

STIMULATING INCOME GENERATION FOR THE POPULATION IN UZBEKISTAN: AN ECONOMETRIC ANALYSIS

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The core issue of national anti-crisis programmes in many countries is to stimulate domestic demand. Anti-crisis programme in Uzbekistan also includes such measures as reducing tax burden, expanding access to credit resources for producers and providing additional government support for small and medium-sized enterprises. These measures are expected to have an impact on income growth in small and medium-sized enterprises as well as in the population, in turn stimulating the expansion of cumulative demand and its positive influence on the dynamics of gross domestic product. This paper outlines channels and mechanisms through which these measures can be carried out, and explores methodological approaches and methods of quantitative estimation used in medium-term forecasting. Based on the results, scenarios are constructed to analyse and compare the rates of disposable-income increases that could potentially result from various combinations of measures and economic policy parameters.

I. THE DYNAMIC TENDENCIES OF DISPOSABLE INCOME AND MECHANISMS OF ITS INFLUENCE ON ECONOMIC GROWTH

In Uzbekistan, as well as in other countries of the Commonwealth of Independent States (CIS), steady growth of population income has been observed in the past few years. In nominal terms, the growth rate of the country was 123.8 per cent in 2005 and 138.2 per cent in 2006.¹ Even if the deflator of gross

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¹ Unless otherwise specified, the data used in this paper was taken from the journal *Uzbekistan Economy: Statistical and Analytical Review* (USAID-CER 2005-2007).

domestic product is applied, real income growth, adjusted for population increase, is estimated to be more than 10 per cent in 2006 and 2007.

A notable feature of the income structure of the population is that, during the last three to four years, slightly more than half (55 to 60 per cent) of the total income amount was derived from entrepreneurial activities and sales of agricultural products, whereas the remaining portion (about 40 to 45 per cent) was derived from personal income, including salaries and social transfers, such as pensions and stipends.

Periodic indexation of regular sources of income is a primary growth factor for personal incomes in Uzbekistan. Salaries, pensions and stipends are increased twice a year, and the indexation rates are usually 15 to 20 per cent.² However, when minimum salaries increase, so do the costs of services and production for small and medium-sized businesses, as well as the prices of agricultural goods produced by private farms. This inflates enterprise incomes, although growth in real terms tends to be slowed by increase in consumer prices, which accelerate correspondingly.

These tendencies in personal incomes are true for gross (before tax) incomes. In general, they also apply to disposable (after tax) incomes. However, the calculation of disposable incomes at a macrolevel in Uzbekistan is complicated by significant intricacies, given the available statistics.³ In the System of National Accounts, gross income is converted to disposable income by deducting from the total gross domestic product the sum of amortization, indirect business taxes, contributions to pension funds, corporate profit taxes, retained corporate profits, transfer payments, property taxes and income taxes. Uzbekistan possesses significant experience in developing calculations under the System of National Accounts; however, such work was mainly for research purposes, and only rarely has this type of calculation been considered in the economic policymaking of the country.

The most recent statistics that are reported in a form that can be used in System of National Accounts calculations are from 2002, and data to this date are available only in annual form. Under these conditions, quarterly statistics for disposable income can be derived from simplified calculation schemes. Thus, in practice, the disposable income of the population is often calculated as gross

² The last such increase was 20 per cent, in accordance with Government resolution 3931 of 23 October 2007 (Uzbekistan, 2007).

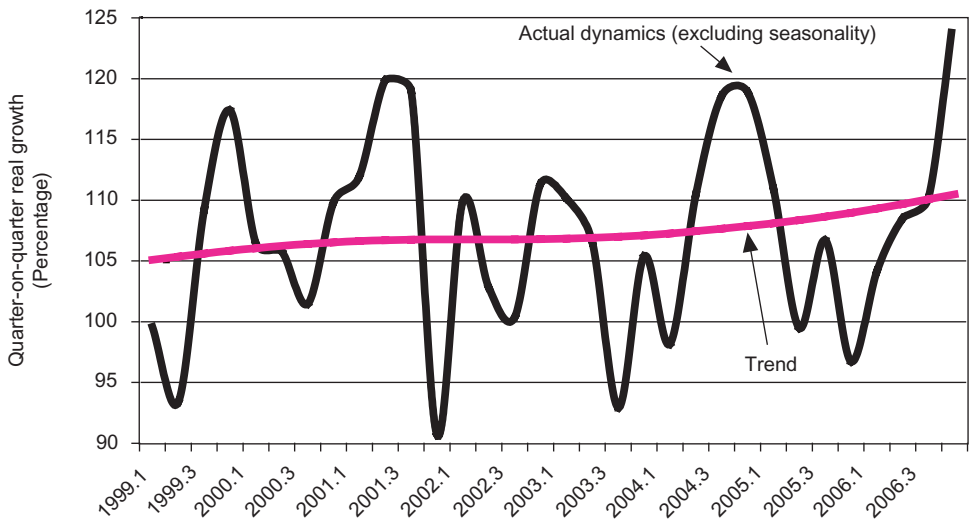
³ The statistics source referred to here is *Official statistics in Uzbekistan: institutional basis, quality and access* (UNDP, 2006).

domestic product minus Government revenues. Average quarterly rates of disposable-income growth calculated this way do not differ significantly from available annual estimates for 1999-2002. Furthermore, the simplified system makes it possible to incorporate post-2002 data. The deflator of gross domestic product was used to convert nominal growth rates to real growth rates.

