### 1.5. Conclusions

Presented results indicate that up to 2008 budget deficit had been gradually decreasing, but later in 2009-2010 it sharply increased. Herewith, estimates of fiscal impulse indicator show rather different dynamics of ongoing fiscal policy and its impact on aggregate demand.

Fiscal impulse for 2004-2010 estimated at 7.2 percent to GDP (1.9 percent for 2004-2008), implying expansionary fiscal policy in this period and, thus, promoting growth of aggregate demand. The dynamics of the fiscal impulse and GDP gap has also shown a pronounced pro-cyclical fiscal policy.

**Figure 1.2. Dynamics of Fiscal Impulse, Budget Deficit Changes<sup>3</sup> and GDP Gap**



More detailed examine of results shows that after a significant positive impulse in 2004, next year the economy experienced an even greater tightening of fiscal policy than the change in the nominal deficit of the consolidated budget demonstrated.

In 2007 and 2009, fiscal policy is characterized by a significant positive impulse, therefore, exerting positive effects on the growth of aggregate demand and creating higher inflationary background in the economy. Taking into account the lag effect, these results allow assuming that the contribution in the inflation acceleration being observed since 2007 was also made by fiscal policy (besides other factors). Such a significant fiscal impulse in 2009 was largely because the required financing of budget expenditure (including major investment projects in hydropower facilities) met with significant limitations on the part of tax revenue. Reduction in tax revenue during that period was due to a general slowdown in business activity in the country, the decline in import and changes within a new Tax Code (reduction in VAT and sales tax rates, introduction of a temporary moratorium on property

<sup>3</sup> To compare data on budget deficit and fiscal impulse the difference of the budget deficit level has been considered. Therefore the negative sign means reduction of the deficit.

taxes, etc.). These losses of the state budget were largely covered by foreign grants, including that from the Russian Federation. Therefore, they did not strongly affect the value of the nominal budget deficit. However, when estimating the fiscal impulse, i.e. the actual direction of influence of government fiscal policy on aggregate demand, that grant revenue was excluded.

The year 2010 was characterized by a number of measures, primarily aimed at supporting affected entrepreneurs and reconstructing some damaged cities. As a result of these measures, at year-end, government expenditure significantly increased and against the background of slowing tax revenue resulted in the growth of the nominal budget deficit. However, the obtained value of the fiscal impulse shows the tightening of fiscal policy against the previous year, which can be explained by a high level impulse of the base period and, in general, continued compliance of conducted fiscal policy with economic cycles.

However, as has been noted earlier, the indicator of fiscal impulse determines the direction of changes in the fiscal stance rather than the value of impact on the economy, that requires additional study on the fiscal multiplier using a general macroeconomic model.

## **II. Estimates of Marginal Excess Burden of Taxation for Kyrgyzstan**

### **2.1. Theoretical Review**

Besides a direct sum of the tax paid by a taxpayer to the Government (state administration bodies), taxation, as is known, is associated with many other costs, such as:

- 1) direct expenditure for tax collection that is the operating costs of public authorities for tax collection (wages, premises, etc.) and enforcement of tax laws;
- 2) direct costs of taxpayers for implementation of tax regulations (tax accounting, accountants wages, etc.);
- 3) indirect costs due to the impact of taxation on the efficiency of resource allocation, known in economic literature as a deadweight loss or excess burden of taxation (excess tax burden).

In this paper estimation of indirect costs of taxation, i.e. of excess burden of taxation, is presented.

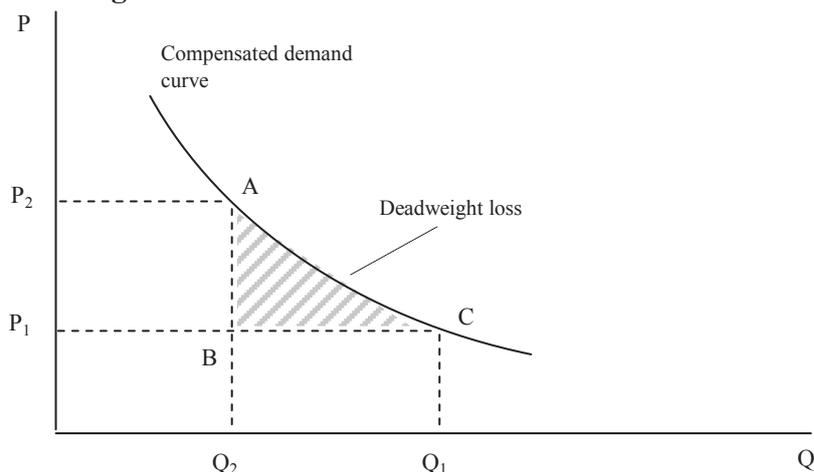
Diamond and McFadden (1974), based on the work of Hicks (1941), have begun to use the concept of Additional Compensating Income (ACI) in order to quantify the deadweight loss. ACI is a dummy variable interpreted as a certain additional amount to be added to the income of an individual as compensation for the rise in prices for goods as a result of the tax imposition. In other words, it is assumed that a consumer is given an extra income for his welfare level after-tax to remain unchanged. The value of ACI can be statistically calculated. Thus, it becomes possible to estimate the excess burden of taxation deducting the amount of tax revenue from ACI.

A graphical explanation is presented below (Figure 2.1.) for illustration purposes.

Let us assume that the price of commodity X is equal to  $P_1$ . When introducing the tax, the price has risen to  $P_2$  (where  $P_2 = P_1 + \text{tax } t$ ). As the price grows, number of consumed amount of the commodity X is decreasing. The area of the figure  $P_2ACP_1$  reflects the changes in consumption amount after tax payment in case of price increase (Figure 2.1.). Within this figure, the area of  $P_2ABP_1$  represents tax revenue of the state budget (tax  $t$ , multiplied by consumption of  $Q_2$ ). Thus, the area of the figure ABC, which is the difference between the figures  $P_2ACP_1$  and  $P_2ABP_1$ , is a deadweight loss or excess burden of taxation, which arises solely due to imposition of a tax.

The excess burden of taxation represents a loss of social welfare caused by the tax influence, and reflects inefficiency of a tax or a tax system.

**Figure 2.1. Excess Burden of Taxation**



As pointed out by J. Stiglitz (1997), the triangle ABC is sometimes called a Harberger triangle in honor of an economist A. Harberger, who used these triangles not only to measure inefficiency due to the distorting effect of taxation, but other types of inefficiency as well, such as those related to monopoly or to cost-benefit analysis of public investment projects.

Thereafter, more attention was focused in the literature (Stuart, 1984; Ballard, Shoven, Walley, 1985) on Marginal Excess Burden (MEB), that is, net loss per each additional unit of tax revenues, defined as the ratio of excess burden to the growth of tax revenue.

Using this approach, Movshovich et al. (1999) study the relative value change in excess burden of taxation rather than its absolute value (which requires the use of a large number of assumptions about the behavior of economic agents). Based on the theory of the general economic equilibrium, these authors have developed a simple aggregated equilibrium model with taxes which allows obtaining final formulas that calculate MEB with observed economic indicators and characteristics of consumers' preferences. Henceforth, using this model, Chernogorsky (2002) estimated the value of MEB for Russia and some EU countries in 1997-2000.

**Table 2.1. MEB Indicator for Some EU Countries and Russia**

	1997	1998	1999	2000	Average
France	0.36	0.34	0.32	0.26	0.32
Germany	0.15	0.16	0.15	0.15	0.15
Great Britain	0.23	0.23	0.22	0.21	0.22
Italy	0.42	0.36	0.32	0.28	0.34
Russia	0.25	0.23	0.25	0.33	0.27
Sweden	0.60	0.55	0.49	0.41	0.51

Source: Chernogorsky S.A., 2002

Practically, these MEB indicators mean that, for example, in Russia in order to get 1 ruble of taxes, the optimal allocation of resources is distorted to such an extent that the society as a whole spent 1.33 rubles in 2000 or an average of 1.27 rubles for the period from 1997 to 2000.

## 2.2. Calculation of Marginal Excess Burden of Taxation for Kyrgyzstan

The value of marginal excess burden of taxation will be further calculated for the economy of Kyrgyzstan using the calculation methodology given in the above-indicated

studies. It should be noted that the detailed description of the model and transformation of formulas are given in indicated studies, thus, we will not do it in this paper.

Table 2.2 shows the initial statistical data about the state of the economy of Kyrgyzstan in 2003-2009: data on household spending, their savings, transfers and income from property, as well as the data on tax revenue of the Government control sector (that is, the state budget is consolidated with the budget of the Social Fund).

**Table 2.2. Selected Indicators of the Kyrgyz Economy**

		2003	2004	2005	2006	2007	2008	2009
Economically active population	<i>mln people</i>	2.14	2.18	2.26	2.29	2.34	2.38	2.42
Unemployed	<i>mln people</i>	0.21	0.19	0.18	0.19	0.19	0.20	0.20
Household spending on consumption $C_0$ + savings S - transfers n - property income e	<i>bln som</i>	53.21	53.13	56.94	68.85	80.69	101.08	105.43
Tax revenue T	<i>bln som</i>	15.74	18.33	21.34	25.57	33.68	44.98	46.90

Source: NSC, MoF

Herewith, based on these statistics the interim indicators are calculated (Table 2.3). Let us explain some of the indicators. Let L denote the time and  $L_0$  - time for work and leisure (excluding sleep time). Parameter h, according to obtained formulas, is the average of

the values that satisfy the equation  $\frac{\omega}{C} = \frac{h}{L_0 - L}$  for different time periods. The value of the tax

parameter  $\theta$  is calculated by the equation  $\theta = \frac{T}{C_0 + S - n - e}$ .

**Table 2.3. Interim Estimated Indicators**

		2003	2004	2005	2006	2007	2008	2009
Work time L (line 1- line 2 in Table 2)	<i>mln people/year</i>	1.93	1.99	2.08	2.10	2.15	2.18	2.22
Tax collection T	<i>bln som</i>	15.74	18.33	21.34	25.57	33.68	44.98	46.90
Net real wages of households $\omega L = C_0 + S - n - e$	<i>bln som</i>	53.21	53.13	56.94	68.85	80.69	101.08	105.43
Net real wage per unit of time $\omega = (C_0 + S - n - e) / L$	<i>bln som</i>	27.56	26.68	27.41	32.85	37.49	46.28	47.57
Tax parameter $\theta$		0.30	0.35	0.37	0.37	0.42	0.44	0.44
$L_0$ average		3.11	3.11	3.11	3.11	3.11	3.11	3.11
h		0.49	0.42	0.35	0.30	0.26	0.25	0.25
h average		0.33						

Source: NSC, MoF data and author's calculations

Finally, Table 2.4 shows the values of  $\frac{\theta \omega r}{L}$  and  $MEB$ , which are interrelated as

follows:  $\frac{\theta \omega r}{L} = -T \frac{L_0 - L}{L(1+h)(C_0 + S - n - e)}$ , and  $MEB = \left(1 + \frac{\theta \omega r}{L}\right)^{-1} - 1$

**Table 2.4. Value of MEB in the Kyrgyz Economy**

		2003	2004	2005	2006	2007	2008	2009
$\theta \omega r / L$		-0.12	-0.14	-0.14	-0.14	-0.15	-0.15	-0.14
MEB	<i>som per 1 som of taxes</i>	0.16	0.17	0.16	0.16	0.16	0.16	0.16

Source: author's calculations

### **2.3. Conclusions and Some Recommendations**

The obtained values of marginal excess burden of taxation in Kyrgyzstan show that every 1 som collected as a tax distorts the optimal allocation of resources in such a way that total public costs equal to 1.16 som on an average.

It is noteworthy that the tax reform of 2006 (when profit tax rate was reduced from 20% to 10%, and income tax rate was established at the flat rate of 10%), according to the calculations, resulted in no decrease of MEB. The new Tax Code introduced in 2009 had also no effect on the value of MEB as estimated for the first year being in force.

On the one hand, these results indicate a relatively low excess burden of taxation in the Kyrgyz economy (compared with some other countries) and, therefore, under existing conditions, it is pointless to conduct the tax reform by changing tax rates only, since it adversely affects the performance of the state budget. Therefore, it is the tax administration that is of much greater importance for improvement of the fiscal system in our country. And the major direction in the ongoing reform should be focused on the transition to easily administered forms of taxation.

On the other hand, the current tax system in Kyrgyzstan still generates excess burden. Considering the level of welfare of the Kyrgyz population, even relatively low loss from taxation, in our opinion, should be minimized as well. It is reasonable to use in a greater degree such categories of taxes that do not affect the efficiency of business units. In practice, this type of tax includes tax patents, tax contracts, land tax, property tax, namely all kinds of lump-sum taxes, i.e. tax that does not depend on the behavior of the entity. As stated in the IMF Tax policy handbook (1995), “a tax, except in the form of a lump-sum levy, reduces the consumer’s welfare ... The efficiency loss of a tax refers to the excess of the reduction in the consumer’s welfare above and beyond that which can be accounted for by income loss due to payment of the tax ... A lump-sum tax, which by definition does not distort relative prices, cannot have any excess burden ...”.

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**THE RESULTS OF THE SURVEY OF CROSS-BORDER TRADE AND RE-EXPORT OF GOODS NOT COVERED BY OFFICIAL STATISTICS<sup>1</sup>**

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*This work presents the main findings of the results from the survey of border trade and re-export of goods held in August-September 2009 and March-June 2010 at the customs posts and markets of the Kyrgyz Republic.*

**Keywords:** *survey, export, import, commodity turnover.*

### **INTRODUCTION**

In recent years, the amount of imports, exports and re-exports of goods<sup>3</sup> in the Kyrgyz Republic (KR) unaccounted by official statistics has acquired critical nature, which causes distortion of the macroeconomic statistics and complicates the process of making adequate economic policy decisions. The transformation of Kyrgyzstan into a transit trading center in the region, mainly between China, on the one hand, and other Central Asian states and Russia, on the other side, is a recognized fact. To illustrate this phenomenon, it is enough to bring an example of a 10-fold gap in the mirrored data on import of goods from China to Kyrgyzstan in 2007 (official statistics of the KR shows 356 million U.S. dollars, while Chinese authorities have recorded 3.67 billion U.S. dollars).

As one of the options for solving the aforementioned problem was the need to conduct a survey of cross-border trade and markets of regional significance within a joint project of the NBKR and the World Bank “A Survey of Cross-Border Trade and Re-Export of Goods Not Covered by Official Statistics”.

The survey was financed jointly by the National Bank, the World Bank and the Swiss Cooperation Office in the Kyrgyz Republic. Field studies were conducted in two stages (in August-September 2009 and March-June 2010) by the SocEkonomik Center for Social and Economic Research Public Association (hereinafter - the “SocEkonomik”). A consolidated report was prepared based on the results of the survey by the SocEkonomik and comments of the National Bank.