As illustrated by the quarterly ranges shown in figure 1, even when factoring out seasonality, changes in growth rates oscillated considerably (between 90 and 120 per cent). This reflects both instability of income sources and instability in the dynamics of the gross domestic product deflator. Furthermore, as shown in figure 2, the dynamics of gross domestic product influenced the stability of income dynamics, since most significant deviations in incomes were accompanied by deviations in gross domestic product.

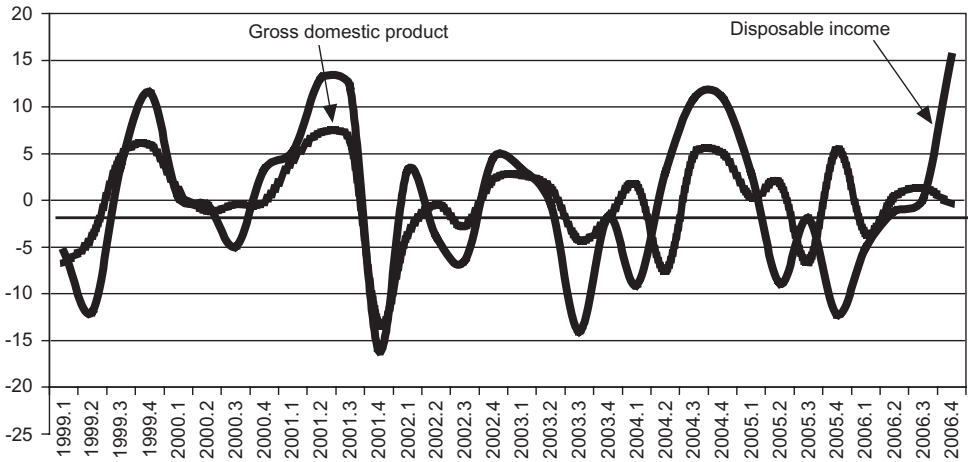
At the same time, the long-term trends in both quarterly and annual dynamics reflect increases in the real incomes of the population between 1999 and 2007. Mid-quarter growth rates increased during this period, up from 5 to 6 per cent in 1999 to 7 to 14 per cent at the beginning of 2007. But are these rates high enough to improve the well-being of the population and stimulate economic growth?

Figure 1. Disposable income: trend and actual dynamics



Source: Data from *Uzbekistan Economy: Statistical and Analytical Review* (USAID-CER 2005-2007).

Figure 2. Deviation of gross domestic product indicators and disposable income from the trend



Source: Data from *Uzbekistan Economy: Statistical and Analytical Review* (USAID-CER 2005-2007).

Note: Quarterly dynamics of disposable income and gross domestic product are given in the form of “net quarters”.

Given that Uzbekistan is considered a moderately developed country, the income growth rates it has achieved must be recognized as insufficient. The World Development Indicators for 1996 to 2005 (World Bank 2007) compare country gross domestic product (GDP) per capita in terms of purchasing power parity. According to those figures, in 1996 the GDP per capita in Uzbekistan was about 80 per cent lower than the average middle-income country, and remained this far behind until 2005. Positions of other leading CIS countries for that period noticeably improved: in the Russian Federation, GDP per capita rose from 35 per cent above the middle-income country average up to 40 per cent above the average; Kazakhstan brought its levels from 20 per cent below the average up to par by 2004; Belarus went from 25 per cent below the average to 5 per cent below.

A similar picture emerges regarding the dynamics of the average salary (in dollar terms) for the last 10 years. In the mid-1990s, average monthly gross salary levels in Uzbekistan and the CIS countries considered here were approximately identical (\$50-\$80). But in 2007, despite the country's growth, income rates in Uzbekistan were about 2 to 2.5 times below those of the Russian Federation

(ISCCIS database).⁴ Hence, growth rates of disposable incomes of the population in Uzbekistan need to be increased. This requires a detailed analysis of the available potential of income growth, taking into account the specifics of the economic structure and its efficiency.⁵

An econometric analysis and modelling of the processes of disposable incomes of the population was carried out on the basis of the theoretical scheme presented in figure 3. As noted above, growth in the population's real incomes is possible only through the growth of goods and services production. Thus the influence of national economy specifics (structure of employment, system of estimating cost of work, among other things) on population incomes can be revealed only by estimating the strength of the relationship between incomes and economic activity indicators. To this end, the group of indicators analysed here includes investment activity, foreign trade activities and production activities (industrial production growth, the share of gross domestic product attributable to small and medium-sized enterprises, and an index of commodity circulation).