### **The main findings of the survey**

The initial assumptions on the existence of unaccounted exports and imports has been confirmed in the course of observations on the territories of border areas and in the markets covered in the course of the two stages of the survey. The results of the observations showed

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<sup>1</sup> In preparing of this work the authors relied on the support and understanding of colleagues, and they are pleased to express gratitude for their assistance. They would like to express separate gratitude to Deputy Chairman of the NBKR Abdybaly tegin Suerkul, Head of the Department of Statistics and Financial Review (UFSO) Gulzina Isakova. For assistance in conducting the survey we would like to thank World Bank Office in the Kyrgyz Republic, in particular, to Damir Esenaliyev, and the Swiss Cooperation Office in the Kyrgyz Republic, in particular, to Damir Bisembin and Akyl Masydykov.

<sup>2</sup> This work was carried out in co-operation with the SosEkonomik Company.

<sup>3</sup> Exports are operations related to the sale of domestic goods; re-exports are operations associated with the sale of foreign goods previously imported to the KR.

that the bulk of the unaccounted foreign trade accounts for consumer goods, fruits and vegetables, live animals, cattle meat.

It was found that the surveyed goods are unofficially imported to Kyrgyzstan from China and Uzbekistan, and then consumer goods are exported to third countries. With regard to the market of live cattle and meat it can also be noted that there are well-organized illegal exports through the border zone with Kazakhstan.

Comparative analysis of the results of the two phases of the survey, covering the 3<sup>rd</sup> quarter of 2009 and the 2<sup>nd</sup> quarter of 2010 shows the following situation.

The survey of the consumer goods market showed that in 2009, goods were imported in smaller quantities than in the pre-crisis years. This situation occurred primarily due to the global financial crisis, and especially because due to the crisis in Kazakhstan, as it is Kazakhstan which is a major buyer of consumer goods from Kyrgyzstan. The reduction in the volume of Chinese imports in 2009 was also caused by the unstable situation in China, which arose in the course of inter-ethnic clashes in Urumqi in June 2009. In 2010, the flow of Chinese imports gradually increased as compared to the year 2009, as evidenced by the official statistics of foreign trade<sup>4</sup>. According to statements made by entrepreneurs there is a tendency to recover from the crisis, however, the flow of goods is still at a lower level compared to pre-crisis volumes.

If we consider the supply of consumer goods from China to Kyrgyzstan by transit through Kazakhstan and the Torugart and Erkishtam customs offices, according to the survey, the volume of supply in 2010 increased compared to 2009. It has been estimated that in 2009 goods totaling **4,795.0 thousand USD** were imported from China *daily*, and in 2010 the *daily* volume of imports increased to **5,170.0 thousand USD, or by 8 percent**, which is almost the same as the trends of official foreign trade statistics. The *annual*<sup>5</sup> import volume by the minimum estimates amounted to **1,208.34 million USD** in 2009, and **1,302.84 million USD** in 2010.

However, it should be noted that the imports have increased, primarily, due to deliveries of goods to the Dordoi market by transit through Kazakhstan and Torugart customs post. The supply to Kara-Suu market in turn has decreased in terms of value.

In 2009, an average of about 40 cars drove into the Kara-Suu market through the Erkishtam customs post; in 2010, the number of cars has not changed, but the amount of goods in one car reduced. Thus, in 2009, entrepreneurs brought goods in the minimum amount of 50,000 USD in one car to the Kara-Suu market, and in 2010, they started bringing much less in one car, an average of 35,000 USD. Studies have shown that the relevance of the Kara-Suu market as a center of re-exports to Uzbekistan's border regions declines from year to year. Every year fewer and fewer entrepreneurs are coming from Uzbekistan to the Kara-Suu market for goods trying to establish their own direct delivery of goods from China. Studies in 2010 confirmed this trend. If in 2009, Uzbek businessmen exported **2,875.0 thousand USD** of goods *daily* from the Karasuu market, then in 2010, they began to import goods in a smaller amount, **2,280.0 thousand USD a day**.

If we talk about the situation on the Dordoi market, two stages of the survey showed that this hub has not lost its positions as the center of re-exports to third countries, first of all, to Kazakhstan. As it was already noted earlier, volumes of the goods imported and exported from the Dordoi market increased. If during the first stage of the survey in 2009, it was revealed that **7,512.0 thousand USD** of goods were exported per day, in 2010 the survey showed that the goods were bought in the amount of **9,112.0 thousand USD per day, or by 21 percent more**.

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<sup>4</sup> The volume of imports in the 1<sup>st</sup> half of 2010 increased by 9 percent compared to the same period of 2009. Source: <http://www.customs.gov.kg/>

<sup>5</sup> Border posts along the border with China work 5 days a week, i.e. an average of 21 days per month.

According to the specification, additional objects of observation were covered during the second phase of the survey: markets of fruits and vegetables and markets of live cattle and meat. At this stage, the new technique of calculations was used which allowed to define approximate volumes of goods exported from the Dyikan market. As a whole, both surveys showed that the Dyikan market is a well organized market which is focused both on the local markets, and on the markets of Kazakhstan. The market is filled with fruits and vegetables all year round. Trade is conducted in different goods, depending on seasonality: if the first phase of the study revealed that a significant proportion accounts for melons, the second phase was dominated by fruits and vegetables, which are characteristic of this seasonal period, such as tomatoes, cucumbers, potatoes, onions, carrots, peaches, apricots.

In 2010, the survey estimated that *each day* **235.96<sup>6</sup> thousand USD** (or **86,103.5 thousand USD per year<sup>7</sup>**) of fruits and vegetables is exported from the Dyikan market to the domestic markets, primarily to the north of Kyrgyzstan and to Kazakhstan.

During the second phase of the survey it was found that in Bishkek, not only the Dyikan market is a supplier of fruits and vegetables, but also the so-called “dog market,” which is located next to the Osh market. **1,676.3 thousand USD** of apples is annually exported to Uzbekistan from the “dog market”. In addition, during the studies in southern Kyrgyzstan it was found that potatoes are exported to Uzbekistan from Nookat and Alay districts of Osh region, as well as Issyk-Kul potatoes are supplied through Aksy, Alabuka, Nooken districts. At the time of the survey, **2,959.5 thousand USD** of potatoes was exported annually.

In the second phase of survey it was necessary to track the volume of live cattle and meat exported to Kazakhstan and Uzbekistan. Conducted observations revealed that the market of smuggling of live animals and meat is well-established and sending schemes work without interruption, regardless of the periods of natural disasters.

It should be noted that cattle only is exported. The survey found out that according to conservative estimates, **22,273.0 thousand USD** of cattle is exported from Kyrgyzstan to neighboring Kazakhstan each year. As for the market of meat, it is supplied not only to Kazakhstan but also to Uzbekistan. Studies have found that **102,957.6 thousand USD** of meat is exported from Kyrgyzstan on average per year.

## **CONCLUSION**

The survey estimated that imports from China in 2009 amounted to 1,907.6 million USD, while in official statistics Chinese imports were recorded in the amount of 623.6 million USD (3.0 times less than the survey data). The survey estimated that the volume of imports from China for 9 months of 2010 amounted to 977.1 million USD, and according to official figures this indicator amounted to 416.3 million USD (2.3 times less than the survey data).

It was also revealed that about 60 percent of imported Chinese goods are re-exported later to the bordering countries and Russia. The remaining 40 percent are consumed by the population of the KR, or are processed and exported to other countries (for example, Chinese fabrics used in workshops for clothing).

In the process of studying the markets for sale of livestock and meat it was found that a significant number of products is exported to the territory of neighboring states, particularly to Kazakhstan and Uzbekistan, bypassing the official registration at the border. Undoubtedly, this situation leads to considerable distortions in the official statistics. The survey data are higher than official statistics on livestock by 10-12 times, on the meat - a thousand times.

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<sup>6</sup> Here and below, for purposes of calculation, the official rate of USD is used to a Kyrgyz som determined by the National Bank as of January 1, 2010 = 44.0917 KGS.

<sup>7</sup> 1 year = 365 days.

## THE APPLICABILITY OF THE COBB-DOUGLAS STANDARD PRODUCTION FUNCTION IN THE KYRGYZ ECONOMY

Azat Aibekovich Kozubekov

*This paper describes an approach to the analysis of economic development in Kyrgyzstan, which is based on the Cobb-Douglas production function. The article discloses the nature of the functional relationship between production factors (labor and capital) and the volume of production in the economy of Kyrgyzstan. In addition, the “factor” structure of economic growth in the country is disclosed. This approach can be used for different purposes of analysis of the real sector, and the findings can be used in the development of strategic documents.*

**Key words:** *Cobb-Douglas production function, the gross domestic product (GDP), labor, capital (fixed assets), labor productivity, factor structure, the least square method (LS method).*

### INTRODUCTION

The theory of production functions is usually referred to 1928 when American scientists P. Douglas, the economist, and Charles Cobb, the mathematician, developed the article on “The Theory of Production”. In this article, they attempted to empirically determine the impact of investment capital and labor on the production volume in the U.S. manufacturing industry.

In our case, we will reveal the nature of the functional relationship between the factors of production (labor and property capital) and the volume of production in the Kyrgyz economy. In addition to identifying the obvious connection between the dynamics of factors of production and the volume of output (GDP), we are interested in the “*factor*” structure of economic growth in Kyrgyzstan, because often, the developers of strategic documents face a problem of how to maximize social welfare, given the standard resource constraints and the existing distortions in the economy. The calculation of the production function for the economy of Kyrgyzstan will reveal the nature of economic growth, point to major systemic problems and serve as an additional tool to develop an effective strategy for economic development of Kyrgyzstan. This work also evaluates the applicability of the standard formula of the production function on the basis of correlating the results with the economic realities of Kyrgyzstan.

#### 1. The key assumptions

It should be noted that during the preparatory work the most time was devoted to searching for the data comparable for the analysis, and poor statistics was a major problem during the work. The following data was used in order to calculate the production function:

- employed population between 1990 and 2010 (source - National Statistics Committee (NSC) of the KR);
- GDP from 1990 to 2010 at constant prices of 2000 (own calculations based on data from the NSC of the KR);
- investments in fixed assets from 1992 to 2010 at constant prices of 2000 (own calculations based on data from the NSC of the KR).

Given the shortcomings of statistics, in some cases, the following assumptions were used as the parameters for the analysis:

- from 1990 to 1992 the cost of fixed assets was taken as the doubled amount of GDP;
- the level of depreciation of fixed assets for the entire period was taken as 8.0 percent;

– from 1993 the cost of fixed assets has been calculated as *the residual value of fixed assets at the end of the year + investment in fixed assets*.

## **2. Evaluation of the Cobb-Douglas production function**

Thus, the constructed data sets, taking into account the assumptions, made it possible to estimate parameters of the Cobb-Douglas production function:

$$Y = AK^\alpha L^\beta, \text{ where}$$

Y – output;

A – index of aggregate productivity of factors of production;

K – the cost of fixed assets;

L – labor force;

$\alpha$  – elasticity of output to capital;

$\beta$  – elasticity of output to labor.

The elasticity of output to capital and labor is equal to  $\alpha$  and  $\beta$ , respectively. This means that the increase in cost of capital (K) by 1 percent will lead to an increase in output (Y) by  $\alpha$  percent, and 1 percent increase in costs of labor (L) will lead to an increase in the output by  $\beta$  percent. It is fair to assume that:

–  $\alpha$  and  $\beta$  are not negative values, since there is always a directly proportional relationship between costs of factors of production and output;

– if the sum of  $\alpha$  and  $\beta$  equals to one, it indicates a constant returns to scale of production scale (Y increases in the same proportion as the K and L);

– if the sum of  $\alpha$  and  $\beta$  exceeds one, then it is said that a function has an increasing returns to scale of production (this means that if K and L increase in some proportion, then Y grows in greater proportion);

– if the sum of  $\alpha$  and  $\beta$  is less than one, then we have a decreasing returns to scale of production (Y increases to a lesser proportion than the K and L).

It should be noted that there are some problems with the application of such a function, especially in cases where it is used for the economy as a whole. In particular, even in cases where in the production process there is a technological dependence between the output, industrial equipment and labor, such dependence does not necessarily exist when these factors are combined in the economy as a whole. Second, even if such dependence exists for the economy as a whole, there is no reason to believe that it will have a simple form.

## **3. Estimation of parameters**

In our case, we will assume that the relationship between factors of production and output in Kyrgyzstan's economy is described by the classical view of the Cobb-Douglas production function. In the construction of the production function, parameters A,  $\alpha$  and  $\beta$  can be estimated using linear regression analysis by the least squares method (LS method):

1. Cobb-Douglas production function is brought into a linear form by taking the logarithm:

$$\ln(Y) = \ln(A) + \alpha \ln(K) + \beta \ln(L)$$

2. By implementing the LS method in the Eviews 5.0. econometric package, we obtain the following estimates:

Dependent Variable: LOG (GDP)				
Method: Least Squares				
Date: 06/06/11 Time: 10:10				
Sample: 1990 2010				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(K)	0.586368	0.102078	5.744298	0.0000
LOG(L)	2.047380	0.117652	17.40203	0.0000
C	-11.19328	1.654412	-6.765718	0.0000
R-squared	0.944486	Mean dependent var	11.19514	
Adjusted R-squared	0.938318	S.D. dependent var	0.216140	
S.E. of regression	0.053680	Akaike info criterion	-2.879983	
Sum squared resid	0.051868	Schwarz criterion	-2.730766	
Log likelihood	33.23983	F-statistic	153.1222	
Durbin-Watson stat	1.112925	Prob(F-statistic)	0.000000	

3. Based on these estimates we can derive the production function, calculated in terms of economy of Kyrgyzstan:

$$\ln(Y) = -11.1938 + 0.58637\ln(K) + 2.04738\ln(L)$$

4. By exposing the resulting model, we obtain the classical representation of the Cobb-Douglas production function:

$$Y = 0,000014 * K^{0,58637} * L^{2,04738}$$

#### 4. Interpretation of results

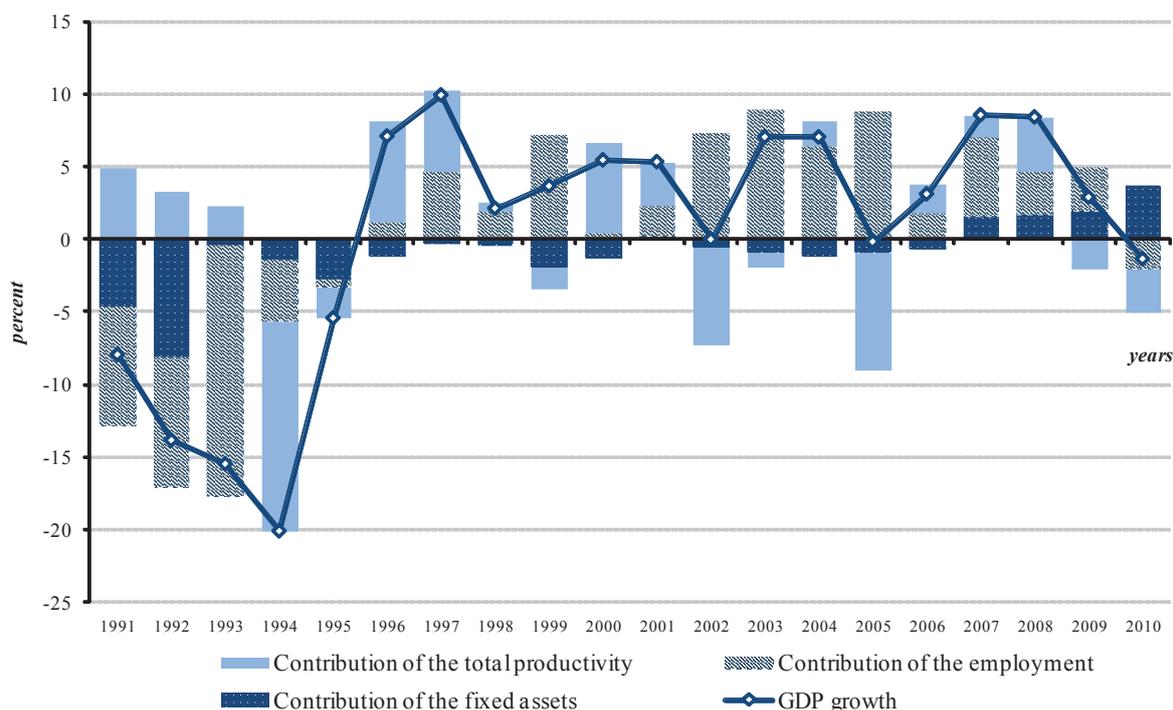
In the resulting model, there is increasing returns to scale, since the sum of  $\alpha$  and  $\beta$  is greater than 1 (equal to 2.6337). This means that if K and L increase/decrease in some proportion, then Y increases/decreases to a greater proportion. The high rate of elasticity of output to labor ( $\beta$ ) indicates a high level of involvement of labor in the production of Kyrgyzstan's GDP, in other words, the Kyrgyz economy is labor intensive with low rate of labor productivity ( $A = 0.000014$ ). The resulting estimates can be largely explained by the sectoral structure of the economy of Kyrgyzstan, where a significant proportion accounts for agriculture:

- the share of agriculture in GDP (in 2009) – 18.8 percent;
- the share of employment in agriculture (in 2009) – 34.2 percent.

In addition, based on the parameters of elasticity of production to capital and labor, we can calculate the “factor” structure of economic growth in Kyrgyzstan (Figure 1).

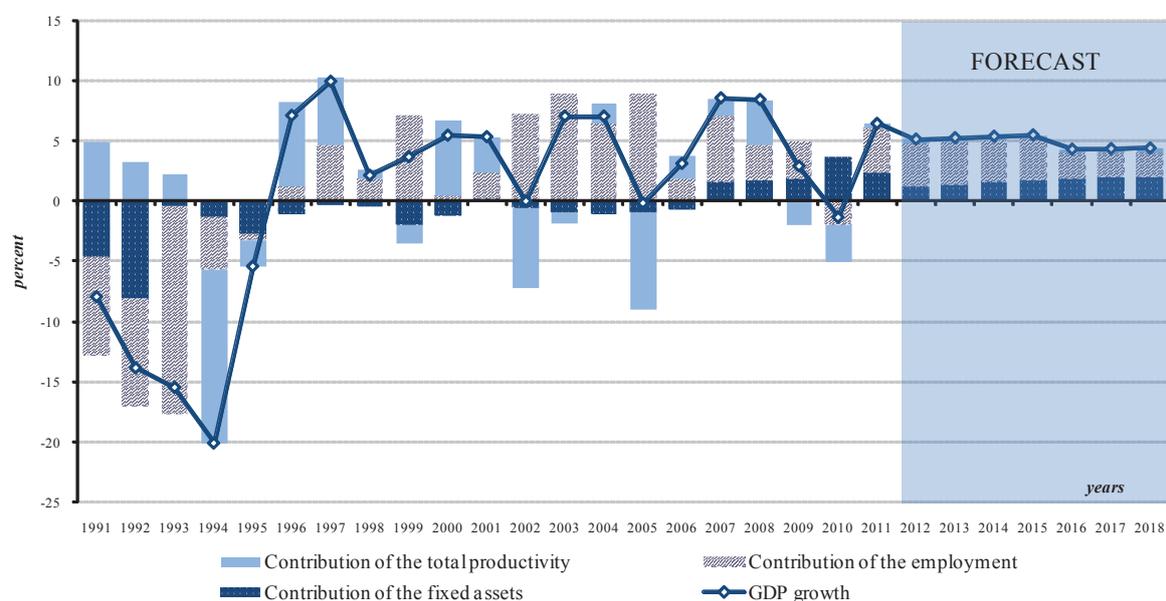
Figure 1 shows that most of the economic growth was due to the contribution of labor, and only in recent years (since 2007) there was positive contribution due to the rising cost of fixed assets (due to the implementation of major infrastructure projects: the construction of the Kambar-Ata-2 Hydroelectric Power Station, the construction and reconstruction of roads, etc.). At the same time the contribution of factor of labor productivity remains low, often negative.

**Figure 1. Factor structure of the GDP growth of Kyrgyzstan, percent**



The resulting model can be used to predict future values of GDP, based on expected levels of capital (K) and labor (L). What happens if the current situation does not change: the clearly obtained “factor” structure of GDP growth is shown in Figure 2:

**Figure 2. Forecast of factor structure of GDP<sup>1</sup> growth, percent**



The resulting forecast of factor structure of GDP growth is calculated based on assumptions of constant growth rate of labor productivity and maintaining current levels of investment in fixed assets. At the same time, the forecast includes the assumption of natural

<sup>1</sup> Forecast contribution of the labor force is calculated based on exogenous data of the Population Projections: Kyrgyz Republic (United Nations, 2008).

loss of able-bodied population, which will eventually lead to the stagnation of economic development.

Given the above, we can make a conclusion about the necessity of reforms to increase labor productivity. Stepwise development strategy of the country should include priority trends, and ultimately the strategic goal of reforms should be the development of science and capital-intensive industries of the economy of Kyrgyzstan.

### **CONCLUSION**

The model proposed in this article is adapted to conditions of Kyrgyzstan and is an additional tool of analysis. The model is based on fundamental economic indicators describing the development of the economy. It should be borne in mind that the model parameters were based on approximate (expert) estimates of the initial cost of fixed assets, the input parameters of new funds and the rate of disposal of fixed assets. As a result, the actual parameters of the model may differ materially from received estimates. The above results should also be treated with caution, for example, the standard function does not change the A coefficient. However, in Kyrgyzstan, total productivity of factors of production might change under the influence of transformational changes in the system of industrial relations. Thus, the proposed approach only demonstrates the applicability of the Cobb-Douglas production function in the Kyrgyz economy.

The described approach is planned to be completed in terms of:

- revision of the parameters of the econometric estimation of production functions;
- calculation of the production function for each industry separately and obtaining aggregated estimates of the production function for the economy as a whole;
- re-estimation of fixed assets cost parameters.

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## COMMUNICATION POLICY OF THE NATIONAL BANK OF THE KYRGYZ REPUBLIC AS THE MONETARY POLICY ELEMENT<sup>1</sup>

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Altynai Kanatbekovna Aidarova

*The given working paper represents the communication policy analysis of the National Bank of the Kyrgyz Republic. The working paper includes theoretical survey on the given subject, analysis of the current practice of the National Bank of the Kyrgyz Republic and the communication policy's review of central banks of other countries.*

**Key words:** *Kyrgyz Republic, National Bank, Communication Policy, Monetary Policy, Public Awareness, Transparency.*

### INTRODUCTION

Currently, besides traditional main production factors (land, labor, capital, entrepreneurial ability), the information is conceived as one of production factors. Not a single business process or a managerial decision taken by economic agents is done without this specific factor at the present time.

What does the information represent? There are many definitions of this term depending on the sphere of application. In our case for the economic system of relations the information will be considered something that:

- decreases ambiguity of the evolution of its condition through time;
- eliminates insufficient knowledge about objects and phenomena (it is identified with unawareness of a subject);
- decreases uncertainties due to information sharing.

The issue of timely and reliable information delivery becomes crucial with the development of the information economy. That is why the communication policy of central banks shall be considered as an integral component of the monetary policy being carried out (hereinafter referred to as MP), irrespective of whether it is a discretionary one or carried out by a certain rule. Information policy of a central bank can be an important element of MP that both sends signals to the market and creates foundations for trust building in the policy being carried out.

The growing number of literature and experience of leading central banks for the last decades have been proving the preference of a higher openness and transparency. In the meantime it is difficult to determine the optimal level of openness until now, as it is specific for each separate country and development level.

The information policy of the organization shall be just a policy; it shall not have a chaotic character. Elaboration and studying of information instruments, target audience, volume, quality and depth of the provided information are required for these purposes. Moreover, work performance on training of economic agents to adequate “acquirement” of the information is required.

A low level of financial skills and knowledge of economic agents is typical for the developing countries. In this connection the role of information policy of a country's central bank increases and covers not only the issues of the policy and strategy of MP, but the aspects of social responsibility as well. The National Bank KR, taking over the main elements of leading central banks (such as independence, openness, accountability) formally possesses

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<sup>1</sup> In preparing of this work the authors relied on the support and understanding of colleagues, and they are pleased to express gratitude for their assistance. They would like to express separate gratitude to Abdybaly tegin Suerkul, Seilbek Urustemov and Nasiba Imaralieva.

the main instruments of the communication policy. However, the given policy has a more formal character that is the evaluation, to what extent the information provided for the market is valuable for it, is not carried out. All of this requires evaluation and a deep analysis.

## **THEORETICAL SURVEY**

### **1.1. Why is the Communication Policy Important?**

There are two quite different opinions for the communication policy of a central bank. The first one supposes the full openness and transparency of the information, the other one – its more restricted delivery. The question – which of these policies for one or another bank is more optimal – remains open. However, the choice of the approach depends often on the character of a carried out monetary policy.

The first approach supposes conducting of monetary policy by a central bank by predetermined rules (policy rule). In this case the operational instrument of MP depends on the influence, for example, of actual macroeconomic variables (inflation, employment, economic growth), their deviations from milestones that is reflected in the rules of Taylor or McCallum.

The other strategy of the economic policy is so-called discretionary policy. The given approach is based on discretion of monetary authorities and the dynamics of policy instruments depends on their evaluation (including subjective one) of current and historically formed economic situation. The position of constructive ambiguity of a central bank (which has become outdated for the last time) was popular in this context.

During the first consideration it is obvious that macroeconomic variables are under the influence of subjective values and expectations of economic agents. A central bank (including with the help of communications) influencing them indirectly, can intensify influence of its policy on a large variety of macroeconomic variables. Thus, one pays even more attention to behavioral aspects and macroeconomic parameters, for example, inflation expectations of the agents in the theory of macroeconomics. So, M. Woodford (2001) shows that taking into consideration the model of optimal pricing of Calvo at the microlevel, the model of aggregate demand can be presented in the form of:

$$\pi_t = k(y_t - y_t^n) + \beta E_t \pi_{t+1},$$

where  $\pi_t$  - level of prices at the current time,  $y_t$  - actual GDP,  $y_t^n$  - equilibrium GDP,  $E_t \pi_{t+1}$  - expected inflation in the next moment of time, depending on the information in the moment of time available for the economic agents  $t$ ,  $k$  – variable ( $k > 0$ ),  $\beta$  – variable ( $0 < \beta < 1$ ).

The other example is the theory about term structure of interest rates<sup>2</sup>, according to which the long-term interest rates in the economy depend on subjective expected values of short-term interest rates in future that is formally this theory can be provided by A. Blinder (Blinder A., etc., 2008):

$$R_t = \alpha_n + (1/n)(r_t + r_{t+1}^e + r_{t+2}^e + \dots + r_{t+n-1}^e) + \varepsilon_t,$$

where  $R_t$  - long-term interest rate in the moment of time  $t$ ,  $r_t$  - current rate by short-term instruments,  $r_{t+n}^e$  - expectation of economic agents about interest rate in  $n$ -period on short-term instruments,  $\alpha_n$  - premium.

Economic agents simultaneously with the change of the monetary policy (and very often preceding it) correct subjective expectations about forthcoming dynamics of interest rates, inflation and economy as a whole. The monetary policy carried out without taking into consideration the component of expectation is incomplete and cannot evaluate its results integrally. Thus, establishing of milestones, which the market will trust in, and correction of

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<sup>2</sup> For example is disclosed in the research of Russel (1992), FRS of St. Louis.

expectations of the subjects through statements of forecasts of the main economy parameters, are two main spaces that shall be filled with true information from a central bank. The bright example is the fact that during the crisis the central banks began to widely cover in the mass media measures taken by them and evaluations of situation development.

There are some spheres of transparency of a central bank activity. The given classification of transparency types was reflected in the research of P. Geraats (2001).

*Political transparency* supposes transparency of a central bank in setting the aim of the activity, its quantitative milestones. In the policy of NBKR the official statement of milestones is fully present, however, the given milestones as the practice shows can be changed during the year under changing of the economic situation. The similar approach can result in such a negative effect as time inconsistency of the policy and will lead to higher levels of inflation in a long-term period.

One should distinguish a goal of a central bank from its occasionally stated forecasted values. Forecasts can significantly deviate from the milestone. Public awareness about forecasted level both of a milestone and other parameters, model and approach to the development of these forecasts are the element of the economic transparency. The majority of central banks are to a high degree transparent in this context: thus, models, economic data and final forecasts are disclosed.

*The procedure transparency* supposes the open provision with the information about discussion process by the monetary authorities of the monetary strategy issues by the results of which, as a rule, a press-release with a detailed description of a taken decision, reasons for taking this or that decision, vote returns indicating the names of voters and other is issued as soon as practicable.

The next stage is already a part of transparency of carried out measures. In this case the openness is achieved through *public awareness about expected measures and dynamics of any given instruments of MP*, by way of, for example, official statements about goals for the next period or about measures of MP.

*Operational transparency* occurs indirectly in the process of conducting of the monetary operations.

However, it is necessary to note that the whole communication policy has a meaning provided only that the economic agents are able to adequately absorb the information. That is the communication policy shall have a nature of not only statements but the effective communication with the economic agents and the public. Only provided that the information of a central bank is adequately adopted by the market, one can talk about the fact that the communications are the economic influence instrument and can influence the formation of population's expectations.

## **1.2. Advantages and Disadvantages of Approaches**

As it was mentioned above, the approaches to the communication policy can be divided into two types: the policy of more information disclosure and the policy of restricted information delivery.

The main argument to the advantage of the restricted information delivery is the idea that the policy of a central bank will be effective only if a bank can "surprise" the market by its decisions. The logic is that if the proposed measures of CB were not earlier expected by the market, it would be sufficient from CB to carry out interventions in smaller volume for achieving the required result than if CB would earlier declare about its entrance to the market. It means that the correction of expectations of the economic agents will not occur. The information about expected measures of MP can be used with the speculative purposes. The choice of the given strategy to a certain degree is convenient also for a central bank as well as there is a possibility to avoid responsibility when failing to achieve the goal. Transparency increase stipulates to the decrease of inflationary bias. (Blinder A., etc., 2008).

The given approach was popular until recently, however, so far as expanding of the access to the information and deepening economic knowledge of the economic agents, the information about the measures of a central bank in any case becomes known to the market. In this connection, any given solution of a central bank will not be to the full surprise for the agents. Besides, it is disputable enough that the given factor is a determining one in the efficiency of the monetary policy. M. Woodford (2001) conducts a detailed analysis by the given issue the results of which confirm a great adequacy of the transparency policy in the information-open economy.

For the last decade even greater number of central banks has changed the policy to the side of more transparency that, to a certain degree, tells in favor of the given approach. The decisive factor in favor of the given choice served that this policy allows forming adequate expectations of the market and, consequently, increasing effectiveness of MP. Expectations of the subjects can naturally correct economic trends and possibly it will even not require taking any measures of MP in future. Moreover, in compliance with the term theory of interest rates, the monetary policy can directly influence only on short-term interest rates, whereas the influence is very weak or equal to zero on long-term ones. Though just the last one from the point of view of the economic theory determined solutions of firms and households about savings, investments and consumption. At the same time according to this theory the long-term interest rates are determined by short-term rates not by their actual values but by the expectations about future dynamics of short-term rates that, in its turn, is formed by a central bank. Namely the expectations of economic subjects about forthcoming economic situation determine their actual behavior.

Additional advantage in favor of more openness is also the fact that a transparent policy strengthens the responsibility of central banks to the public and stipulates the creation of good reputation of a central bank. A positive reputation is developed slowly and it makes it to be similar to the capital. As it is indicated in the research of A. Cukierman (1992), the more a central bank focuses on provision of prices' stability rather than on increasing employment, the reputation of a bank as a "strong" one is developed faster. In this context a central bank shall position itself as an institute actively fighting with the inflation. "Surprises" of a central bank lead to loss of credibility and deterioration of its reputation. Herewith, it is not sufficient to state only about purposes of a monetary regulator, the recognition and credibility of the public to central bank's possibilities are required.

In the above indicated research paper the target function of the monetary policy regulator can be introduced by the function:

$$v(\pi, \pi^e) = A(\pi - \pi^e) - \frac{\pi^2}{2}, \quad A > 0$$

where  $\pi$  and  $\pi^e$  represent actual and expected inflation, accordingly. Instinctively, this function can be interpreted by the following way: upon availability in the economy of nominal stickiness during performance of the expansion policy it is easier for the regulator to achieve its aims, if the MP measures lead to a controlled but surprise inflation. The given factor is expressed in the first summand of the function that is in case of deviation of expectations of economic agents from actual inflation values.

The monetary policy can be conducted in two conditions: in conditions of absolute access and information possession and information asymmetry that more corresponds to actual situation. A. Cukierman determines a regulator attached to the achievement of earlier set goals as a "strong" politician. If a politician sees that the achievement of aims is reasonable only in a certain case and his actions are not connected with the made statements then the similar regulator is determined as a "weak" one.

The model shows that for both types of regulators a more optimal strategy is an official statement of the target inflation rate. While for a “strong” type of a politician in the conditions of the absolute access to the information it is more profitable to state and achieve a zero inflation rate whereas in the conditions of information asymmetry the given type of a regulator sets the objective to achieve a positive value of inflation but lower than it was stated in case of carrying out the discretionary policy. Statement and achievement of stated objectives form agents’ perception of these regulators as “strong” ones, increase credibility to the system that allows leveling negative expectations of the economic subjects and inflationary bias in long-term period.

The milestones of the monetary policy are given yearly in the National Bank of the Kyrgyz Republic. It is difficult to confirm or argue the influence of the given statement on formation of expectations in the economy. In the meantime the given policy provides transparency of the institute’s activity and succession of the monetary policy. In countries carrying out inflationary targeting the statement of milestones, forecasts and evaluations is an integral component of the given regime. The similar policy supposes conducting of the proactive monetary policy that is a central bank leads the market rather than the reverse that impose more responsibility on the activity of a monetary regulator but increases a degree of control over a system.

Adherence to securing of operational milestones of MP and expected measures is typical for undeveloped systems. In similar economies the role of central banks in forming the expectations increases as the governmental institutes possessing exclusive right of access to a wide range of information can form more correct evaluations and forecasts. In the systems where information asymmetry is minimal the ability of economic agents to studying increases that is economic agents in the course of time independently form their own expectations. That is why the policy of the limited information delivery is gradually eliminating.

### **1.3. Experience of Other Central Banks**

As it has been indicated above, central banks not always demonstrated that level of transparency we are observing now. However, even at the present moment a transparency of monetary regulators vary in different countries. Thus, the pioneers in this movement are central banks of New Zealand, Great Britain, Norway and Sweden. The European Central Bank from the moment of its creation in 1998 also demonstrates a high level of transparency.

For the US Federal Reserve System (FRS) (Blinder A., etc., 2008) a breaking point in the communication policy was February 1994, when the Committee on the operations in the open market began to announce decisions by the rate for federal funds. From January 1999 the FRS began to publish its evaluations of possible changes of the monetary policy eventually expanding the information format. Since 2002 immediately after the meeting the FRS began to make public nominally the voting of the Committee.

Rather advanced communication policy is being realized by the Riskbank (2008). Thus, the corresponding strategy is posted on the web-site of the bank. Various subdivisions are responsible for certain aspects of the communication policy. The strategy in general is determined by the direction of the bank, and the corresponding subdivision (Secretariat) is responsible for the tactical part of the information policy, for example, direct and inverse networking with the sources. Other structural subdivisions are responsible for the preparation of comprehensive part of the information within their functional obligations that are transferred then to the market in already determined format. The provided information for each type of receivers is given by the rules indicated in Table 1.

There is its own structure for each rule: aim, target group, levels of responsibility. By that the policy in general shall be built on for (1) the information was available and

understandable to any party involved; and (2) every target group (the public, Parliament, financial markets, mass media, economic institutes) was important and worthy of respect and attention and required a certain approach.

**Table 1. Information rules of the Riskbank**

No	Rules
1.	Rules of information for custom recipients
2.	Rules of information for mass media
3.	Rules of information for internal users
4.	Rules of information for external site
5.	Critical information

In general, one can note that the number of central banks choosing more transparency increases. The understanding of a great role of public awareness during carrying out of the monetary policy expands. Publications, formal addresses remain the main channels of the information release to the market.

#### **1.4. Publications of Central Banks**

The central banks implement communication with the public through a wide range of information instruments: public speaking of the direction, press-releases, information delivery at the Internet page of the bank, in radio- and TV programs, periodicals, reports and articles. Each of these instruments is meant first of all for a specific audience and for disclosing of a certain type of the information. As a consequence, different aspects of the monetary policy shall be covered at different levels with regard to the narrative style, specification of the information, used informational instruments. The aggregate of informational instruments ideally shall cover the whole audience of the country: beginning from households and ending professional players at the financial markets.

The main publications disclosing the reasons of a particular decision of monetary authorities are “The Inflation Report” or Report on the Monetary Policy. The main task of the given publications consists in explanation of the purposes, strategy of MP and taken decisions through provision of the corresponding information. A systematic approach in taking decisions is traced in these publications, analytical information and models (on the basis of which the forecast was made) is disclosed in details for the prepared specialist basing on this model and data could receive identical forecasts. The analysis of publications which was conducted across 19 countries (Fracasso et al., 2003) concluded that more qualitative and complete delivery of information in these publications stipulates to decrease of uncertainty at the market and increase credibility to the system. The National Bank of KR, beginning from 2002 has been publishing “The Inflation Report”, the main objective of which is public awareness about the purposes and results of the monetary policy. One may note that the publication of NBKR corresponds with the analogues in other countries with regard to the content, information volume, periodicity, etc. However, by some parameters there is still a space for improvement – expansion of reflection of modeling results, horizons of forecasting and to focus more on the ex ante analysis.

#### **INFORMATION POLICY IN THE NBKR**

According to the Law of the Kyrgyz Republic “On the National Bank of the Kyrgyz Republic” the objective of the National Bank of the Kyrgyz Republic is “to achieve and maintain stability of prices by means of implementing the appropriate monetary policy”. As in other countries where the information policy is the element of the national policy including within implementing MP, NBKR also pays attention to the given issue. Public awareness by the measures carried out is an integral part of the implemented monetary policy.

Coming back to the classification of transparency of central banks let us note that a high *political* transparency demonstrated in open establishment of milestones is typical for the National Bank of the Kyrgyz Republic. Thus, at the end of each year the National Bank officially announces the milestones of the monetary policy in its statements. Apart from the Statements of NBKR about monetary policy for the coming year the National Bank develops the Main Monetary Policy Guidelines where perspectives of economy development for the coming three-year horizon, besides the milestones, are also reflected.

Publicly determining the objectives of its activity the National Bank still restricts the *economic* transparency. Thus, very often the information about specification of models, their quality and prognosis evaluations remains closed. However, the given fact does not hinder building of alternative models and forecasts by other institutes or researchers. Free access to data bases published by the National Statistic Committee allows producing and publishing such calculations independently.

The *procedure* transparency is present in the communication policy of the National Bank, however, it is introduced not so widely as in practice of other central banks. The information about nature of forthcoming monetary policy is published in the corresponding press-releases of the NBKR. Nevertheless when comparing the content of press-releases of the NBKR with the analogues of other developed countries one may note that in the NBKR this information more concentrates on the evaluation of the current situation than on the covering of scenarios and forecasts of the development.

Also one of the methods to move closer to the target audience is publication of minutes of meeting of the Board of the NBKR. Disclosure of minutes of meeting will show a wide public including financial and bank one, firstly, that the decisions are taken by the professionals based on current external and internal situation and, secondly, symmetry or asymmetry to the actions of market agents.

*Transparency in relation to measures as operational transparency* is not so clearly presented in the policy of the National Bank. Thus, only some planned strategic and tactical decisions in the sphere of monetary policy are provided to the public. For example, commercial banks have an access only to aggregate planned volumes of NBKR notes' emission, but banks may not receive the more detailed information by other indicators of the MP instruments.

In general, the information policy implemented by the National Bank of the Kyrgyz Republic serves for creation of a wide range of views, opinions, knowledge and evaluations that will form expectations of the market participants and influence on their decisions and behavior, satisfy interest of different social groups and institutes by reproduced and spread information. For example, statements of the Administration, publications, activity of the "Social consultation room" and structural subdivision of the NBKR responsible for the communication with the public, External and Public Relations Division of the NBKR (hereinafter referred to as EPRD) partially satisfy these requirements. However, it is worth noting that the information policy is rather an element of MP than one of the indirect instruments that takes place in more developed economies.

The whole aggregate of information flows in NBKR is intended for several main groups: the public; President, Parliament, Government; financial market; mass media.

Realization of the information policy of NBKR is conducted through a wide range of information instruments: official publications of NBKR, web-site of the bank and other sources where the information of NBKR contains. In addition, during briefings and public speaking of the Administration of NBKR, TV airs and radio the journalists, concerned parties as well as the public are told about bank's activity at the given stage, clarifications are made by the matters arising, etc.

**Table 2. Modality of a targeted audience**

No.	Measures of information policy (IP)	Bank	
		NBKR*	Riskbank**
1.	Availability of <b>reasonable IP</b>	Partially	Available
2.	Objective of IP	Not known	Available
3.	Targeted group of IP	Available	Available
4.	Channels of IP	Available	Available
5.	Instruments of IP	Available	Available
6.	Dependence of targeted audience on spread information	Low	Available
7.	Dependence of non-residents on spread information	Low	Sufficient

\*According to evaluations of authors

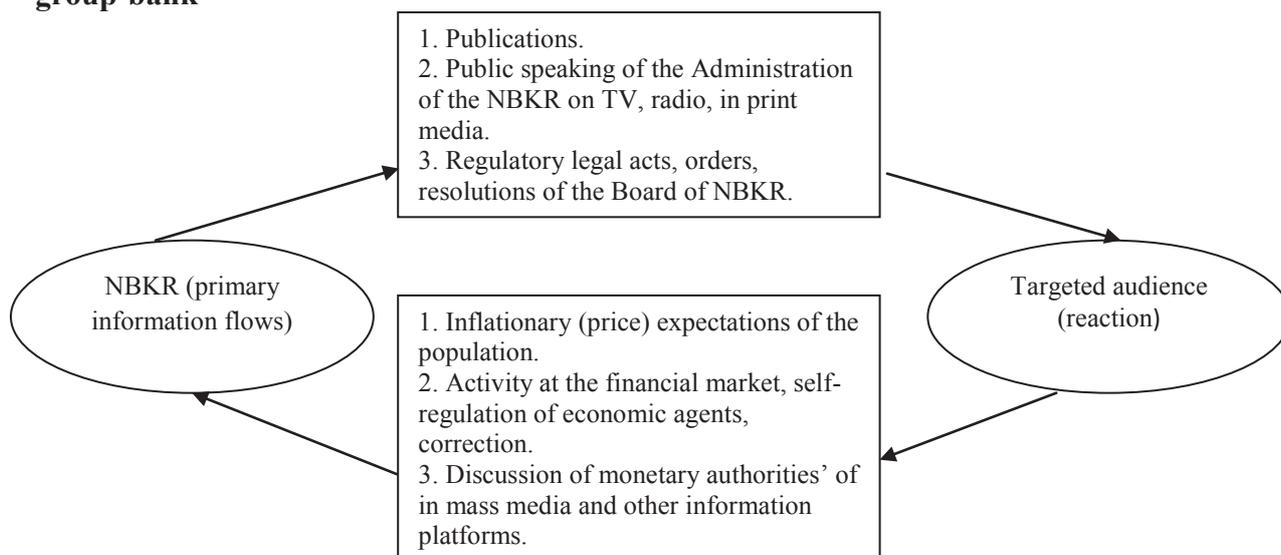
\*\*The Riksbank's rules for communication, May 7 2008

The communication policy development as a format of indirect instrument of the monetary policy supposes the creation of such system of information preparation that would include such categories as instruments, field, subjects and targeted objects. At first sight each of the indicated elements is present in the information policy of NBKR, however, it is still earlier to speak about new indirect instrument of MP. The reaction of economic subjects to the information has a key meaning in this process, that supposes availability of the appropriate knowledge and skills of interpretation of economic information, corresponding correction of agents' expectations. Actual practice of the NBKR consists in wide delivery of the information to the public. At the given stage one can mark only passive influence methods used by the NBKR. Availability of various influence methods on the targeted audience in the Riskbank and NBKR is visually demonstrated in the given table (Table 2). At the same time actual reaction of the market to the provided information both from the qualitative and quantitative sides remains uncertain. The given data, to our mind, are critical for carrying out adequate monetary policy. One can study the problem of the inverse relationship of the system "bank-target group-bank" only indirectly as the systematic approach to this issue was not developed and quantitative indicators characterizing this relation have not been worked out. Thus, studying the statements, opinions, actions of persons of each target group, for example, with regard to a goal of MP, regulation of the banking sector, etc. is possible.

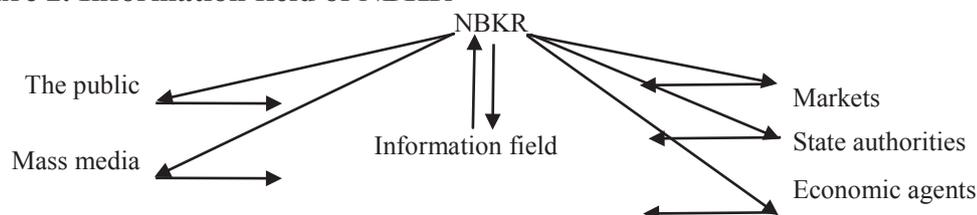
There is no an instrument or quantitative indicator that would expressly indicate to the dependence between the actions conducted by the bank and the reaction of the market and also serve the methodology of actions' evaluation by a targeted group. Nevertheless, to talk that a feedback is completely missing is wrong. We suggest the following kind of information movement in the system "bank-target group-bank" (Figure 1).

One can evaluate the effectiveness of the communication within the given system by means of direct questioning of target groups with the help of built quantitative system of evaluations for each target group: frequency of using the information, degree of availability of the information and depth of its penetration. The frequency of the transmitted information also plays a great role. Expectation of news, events by the agents creates lesser uncertainty and more predictability of the market. Thus, to our opinion, there is a sense to make a kind of "advertisement" of the meetings of the NBKR Board where actual issues will be solved for the market could learn correcting its expectations. The information field created by a bank attracts not only a targeted audience but information brokers as well (Figure 2).

**Figure 1. The scheme of the supposed information movement “bank-target group-bank”**



**Figure 2. Information field of NBKR**



Such broker, for example, can be a news agency “Akipress”, acting as an active electronic news source, covering the actions of the bank, reflecting a point of view of specialists and experts by the policy conducted by NBKR. It is proved by a conducted survey of direct references of NBKR in the Internet (Table 3).

News, articles, notes, where NBKR acted as a direct character were taken for consideration when reviewing the search results. In the majority of cases the content of news looks as a survey of a current situation and actions and bears a character of articles and notes. Analytical interpretation of NBKR actions in the majority of cases is not present. Lack of qualitative analytical and forecast information is explained partly by restricted presenting of the information of the original source and lack of the required skills of journalists writing on the economic themes.

**Table 3. A number of direct references of NBKR in news in the Google search network \***

No.	Resource	Number of references
1.	IA Akipress	8
2.	IA Kabar	3
3.	Newspaper Obshchestvenny reiting (Public Rating)	2
4.	IA 24.kg	2
5.	Union of Banks, BNC, IPP, Zpress, Parus.kg	1

\*browsing of the first 15 pages of search as of a research date

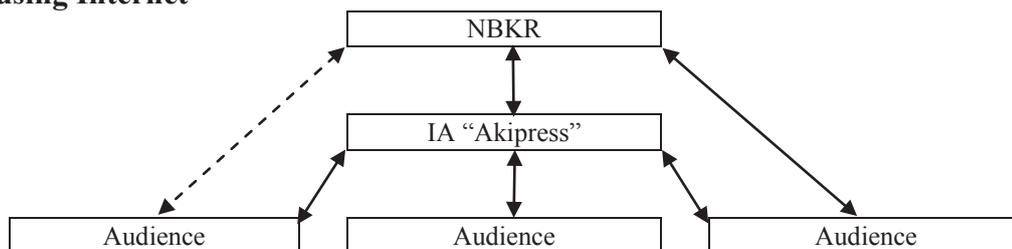
The Press-release of NBKR, containing the following data, was also considered as a source of the information:

- news about the activity of NBKR, financial institutions;

- statements of the Administration about MP, money circulation, about current situation in the sphere of macroeconomic and currency processes;
- projects of normative legal documents;
- information about interbank payments volume and indicators of the Elcart system.

During studying of news, articles, notes from the Internet-sources it was found that in many cases the original source of the information is IA Akipress or other information recourses make references to this agency. Thus, a system of access to the information of the following kind occurs (Figure 3).

**Figure 3. Availability (monopolization) of the information for a targeted audience using Internet**

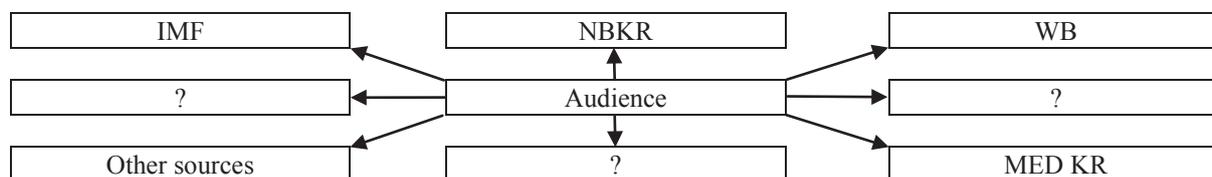


In addition in the information space belonged to the NBKR one can observe “competitors” (Ministries and representations of international financial institutions, etc.) announcing of one or another macroeconomic parameters. Thus, information vacuum formed due to lack of the information flow of the original source is filled.

In spite of the availability of the main information instruments in NBKR, their content-richness requires further elaboration. Thus, it is necessary to determine what kind of information is required for economic agents at the initial stage. And in this case the National Bank, as an original source of this information, shall maximally fill the available information space that is by any given events occurred at the market, the targeted audience shall, first of all, get into the information flow created by a bank (“beacons”). The second information flow shall include the information created by other creators of the information.

The “beacons” indicated above are the first circle of the information that is it will be easy to find it. The second circle will include “beacons” created by other creators of the information. However, at the present time there a vacuum in the system of “targeted audience – information” is observed, and the picture is as follows (Figure 4).

**Figure 4. Information “beacons” (filling of the vacuum)**



Availability degree of spread information characterizes to a greater degree the last figure, access to which for a targeted audience is restricted. For example, using one of the Russian techniques of calculation<sup>3</sup>, applied for identification of an average number of readers of printed products, one can calculate that under the circulation of 380 copies in three languages the potential reading audience of a quarterly issue “Inflation Report of the Kyrgyz Republic” is about 7,600 people. The question raises to what degree under the given calculations the objective of public awareness is achieved. However, in order to answer this question one requires to make field and network researches drawing up questionnaires for

<sup>3</sup> Calculations of RG ED are made on the basis of web-site data <http://www.marketing.spb.ru/>

targeted participants with the purpose to find out the reaction of agents for the information and actions of the bank. It will allow increasing the role of information policy as an element of MP.

Using the UN (International Telecommunication Union) index of the development of information and communication technologies (ICT)<sup>4</sup>, in accordance with which Kyrgyzstan is on the 93<sup>rd</sup> place by rating, one can evaluate the degree of achievement of the targeted audience of the information made public through electronic sources (Internet) by the National Bank. In this relation the question raises to what degree NBKR should rely on more technological information sources if the aim of awareness expansion of the public (that does not commonly possesses the access to these sources) is pursued.

As the research conducted by the Institute of Economic Policy (Kyrgyzstan) shows daily more than 50 percent of a higher management of large companies of the country spends from 10 to 30 minutes for reading news. Herewith, 67 percent of top-managers choose news sites of the information agents. Thus, NBKR can concentrate its information flow on the Internet-audience when carrying out the directed information policy.

Carrying out of the independent communication policy as a component of monetary actions influencing the activity of market agents is possible only if the independence of a central bank is available. Thus, Trunin (2010) using the information about laws on central banks, calculated the independence of CB of the countries of interest. By the index of total independence NBKR leaves behind all CIS countries having passed only four countries from the Eastern Europe and the Baltic States. Only availability of the mark “zero” for the responsibility over the banking supervision does not allow NBKR being formally absolutely independent. In the meantime the authors doubt the given results “... one can suppose that the received results reflect only formal independence of CB. In particular, if a high level of independence of CB of the Baltic State does not raise great doubts, than a comparable level of independence of CB Kyrgyzstan and Tajikistan looks not so convincing” (Trunin P., 2010).

As it was said earlier, the indices demonstrate only formal independence of CB and the fact that NBKR possesses almost complete independence even from the formal point of view, to our mind, it can be considered as quite positive signal about the level of its actual independence. This, in its case, inclines to more independence when carrying out monetary policy. It is required to carry out independent research of NBKR, to our mind, in order to confirm or deny the results received by the Institute of the Transition Economy.

## **CONCLUSION**

The information economy will identify trends to more transparency of all government institutions. These changes are observed almost in all countries of the world. At the same time the process of openness of economic policy shall be controlled. The bulk of information does not mean a high transparency as it can be multidirectional and more likely misinform. The latter may be the result of a lack of a systematic approach to the information policy.

The development of a strategy or other internal document of the NBKR, regulating the information policy will allow increasing signals. It is necessary to elaborate the information policy and strategy of its realization in the NBKR. The majority of measures of the current information policy does not have a system basis and bears occasional nature. Besides, we think that it is necessary to determine in the NBKR a department responsible for the information policy. The Department of External and Public Relation is more suitable, to our mind, by the objectives, tasks and functions. All information for the public, statements and announcements shall go through this department. Concentration of information flow in one department will not

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<sup>4</sup> Index reflects the level of access to ICT and their usage as well as their practical application.

allow passing the contradictory information from the one source. This organization department within its power could include elaboration and conducting of the information policy of NBKR.

However, this work shall be carried out simultaneously with the training of the public to basic skills of economics. It is not sufficient to only “throw” the information to the market, it is necessary to ensure that the economic agents absorb and interpret it correctly. In the part of carrying out the efficient policy the NBKR shall inform about its activity a wide range of the public including the concerned parties (target group). Therefore, it is desirable for the NBKR to have information channels or affiliated mass media that would spread the official point of view of the bank. The information would be spread for two groups: the audience and professionals.

With the purpose of defining effectiveness of the NBKR activity (detached view from outside) it is required to interrogate economic agents (financial institutes, specialists, rating agencies) for a wide range of questions, including the policy of the NBKR, inflation expectations of the subjects, etc. Among other things, to our mind, it is necessary to study in details the inflation expectations of the economic agents in the Republic, sources of formation and others. The results of this research will allow influencing more purposefully on the expectations of the market and inflation as a whole.

Improvement of the NBKR’s publications for a subject of content-richness of the information is required. To our mind it is preferably to increase the quality and quantity of the analytical information in the publications of the NBKR simultaneously accelerating their issue concentrating more on forecasting material. The focus shall also be made on the reflection of the same information that would be taken into consideration when taking decisions of MP. Moreover, frequently the information about decisions taken by NBKR in relation to MP and macroeconomic forecasts shown in the Report about MP and Review of Inflation is varied, though the both publications pursue the same objective. The information shown in the Inflation Report shall come along with the decision taken in the field of MP that is disclosed in details in the Report with identical forecasting data on inflation and other macroeconomic parameters.

In conclusion it is necessary to note once again that the information policy of the institute, carrying out the policy on a scale of the economy shall be a systematic one and meet the actual situation as it touches the interests of every economic agent. The usage of traditional approaches recurrent from year to year both during crisis and stability period, to our mind, is not effective. Moreover, the detailed analysis of feedback and reaction of the public to it is required besides “throwing” the information to the market. Otherwise the given work will have only a formal character.

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## REVIEW OF THE DEMOGRAPHIC SITUATION IN THE KYRGYZ REPUBLIC FOR THE PERIOD OF 2002-2006

Dedicated to my father  
Doolotaliyev Seyit

Seyitov Tchoro Seyitovich

*In this article the author is analyzing the demographic indices (birth rate, life duration, death-rate, migration) of the Kyrgyz Republic. Also probable trends of the population size dynamics up to the year 2025, risks and losses associated with life time shortening, lack of social infrastructure, labor resources and etc are presented.*

**Key words:** *demography, birth rate, life duration, mortality rate, migration.*

During the years of independent development of the Kyrgyz Republic there were considerable structural changes and reforms in the economy and social sphere. In the course of the reforms, arranged at the beginning – middle 90-s in the Republic, which provided both positive and negative reactions there were changes in the demographic sphere as well, including population size, education, birth rate, life duration and migration of the population.

Population of the Republic includes such national groups as Kyrgyz (69.2 percent), Uzbek (14.5 percent), Russian (8.7 percent) and other nationalities (7.6 percent)<sup>1</sup>. Within the period of 1989-2007 the population of the Kyrgyz Republic increased by 1.23 times at the background of departure of non-native and native population, starting in the 90-s and continuing at the present time, provided mainly by economic reasons and forcing strengthening of negative migration balance.

Decelerating increase of the population and stable migration flow (-113.4 thousand people within the period of 2002-2006) at poorly developed economy and low income rates, are the factors, which may pose potential threat for economic situation and national safety. In accordance with the UN forecast, in the long-term period the annual rate of the population growth in Kyrgyzstan may decrease by 1.0 percent by 2010-2015, and up to 0.6 percent per a year by 2020-2025<sup>2</sup>. The existing tendency for decrease in current increment and further reduction of the average annual population growth rates requires accepting policy measures to regulate the population size.

With regard to the expected growth rates of the population the population size of the Kyrgyz Republic may amount to 6080.3 thousand people by 2025 (see Table No.1).

Uncertainty on the country's social and economic development in the long-term perspective prevents calculation of possible migration runoff. In this case it is possible only to assume that at persisting migration rates, migration runoff may vary in the range of 40.0-58.0 thousand people per year; at conservative approach, i.e. at worsening of the economic situation in the country – up to 50.0-100.0 thousand people per year; in case of stable social and economic situation, the migration runoff may be reduced up to 37.9-38.1 thousand people.

To increase birth rate, including qualitative birth rate, to decrease mortality rate and to promote healthy life style it is necessary to implement the state demographic policy aimed at optimization of these indices.

<sup>1</sup> Kyrgyzstan in Numbers 2008, B., 2008.

<sup>2</sup> "Demoscope Weekly", No. 245-246, May 1-21, 2006.  
<http://www.demoscope.ru/weekly/2006/0245/barom02.php>

**Table 1. Forecast of the population size with regard to migration runoff**

Indices	2005	2006	2007	2008	2009	2010	2015	2020	2025
Population (million people)	5,138.7	5,189.8	5,252.0	5,309.0	5,362.1*	5,415.7	5,682.0	5,901.2	6,080.3
Population growth rates (in percent)	100.9	101.0	101.2	101.1	101.0	101.0	101.0	100.6	100.6
Runoff, people (basic)	26,980	31,003	50,648	37,790	40,152*	42,661	57,767	-	-
Runoff forecast in accordance with pessimistic scenario (people)	-	-	-	-	43,459*	49,977	100,522.2	-	-
Runoff forecast in accordance with optimistic scenario (people)	-	-	-	-	37,903*	38,017	38,131.1	-	-

*\*calculations of the National Bank of the Kyrgyz Republic, based on the data of the National Statistics Committee of the Kyrgyz Republic*

Geographic distribution of birthrate plays an important role. In the territorial view more than a half of newly born children are accounted to the southern regions of the republic thus this area will require additional assistance from executive authorities, including expansion of the access to social services and maintenance of children and maternity, provision of specific services, establishment of pre-school, school and professional infrastructure for children.

Also there is the problem related to decreasing life duration of the population in general. As life duration of women is rather stable life duration of men is decreasing with every passing year. Detection, prophylaxis and elimination of the factors causing early mortality among the men – are the main objectives which should be solved. If those issues are left without proper attention they may affect the economy (loss of labor resources, strengthening of demographic burden, and decrease in the number of tax payers and decrease in consumer demand) as well as the social situation (lack of men in the society and families).

For instance, at present the retirement age for men constitutes 63 years and for women – 58 years. Increase in the retirement age up to 65 years for men will enable to expand the number of the working population and decrease the burden for the whole economically active population. However, comparing average life duration of men (63.5 years) and possible retirement age (65 years) it becomes clear that at average men will die before their retirement age expiry.

It is possible to make the decision on early retirement only in case of high incomes and availability of “long” money on the part of the state and economically active working population. That’s why it is necessary to perform the activities aimed at complex and diligent work with prolongation of life duration among the working population.

Also it should be noted that at increase in the average life duration of the whole population from 67.7 to 75-80 years the older generation will be able to help in growing up and bringing up another generation, thus lightening the burden of parents.

Internal and external migration of the population affects demographic development of the country’s population. Considerable changes in the population structure were provided by migration movements.

From the beginning of the 90-s there was a negative migration balance in the republic which continued at the beginning of the 21<sup>st</sup> century. Negative balance was mainly covered by natural population growth.

Moreover the migration structure includes people with higher, incomplete higher and specialized secondary education (48.8 percent from the total number of migrants and 91.7 percent with regard to people with general secondary education). Migration of such category of the population considerably affects the republic's economy. It causes loss of scientific, intellectual, technical and labor potential. Almost 80 percent of migrants include active working population among which men prevail (more than 50 percent).

However not only migrating population negatively affects the country but also the education system itself. The current processes, related to worsening of knowledge quality, lack of teaching staff and absence of the required training materials in several years will provide decrease in the level and quality of the graduates' education, knowledge and skills. Some of the negative influences of such processes are as follows:

1. Decrease in the number of kindergartens – there were only 488 operating kindergartens in 2008 in the republic as compared to 1696 kindergartens in 1990. At that there is a constant population growth. The burden on the infrastructure for children increased in the capital.

2. Worsening of the material-and-technical base at schools – schools with the Kyrgyz language education are provided with training materials only by 39 percent; schools with the Russian language education are provided with training materials only by 52 percent.

3. Teaching personnel deficit in the education system – necessity in 3622 teachers.

4. Lack of rotation among the teaching staff – average age of teachers is 45-50 years; many teachers are already pensioners. At that 1.5 thousand teachers graduate from higher educational institutions annually.

5. Education level of teaching and pedagogic staff does not correspond with the current requirements and needs.

6. Insufficient expenses for school and university education. Education expenses for teaching of one school pupil constitutes only 4126 soms, whereas expenses for 1 kindergarten child constitutes 8414 soms and for 1 university student – 12596 soms<sup>3</sup>.

At that the structural composition of migrants recently considerably changed. By the beginning of the 90-s the national structure of migrants was mono-ethnic; Russian and Russian speaking population left the country. However from the beginning of the 21<sup>st</sup> century the situation considerably changed. The share of Kyrgyz people leaving the country has been increasing. This is caused by search for higher living conditions as well as by poverty in residence places.

In the migration conditions the agrarian sector of the republic suffers the most. In this sector most of works are performed by people without use of technical means. Thus there is a shortage of workers observed. So there is the necessity in intensification and automation of manual labor in agriculture. Therefore it is necessary to implement the targeted policy for provision of the agricultural equipment to the regions which suffer from labor power absence.

Development of leasing, crediting and financing of the agricultural equipment supplies alongside with the state support will enable to somehow solve the existing problems.

In the migration structure of 2006 about 10.5 percent was accounted for people younger than the active working age. Among the migrated Kyrgyz people younger than the working age 6.5 percent was accounted for children. Many parents leave their children without supervision when going abroad to earn money. In accordance with the UNICEF information in the Kyrgyz Republic about 78.0 thousand children or 7.6 percent of pupils do

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<sup>3</sup> “Sandwiches” are not enough to feed the school... / Interview of Mrs. Boljurova. [www.24.kg](http://www.24.kg), 2008.

not attend the school. It means that considerable share of these children will perform low qualified and poorly paid works in their adult lives. On the other hand, extremely low living standards of the population and absence of jobs especially in rural areas led to such phenomenon as working children (children labor resources). Those children are obliged to work in order to provide their families due to absence of bread-winner, sick parents, unfavorable family conditions and other reasons.

The main reason for external migration to Kazakhstan, Russia and other countries is poor level of the population living standards. For instance, in 2008 the average wage level in the Kyrgyz Republic constituted 5,422.0 soms (in accordance with the National Statistics Committee of the Kyrgyz Republic) or 137.5 US dollars. In Russia and Kazakhstan this rate constituted 17,226.3 rubles (in accordance with the Russian Statistics Committee) or 564.4 US dollars and 60,734.0 tenge (in accordance with the Statistics Agency of the Kazakh Republic) or 502.0 US dollars correspondingly.

**Table 2. GDP per capita in USD PPP adjusted**

No.	Country	2002	2003	2004	2005	2006	2007	2008
1	Kazakhstan	6,246.6	6,933.5	7,734.6	8,732.0	9,961.6	11,086.1	11,862.4
2	Kyrgyzstan	1,442.0	1,561.5	1,698.1	1,729.0	1,818.9	1,998.6	2,156.7
3	Russia	8,847.5	9,709.0	10,740.1	11,832.0	13,173.0	14,692.4	16,085.4

As shown in the table in 2008 the GDP per capita remained short from similar indices of Kazakhstan by 5.5 times and Russia – by 7.5 times. With every passing year this spread only increased.

In accordance with the National Statistics Committee of the Kyrgyz Republic in 2001 the share of Kyrgyz people in the external migration constituted 6.7 percent, whereas in 2005 and 2006 these indices increased to 20.5 and 31.0 percent correspondingly.

In the structure of Kyrgyz people migrating to Russia citizens of the southern regions prevail. It may be explained by extremely low living conditions and poverty in the southern oblasts<sup>4</sup>.

Migration flows are especially intensive in the regions with poor living standards and tough social-and-economic conditions. Nowadays there is an active “creeping” migration (empty houses are occupied by representatives of neighboring countries which suffer from lack of lands and other resources) which causes striving for achievement of land plots sometimes even illegally. Desolate and geopolitically important territories may lead to increase in marauding and illegal utilization of the available resources, to disruption of the country’s defense power and security of its citizen, to higher vulnerability at the borders, to possible break-in of drugs, weapons, smuggling, illegal aliens and terrorists.

Critical scope of the population migration runoff capturing from 24.0 to 60.0 percent of the population natural growth rates does not allow developing concise forecast of the migration situation in the republic especially in the long term perspective.

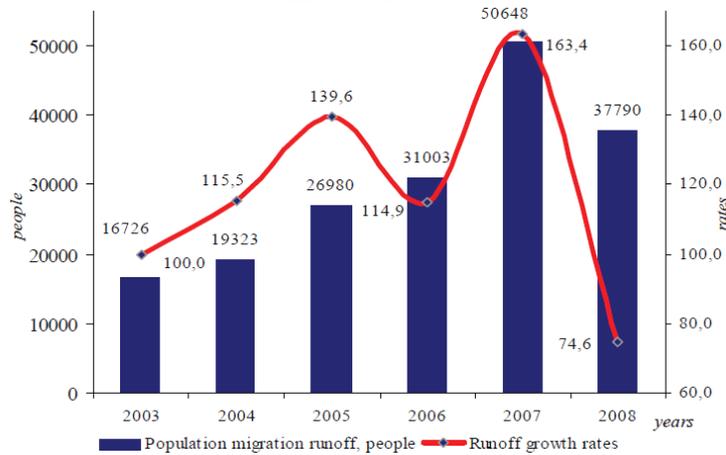
Besides internal migration processes special attention should be paid to demographic processes which occur in the neighboring countries especially in China and Uzbekistan. For instance, annually in China about 20 million of “new workers” are in search for job. This part of Chinese population is ready to work in neighboring countries including the Kyrgyz Republic. Fergana region of the Uzbek Republic has one of the highest population density rate in the world - 550 people per 1 square kilometer<sup>5</sup>. In the long-term and short term periods, there is still the possibility that the Kyrgyz Republic (border territories) may become the country-recipient for migrants from the neighboring countries. This may lead to the problem of assimilation and ethical character issues in the region. In accordance with the data

<sup>4</sup> Information bulletin of the Kyrgyz Republic on Food Safety and Poverty. Bishkek: 2007, pages 27-29.

<sup>5</sup> B.Musaev. Andizhan fan – is a killing machine. Hamburg, 2007, page 46.

provided by the UN Population Fund (UNFPA) the population of the Uzbek Republic will amount to 38 million people<sup>6</sup> by 2015 and in the nearest 15-20 years we can observe its migration to Kyrgyzstan and Kazakhstan. It is necessary to start solving this issue right now both on governmental and inter-governmental levels.

**Chart 1. Dynamics (left scale) and growth rates (right scale) of the population migration runoff in the Kyrgyz Republic**



\*Data of the National Statistics Committee of the Kyrgyz Republic

The problem of the mid-term and long-term decrease in the population growth rates may be solved by attracting migrants as well as by increasing birthrate.

Increase in the population by means of migration of the countrymen and ethnic Kyrgyz people will not change the situation considerably, it will be more efficient to solve the problem by increasing quality of birthrate. However it is necessary to consider that the increasing number of children will lead to additional necessity in social services, for instance educational. So it is necessary to develop and improve school and pre-school infrastructure for children.

Another way to increase the population size is motivating to return people who lived in Kyrgyzstan earlier. Russian speaking population (75.4 thousand people<sup>7</sup>) is highly educated among other large national groups and loss of such a valuable intellectual and labor resource may cause grave and negative consequences. Compensation of such losses will require a great deal of time.

Achievement of sustainable economic growth and improvement of the population well-being become more difficult with regard to constant losses of qualified and non-qualified labor resources.

In the conditions of natural and material resources shortage the Kyrgyz Republic should pay special attention to maintenance and development of human capital. With regard to the fact that working population of the Kyrgyz Republic is constantly decreasing it is necessary to develop the system to motivate valuable workers to stay and those who left the country to return. At present the country suffers the deficit in workers of technical professions due to their migration. The Ministry of Education and Science of the Kyrgyz Republic arranges accelerated professional technical training and re-training for those people who want to work abroad. Thus after receiving education in the Kyrgyz Republic our citizens “present” their knowledge and skills to other countries.

As other countries Kyrgyzstan could implement the policy for attraction of highly qualified workers to work in our republic. There is no well-defined policy of selection,

<sup>6</sup> Site of the International Business Faculty. <http://catalog.fmb.ru/uzbekistan4.shtml>

<sup>7</sup> “Population of Kyrgyzstan”/ In edition of Kudabaev, Giyo, Denisenko. Bishkek 2004. pages 109-115.

acceptance and citizenship provision to foreigners who possess knowledge, skills and sufficient qualification. To attract other people to the Kyrgyz Republic it is necessary to implement the selective policy, including provision of citizenship and work for those specialists who want to work here. Also it is necessary to develop approaches to provision of motivation possibilities to labor migrants and students, studying abroad or leaving the country to work on labor contracts. First of all, it concerns highly qualified specialists and businessmen. Motivation possibilities should include provision of safety, housing, working positions, corresponding wages, social protection etc.

It is necessary to rehabilitate the demographic situation and to create conditions for stable population growth. The most important objective is conducting active regional economic policy aimed at maintenance of the population size in crucial geopolitical regions. Active movement of the population within the republic's area may be promoted by establishment of the transportation network (automobile roads, railways, airports and airways) between all regions of the country.

It is necessary to maintain the Russian and Russian speaking population as well as other nationalities in the Kyrgyz Republic as labor potential which is the personnel intellectual fund. This objective may be achieved through creation of favorable working and living conditions. It is necessary to maintain the qualitative structure of the available population and to reduce migration (internal and external); otherwise not only economic but also geo-economic and geo-political problems will occur.

To eliminate the existing demographic problems it is necessary to consider the possibility for development of the demographic policy concept which will reflect interests of the national demographic safety of the republic. This concept should include various programs aimed at reduction of the mortality rate among men and children, at rehabilitation of the pre-school and school education system, at attraction and motivation of labor resources.

The research will be continued with regard of elaboration of such issues as birth rate urban and rural population, ethnic composition, age hauling.

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THEORETICAL ASPECTS OF REMITTANCES<sup>1</sup>

Choro Seiytovich Seiytov

*This paper provides theoretical explanation of the remittances, the typology, functions and channels of remittances inflow are described, as well as the impact of remittances on some macroeconomic indicators.*

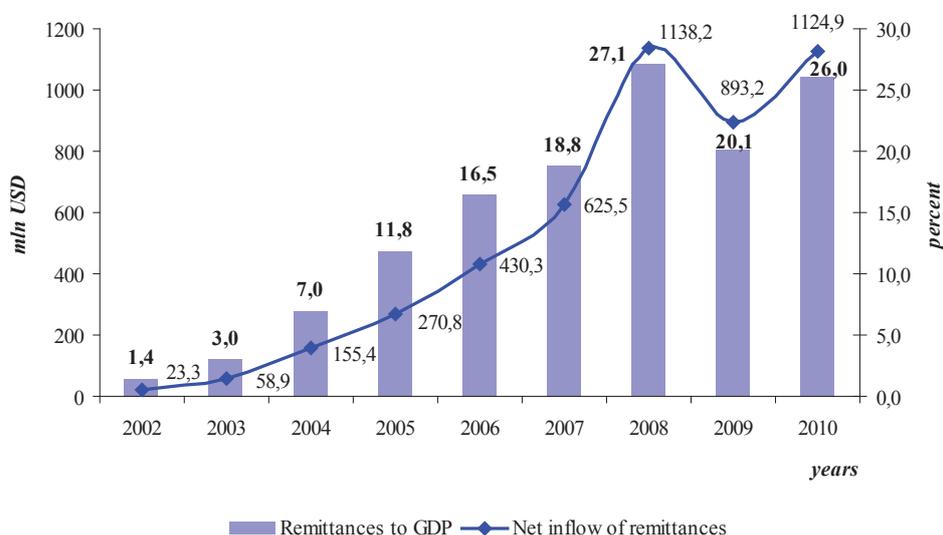
**Keywords:** remittances, exchange rate, inflation, GDP.

## INTRODUCTION

The role of remittances sent to the Kyrgyz Republic by migrant workers becomes more important every year. The growing importance of remittances is due to the fact that they have become a significant source of income for much of the population. To understand the importance of remittances for the country it is necessary to understand what a country is. Kyrgyzstan is a small, mountainous republic without access to global transcontinental and shipping lanes with a population of 5.5 million people and 845.2 USD<sup>2</sup> of GDP per capita. The economy of the country is a small open economy with low effective demand, limited natural resources, lack of developed industry and inefficient agricultural production.

The country felt the significance and impact of remittances of migrant workers, when the ratio of transfers to GDP in 2004 increased dramatically from 3 percent to 7 percent or 2 times<sup>3</sup> with the further growth of incoming funds to GDP (Figure 1). Today, socio-economic importance of funds sent by migrant workers to the country is already apparent.

**Figure 1. Dynamics of net inflow of remittances to the Kyrgyz Republic in mln. USD**



Source: National bank of the Kyrgyz Republic (NBKR)

However, a theoretical or analytical review, which reveals the economic nature of remittances and the mechanism of their effect on macroeconomic variables of the country,

<sup>1</sup> While preparing this work, the author relied on the support and understanding from colleagues, and he is pleased to express his gratitude for their assistance. He would like to express special thanks Abdybaly tegin Suerkul, Altynai Aidarova and Askhat Yktybaev.

<sup>2</sup> The author's own calculations based on data from the NSC KR and the NBKR.

<sup>3</sup> The author's own calculations based on data from the NSC KR and the NBKR.

has not been widely presented so far in our literature. For example, works on the impact of remittances on the economy have already been prepared for Armenia, Moldova, and Tajikistan, similar calculation works have been also prepared for Ghana, Jordan, the Philippines and other remittances recipient countries.

This paper attempts, first of all, to fill an existing gap in the theory of remittances and to disclose their *economic nature*, and secondly, to show the *mechanism of the influence of capital flows* on macroeconomic variables.

### **Economic nature of remittances**

World economic growth, including the economies of Russia and Kazakhstan (for example, due to export of raw materials), has led to a movement of capital, including remittances. The inflow of remittances caused internal changes in the economies of countries, but there was no theoretical explanation of the changes brought about by the influx of remittances. To explain the economic nature of remittances we will use the conceptual apparatus and terminology of the IMF Guide for Compilers and Users on Remittances (IMF 2009), as well as information from electronic resources. Thus, how is the economic nature of remittances manifested? First, let's define the notion of "remittances".

Initially, the **remittance** was understood as a postal item in the form of a specifically prepared blank sheet showing the amount of money that the sender requests the postal facility to pay the recipient. Over time, based on the same remittance principles, the role of postal items moved to banking institutions and remittance companies, or money transfer systems, such as, for example, KyrgyzTransfer, Anelik and Western Union.

The International Monetary Fund defines **remittances** as a cross-border payments of relatively small size, frequently recurring payments from person to person (IMF, 2009).

In the fifth edition of the IMF Balance of Payments (IMF, 1996), the **workers' remittances (international remittances)** are understood as current transfers of migrants who are employed in the host country and are considered residents.

The **internal remittances** mean remittances of migrant workers, who left their villages or towns to find work elsewhere in the country of residence, accepted for shipment and delivery to the addressee within one country<sup>4</sup>. These remittances are also called **national remittances**.

**Communal and collective remittances** are the money sent by migrant associations or religious groups to their home community. As communal or collective remittances, they are different from remittances to households, or from personal remittances that are intended for consumption purposes only; their volumes are very low on a global scale.

**Official remittances** are transfers offered mainly by banks from account to account through the SWIFT<sup>5</sup> system and money transfers systems, such as Western Union, MoneyGram, etc.

**Informal transfer systems** are a circle of informal money transfer systems, which include transportation of funds by the migrants themselves or sending money through relatives or friends. Informal systems also include a number of informal services, typically acting as part of the import-export business, retail trade or currency transactions. Such transactions are usually not documented or documented rarely, conducted by telephone, fax or e-mail through a person who makes the remittance. Terms and details of the remittance transactions vary with regard to a password or identification method.

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<sup>4</sup>[http://www.glossary.ru/cgi-bin/gl\\_find.cgi?ph=%E4%E5%ED%E5%E6%ED%FB%E9+%EF%E5%F0%E5%E2%EE%E4&action=%CF%EE%E8%F1%EA](http://www.glossary.ru/cgi-bin/gl_find.cgi?ph=%E4%E5%ED%E5%E6%ED%FB%E9+%EF%E5%F0%E5%E2%EE%E4&action=%CF%EE%E8%F1%EA)

<sup>5</sup> Society for Worldwide Interbank Financial Telecommunications (SWIFT) is an international interbank system for transfer of information and making payments.

However, changing the socio-economic role of remittances as a significant source of income of most of the population provides a basis to expand this concept. So our view is that **remittances of migrants' represent multiple (repetitive) transfers through formal and informal channels from the person employed away from a permanent place of residence to household members to raise their levels of income and living standards, consumption, accumulation and further investments.** Therefore, remittances play an important role in raising living standards, in the growth of the welfare of migrant families, being an effective means of combating poverty and impoverishment.

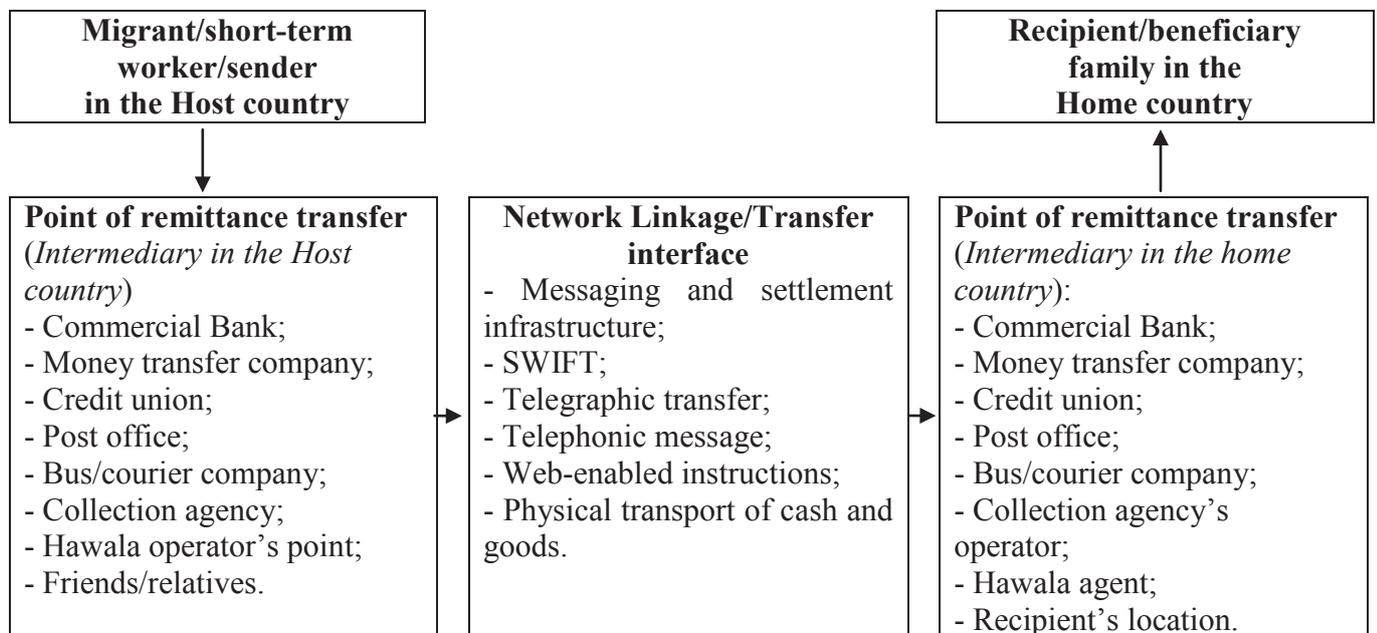
The nature of remittances is manifested and realized in the following functions:

**1. The distribution function.** With this function the households form the initial capital through migrants' transfers, which allow them to form cash funds further allocated to the consumption, savings (investment).

**2. Social (leveling) function<sup>6</sup>.** Money of migrants finance: a) the costs of recipient households for their minimal social needs in order to maintain a stable level of life and b) the social obligations of the state.

Remittances have their own transaction channels (Figure 2).

**Figure 2. Channels of remittances**



Source: *International transactions in remittances: guide for compilers and users.* [Washington, D.C.]: International Monetary Fund, 2009.

**1. The formal (official) channels.** Formal channels include electronic money transfer systems (KyrgyzTransfer, Western Union, etc.), transfers through post offices. The use of official channels of money transfers by migrants depends on such factors as:

- development of the financial system in the country of residence and the country of the recipient. A wide network of banks and the postal service points, especially in rural areas, facilitates access to the transfer operations;

- low-cost services for transfers;

- the degree of geographic distance from one another of a migrant worker and the recipient households. Distance plays an important role in implementing the transfer of money

<sup>6</sup> The Law of the KR No. 78 “On the Fundamental Principles of Budgetary Law in the Kyrgyz Republic” as of June 11, 1998.

from country to country. For example, there is a reason to believe that the overwhelming number of transfers from Russia to Kyrgyzstan is carried out through formal channels, and from the border regions of Kazakhstan to Kyrgyzstan it is carried out in “pockets”;

– degree of economic and financial literacy of remitters.

**2. Informal (unofficial) channels.** The informal channels include money transfers, which are not or cannot be traced by public authorities, for example, transfer of money through friends, relatives, or drivers of public transport. The use of informal channels of money transfers for the most part is typical of undocumented migrants, as the legal sending requires presenting a passport (the document certifying the identity of the person). That is why they have to use these methods of transferring money. The proximity of the migrant’s place of work to the point of residence also facilitates the movement of money personally or through friends, relatives, drivers and passengers.

The channels of money transfer have both advantages and disadvantages (Table 1).

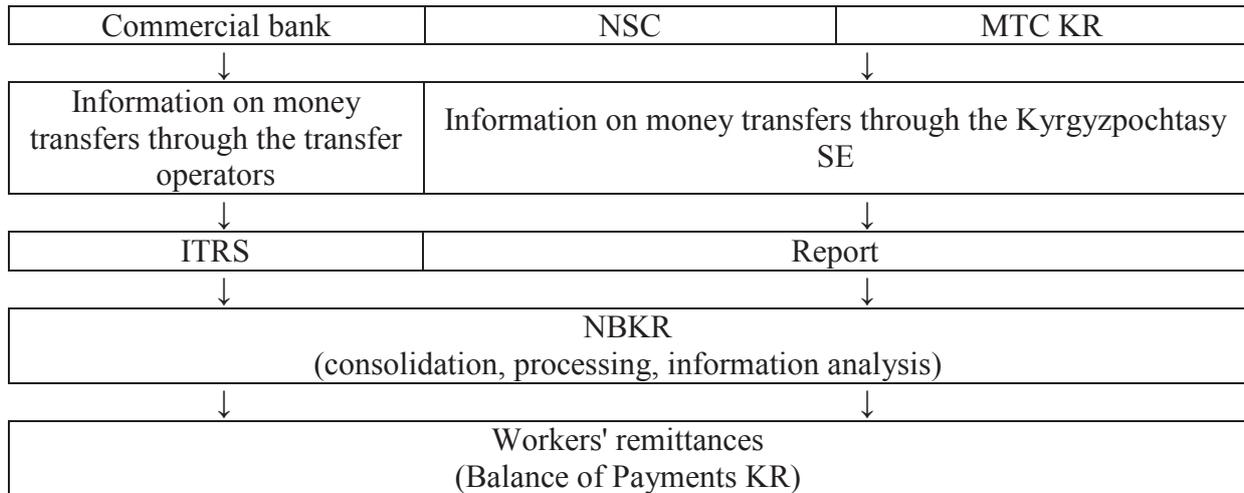
**Table 1. Advantages and disadvantages of money transfer channels**

<b>Advantages of money transfer channels</b>	<b>Disadvantages of money transfer channels</b>
<i>Transfers made through banks/money transfer operators</i> are characterized by speed, security/reliability, privacy and accessibility,	but in some cases they are characterized by high costs and inconvenience for the recipients.
<i>Postal network</i> is a secure and confidential channel of money transfer,	but expensive, slow and inconvenient for recipients.
<i>Courier services</i> are a safe, confidential and convenient channel for the recipients,	but it is expensive and not always available.
<i>Transfers with a member of the household</i> is a safe reliable, fast and convenient way for the recipient,	but expensive due to travel costs and not always available.
According to the senders, the advantages of <i>sending with friends</i> are the safety/reliability, low cost, speed and convenience to the recipient,	but this channel is not always available and has no guarantees of confidentiality.
The advantages of <i>sending with others</i> are availability, low cost, speed and convenience for the recipient,	but this method is not safe and has no guarantees of confidentiality.

Measurement and evaluation of remittances are conducted through the balance of payments, but the statistical accounting does not always show an objective picture because of these informal transfer channels. In a simplified form, the process of generating data on the volume of remittances is shown in the example of Kyrgyzstan (Figure 3).

Information on the volume of remittances of workers is formed according to the International Transactions Reporting System (ITRS), reports of the National Statistics Committee (NSC) of the KR and Ministry of Transport and Communications (MTC) of the KR, processed and analyzed in the NBKR for further reflection in the balance of the KR.

**Figure 3. Formation of information on the volume of remittances sent to the Kyrgyz Republic through money transfer systems and the postal service**



In its turn, the increase in flows creates prospects for expanding the base for deposits and savings, which should positively affect the overall level of loans and investments. For example, the research conducted by the World Bank in Latin America revealed:

1. Sustainable positive correlation between the level of official remittances and deposits.
2. The positive correlation between remittances and the overall level of development of financial infrastructure.

The frequency and volume of the money sent by the migrant home may depend on many factors, such as the volume of the earnings, the period of residence, quality of life in the host country, the propensity to save and consume.

In addressing the socio-economic issues, remittances have become an independent and highly significant factor in the economic development of donor labor countries.

Any remittances incoming to the country, regardless of what channels migrants use to send money, affect the economic development of the country receiving remittances. Official remittances may already be considered as a source of financing for development, creating the institutional basis of economic transformation, implemented at the expense of migrants' money.

To some extent, the use of informal channels affects the determination of the projected financial situation in the country, undermines the monetary and financial policies of the state, and promotes the development and operation of the "shadow" economy.

Despite the seeming importance of remittances of migrant workers, which is not denied by economists, they may as well have negative social and economic consequences. For example, many experts of the recipient countries have expressed different opinions, both negative and loyal, on the outflow of capital, competition with local labor, etc. Nevertheless, what concerns do really exist and what are the positive aspects of such transfers (Table 2)?

The table lists only some of the positive and negative effects on the various sectors of the economy and social sphere. The real effects are much more diverse and wider, which, together with the above, with proper monitoring by the government and the central bank can be quite manageable.

**Table 2. Positive and negative effects of migrants' remittances**

No.	Positive effects of migrants' remittances	Negative effects of migrants' remittances
<b>1. Macroeconomic effects</b>		
1.1.	The increase in consumption and demand.	Development of the Dutch disease.
1.2.	Stimulation of the internal market.	Increased volatility of the exchange rate home country depending on receipt of remittances.
1.3.	Private investment growth.	Inflationary pressure due to the remittances of migrants.
1.4.	Does not create obligations to lenders as opposed to loans and investments.	The change (distortion) of the structure of GDP due to the shadow part of the receipt of remittances.
1.5.	Contribute to the establishment of macroeconomic stability in the home country.	Remittances exceeding the volume of direct investments can lead to serious problems in the long run.
1.6.	Reducing the current account deficit of balance of payments.	Remittances relieve external budget constraints and provide an easy way to achieve economic growth while postponing the need for reform.
1.7.		The flow of remittances is not controlled and is not predictable for households or the government.
1.8.		The complexity of the control and use by the regulators.
1.9.		The stability of the impact of remittances on poverty reduction and human development is jeopardized, as the propensity to invest of households receiving remittances is not used sufficiently.
<b>2. Effects for the financial sector</b>		
2.1.	Positive effect for the financial and banking system of the home country.	Displacement of the bank commercial loan by the usurious one.
2.2.	The growth of deposit base and lending by commercial banks and non-banking financial corporations of the home country.	
2.3.	The development of financial intermediation and access to services.	
2.4.	Lower domestic interest rates.	
<b>3. Social effects</b>		
3.1.	The growth of welfare and poverty reduction.	Households receiving remittances tend to reduce the supply of its labor force.
3.2.	The use of human capital and financial resources by creating a favorable business environment, small and medium-sized enterprises, etc.	
3.3.	Investment in human capital (education and health).	
3.4.	Targeted remittances.	

In addition to the positive and negative effects of remittances it is necessary to evaluate countercyclical or procyclical nature of incoming funds. If the countercyclical model assumes that during the economic downturn migrants increase the remittances, which involves the smoothing pattern of consumption, the procyclical model asserts that migrants increase remittances in good times, taking investment decisions. Consequently, the nature of transfers forms symmetrical monetary and fiscal policies of the state.

Suppose that in a period of economic growth (Figure 4a), the inflow of remittances into the economy will increase, whereas the level of economic growth may reach the point  $A'$ , firstly, due to the growth of consumption, and secondly, due to the increase of investments:

$$\Delta GDP = f(C_{hh}, I, \varepsilon),$$

where  $\Delta GDP$  – change in GDP growth due to household consumption;  
 $C_{hh}$  – household consumption;  
 $I$  – investment;  
 $\varepsilon$  – other factors.

**Figure 4. Impact of remittances on the cycle development in periods of growth (a) and downturn (b) of the economy.**

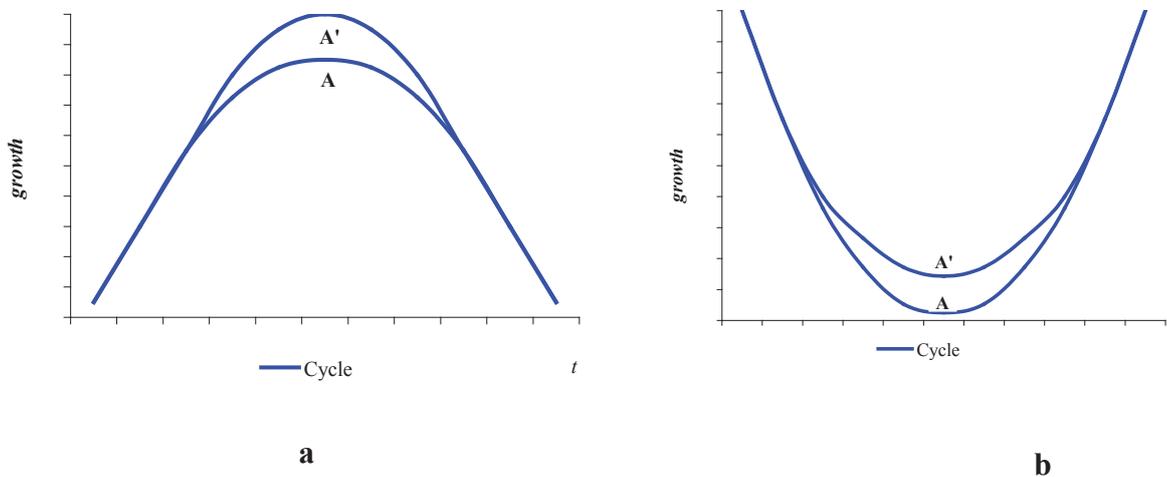


Figure 4b shows the impact of remittances during the economic downturn  $A'$ . The depth of the  $A'$  downturn is not so critical as  $A$  due to larger income of population due to private transfers, which allows to keep the level of consumption in the same volume or to smooth shocks inherent in periods of crisis.

#### **Mechanism of the effect of remittances on macroeconomic variables**

The Heckscher-Ohlin-Samuelson Factor–Price Equalization Theorem explains the movement of remittances quite decently. According to this theorem, international trade leads to equalization of absolute and relative prices of homogeneous factors of production in trading countries. However, it was assumed that the goods can be freely exported and imported, and the factors of production do not have the international mobility.

Now assume the converse situation, caused by cross-country differences in wages: a factor of production (labor) can move freely between countries, and goods 1 and 2, for some reason, are non-tradable and cannot be exported or imported. As a result of a common labor market in the two countries the equalization of the prices of labor will occur. Since no one will work for lower  $W_X$  wages in the  $X$  country, if one can move freely to the country  $Y$  with higher pay and get a better  $W_Y$  wage, wages in the two countries will immediately equalize or there will be a flow (migration) of labor from country  $X$  to country  $Y$ . Migrant workers from country  $X$  will try to align the level of income through the transfer of funds:

$$W_X \rightarrow W_Y$$

Thus, the large volume of remittances inflows, as well as any other capital inflows, affects the macroeconomic parameters such as:

- the exchange rate (floating);
- inflation;
- the GDP volume (consumption).

Of the three parameters more attention should be paid to the relationship of capital inflows, on the one hand, and the exchange rate with inflation, on the other hand.

In order to prevent adverse effects caused by capital inflows (changes in the exchange rate and inflation), countries, which faced them, used different instruments, depending on the economic situation, goals and current monetary and fiscal policy.

One of the effects produced by the influx of capital is the increase of the *real exchange rate*. Manifestation of the inflation effect or lack of it in the case of capital inflows depends on the specific reasons, while one of the main ones in this case is the *exchange rate regime*. Under the regime of *flexible exchange rate* the capital inflow (regardless of its form and source) leads to an increase in the nominal exchange rate of national currency, the fall in relative prices of imported goods and reducing the consumption of non-tradable goods<sup>7</sup>, which ultimately reduces inflationary pressures. The likelihood that capital inflows will generate inflationary effect will be lower the higher the degree of exchange rate flexibility.

The high flexibility of the real exchange rate enhances the abilities of the central bank to conduct a more independent monetary policy; it also makes it easier to regulate the behavior of monetary aggregates. With the free-floating regime the nominal exchange rate may increase under the influence of capital inflows, which does not affect the amounts of official reserves and money supply. Likewise, the outflow of capital leads to nominal depreciation of the currency and has an impact on domestic liquidity.

According to the World Bank in the early 1990s, during the period of capital inflows, a strong positive correlation between the increase in the real exchange rate, on the one hand, and an increasing current account deficit of balance of payments and the share of consumption in the domestic consumption, on the other hand, was revealed in all the studied countries. For example, the dynamics of real exchange rates in Argentina and Brazil showed that during the 1990s, there was a significant increase in the real exchange rate<sup>8</sup>.

However, during a sudden outflow of capital the banking system could face serious problems as the banks engaged in financial intermediation in the servicing capital outflows might not cope with the need for mass payments on their obligations, which will affect the quality of the portfolio. Under these conditions, the shock can cause the central bank to perform the intervention and rescue troubled banks in order to prevent a chain reaction of deposit withdrawal and the further outflow of capital.

The inflow of capital into the country can create different pressures on the market. In order to prevent this the country's central bank may intervene in the foreign exchange market: **unsterilized operations**, resulting in a change in the monetary base in the economy, and **sterilized operations** involving compensation transactions with the assets, restoring the initial amount of the monetary base. The absorption of foreign exchange reserves by central banks is necessary to deter attempts to enhance (increase) the nominal exchange rate with a parallel reduction in domestic credit as a measure of resistance to inflationary pressures associated with an increase in money supply. In addition, the accumulation of reserves can be a buffer in case of sudden change of direction of flow.

The rapid growth of international reserves in some countries which have received large capital inflows since the early 1990s suggests that central banks actively bought foreign

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<sup>7</sup> For example, services of a hairdresser, lawyer, room rental.

<sup>8</sup> In addition to this, however, an important factor could be the lack of flexibility of the nominal exchange rates (Argentina - after April 1991, Brazil - after February 1995).

currencies at the markets, replenishing reserves, in order to prevent the expansion of liquidity and nominal appreciation of national currency. For example, in Thailand in this period, the impact of the accumulation of foreign reserves on the expansion of liquidity was limited quite successfully.

On the other hand, the sterilization operations of the central bank may be associated with great difficulties and costs. For example, in Chile in the early to mid-1990s, the annual inflow of capital amounted to an average of about 6-7 percent of GDP, to which monetary authorities have reacted by attempting to seize domestic liquidity in order to avoid the effects of excess capital by purchasing large amounts of foreign currency and sterilizing these operations by bonds of their own issue. However, as a result of these actions, quasi-fiscal losses<sup>9</sup> of the central bank, which had previously been high<sup>10</sup>, have increased.

Due to the fact that *inflation* is one of the main targets of macroeconomic policy, the ability to enhance (increase) the nominal exchange rate in this context may be the best option to respond to capital inflows.

Under the influence of excess foreign exchange inflows the expansion of money supply of banks and loan institutions, the growth of international gold and foreign exchange reserves and money supply may occur, as well as credit expansion, usually leading to inflation – demand-pull inflation. A natural measure of the inflow to curb inflation is sterilization of excess money supply. This, in turn, can ensure that the growth of money supply corresponds to the growth of goods and services on the market and thus keep inflation at a stable level. To avoid inflation by fiscal policy measures, government spending is reduced, taxes are raised or both of these actions are carried out simultaneously parallel to increase in capital inflows. This approach is called a fiscal restriction, which serves to reduce aggregate demand and curb potential inflationary impact of capital inflows. Thus, a policy of fiscal restriction was conducted during the period of capital inflows in Thailand and Chile (E. Vasilyeva, 1998).

According to the basic macroeconomic identity, a change in *GDP* can occur by changing one of its summands *C*, *I*, *G*, *X*. In our case, we are concerned with the consumption *C* and partially *I*.

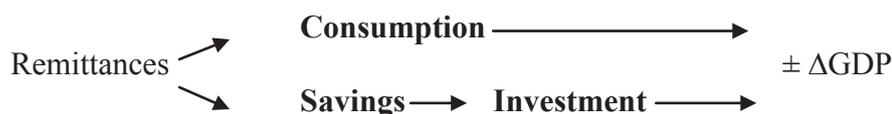
$$GDP = (C_0 + \Delta C) + (I_0 + \Delta I) + (G_0 + \Delta G) + (X_0 + \Delta X)$$

One of the first who considered the relationship between consumption and savings was John Maynard Keynes. According to his theory, the most important factor affecting the consumption and saving is income. The level of savings is determined depending on the level of consumption and income.

The inflow of investments, net export earnings, remittances, affecting consumption and savings, ultimately, change the volume of GDP. It should be noted that the increase in consumer sentiment of the population can be stimulated primarily by an increase in personal income, which in this case is provided by money transfers. The growth of welfare of the population changes the structure of income use, part of which is used for savings and its further investment, as simplistically presented below.

<sup>9</sup> Such losses are understood as the central bank financing of losses from measures to stabilize exchange rates, interest-free and preferential loans to the government (for example, for the purchase of wheat, rice, coffee, etc.)

<sup>10</sup> Cardenas and Barrera also note that in Colombia, interest rates have reached a very high level in December 1991 - 38.5 percent per annum on deposits, which is almost 9 percentage points higher than in March of that year. These findings are consistent with the above arguments, which suggest that sterilization may lead to an increase in domestic interest rates.



Consumption, as well as savings, depends on the subjective factor – the tendency of people to consume and save, and on the objective factors – the level of income and its distribution, on accumulated wealth, prices, taxes, etc.

As was mentioned above, remittances have become a significant additional income to such payments as wages, unemployment, poverty and disability benefits, pensions, scholarships, etc.

Let us integrate the remittance index in the Keynesian model. To derive a remittance multiplier formula, we assume that the change of remittances  $\Delta R$  means a change in disposable income  $\Delta DI$ , provided that the income consists entirely of remittances, then:

$$\Delta R = \Delta DI$$

The change in disposable income leads to a change in consumption in accordance with the magnitude of the marginal propensity to consume:

$$\Delta C = \Delta DI * mpc = \Delta R * mpc$$

And the change in consumption multiplicatively changes the total income:

$$\Delta Y = \Delta C * \frac{1}{1 - mpc} = \Delta R * mpc * \frac{1}{1 - mpc} = \frac{mpc}{1 - mpc} * \Delta R$$

The value of the remittance multiplier thus equals  $\frac{mpc}{1 - mpc}$  or  $\frac{mpc}{mps}$

The remittance multiplier is a ratio that shows how many times the total revenue increases (decreases) when the remittance increases (decreases) by one.

Let us use a simple Keynesian model where households receive remittances. Changes in remittances affect the consumption function, which is as follows taking into account remittances:

$$C = C + mpc * (Y - T + R)$$

$$Y = C + I + G$$

We substitute the equation of the total income (output) with the consumption function, then regroup and obtain:

$$Y = \frac{1}{1 - mpc} (C - mpc * T + mpc * R + I + G)$$

$$Y = \frac{1}{1 - mpc} (C + I + G) + \frac{-mpc}{1 - mpc} T + \frac{mpc}{1 - mpc} R$$

$$\Delta Y = \frac{mpc}{1 - mpc} \Delta R$$

Thus, the remittance multiplier equals to:

$$m_R = \frac{mpc}{1 - mpc}$$

Any change in the autonomous (i.e. not dependent on income level) variables - consumer spending, investment spending, government procurement, taxes and transfers - leads to a parallel shift of the curve of total planned spending and does not change its slope. The only variable that affects the magnitude of the multipliers of all these types of spending is the marginal propensity to consume. The bigger it is, the higher the multiplier is. In addition, it is the marginal propensity to consume that determines the slope of the total planned spending. The larger the marginal propensity to consume, the steeper curve is.

### **CONCLUSION**

The changing of the socio-economic situation in the country, caused by migration and the subsequent inflow of remittances, required a theoretical explanation of the new processes. Kyrgyz literature does not provide any overview, explaining the economic nature of remittances and the mechanism of their effect on macroeconomic variables of the country. For example, works on the impact of remittances on the economy exist in Armenia, Moldova, Tajikistan, etc.

The level of income in different countries creates preconditions for the movement of labor from the low-income country to the country with high income. According to the Heckscher-Ohlin-Samuelson Factor-Price Equalization Theorem, this will continue for as long as the wage level in the labor donor country does not come near or equal to the wage level of the recipient country.

The inflow of capital into the country, including remittances, has a strong impact on macroeconomic variables, causing changes in the economy. Thus, the growth of money supply in the commodity and currency markets affects the exchange rate, consumption of goods and services increases, thereby stimulating demand-pull inflation. The growth of consumption, in turn, has boosted the prices of some goods. Similar changes are observed in almost all the economies of countries receiving remittances. Thus, in many donor countries (Mexico, Philippines, French Africa, Central Asia) of migrant workers similar changes in the economy are observed under the influence of the flow of remittances. Thus, from a theoretical point of view, we conclude that remittances at the macroeconomic level are characteristic of forms of capital.

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