Processes of economic reform and liberalization can significantly influence incomes. Effectively carried out reforms are associated with job creation and the removal of barriers to intersectoral and interregional labour flows, in turn creating additional opportunities for the economically active population.⁶ Demographic structure and urbanization may also play a part in this process.

An important factor to consider is that the population in Uzbekistan earns a substantial share of income from the sale of vegetables and fruits grown on personal plots. Furthermore, as in other transition economies, such income is based on unregistered commercial activity and not reflected in population income statistics. In recent years, incomes connected with labour migration have become increasingly weightier in the structure of incomes.

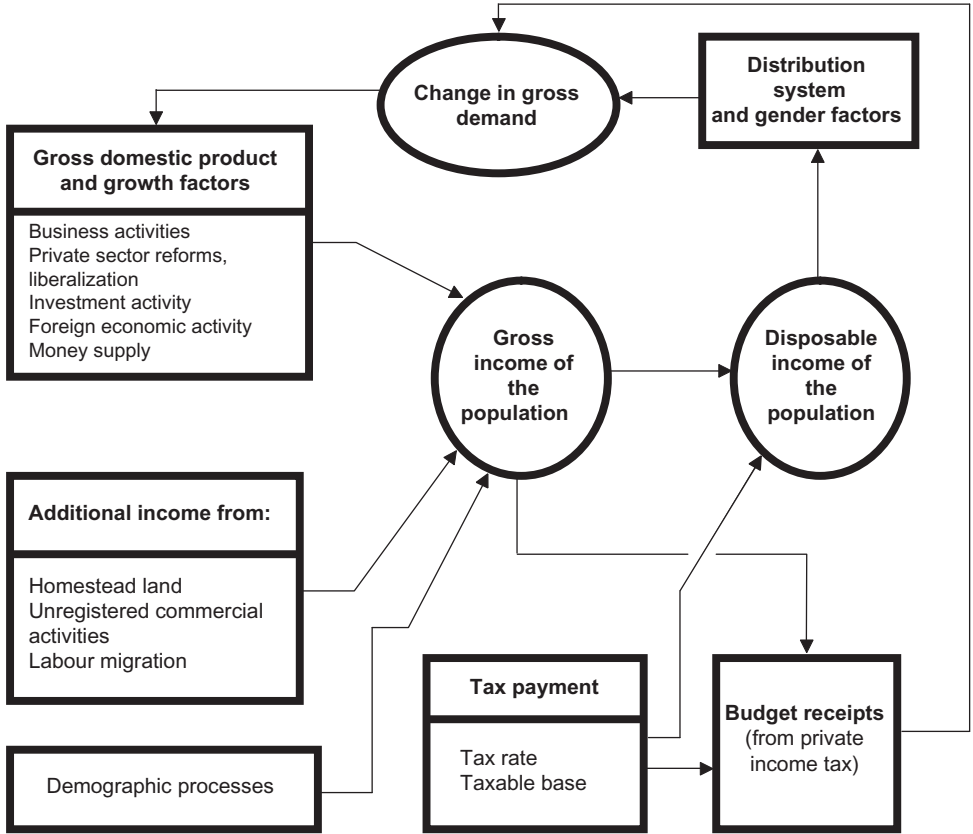
The income factors and sources shown in figure 3 are not all equally reflected in the statistical reporting. There is almost no data about additional incomes. Data for other sources of income can also be spotty. The application of an econometric approach partially overcomes these statistical problems. To this

⁴ In December of that year, the average monthly salary in Uzbekistan was \$210 ("Program of social and economic development republic of Uzbekistan in 2008", Newspaper "Narodnoe slovo", 12 February 2008).

⁵ The author shares the opinion of the World Bank that solving these problems requires a complex approach, adapted to local specifics and assuming the use of a detailed diagnostic of certain barriers to population income growth (see Dillinger 2007).

⁶ See Ali (2007).

Figure 3. Disposable income of the Uzbekistan population: factors and sources



end, the list of potential factors also includes those that can have an indirect influence on disposable incomes, but that may not be apparent in the national statistics. For example, certain changes in the dynamics of monetary aggregates can be attributed to the influence of currency flows (transfers or remittances) from labour migrants who are employed abroad. The dynamics of food exports can be affected by incomes from personal gardens, and investment dynamics, including taxes on housing construction, reveal influences from incomes earned through unregistered commercial activity.

To convert gross income to disposable income, it is necessary to have information on the size of income tax withdrawals, including the average income

tax rate and the calculated taxable base. Changes in tax withdrawals directly and indirectly influence primary sources of income. Tax increases reduce disposable incomes and negatively affect aggregate demands, gross national product and growth factors. On the other hand, Government revenues go up, and greater State spending increases aggregate demand and stimulates the economy. The final result, in many respects, is defined by the degree of equality in income, the propensity of the population and the State to save, the potential of various sources of incomes, and the sensitivity of gross national product dynamics to aggregate demand, as well as by other quantitative parameters that describe the extent to which income indicators and factors are interrelated.

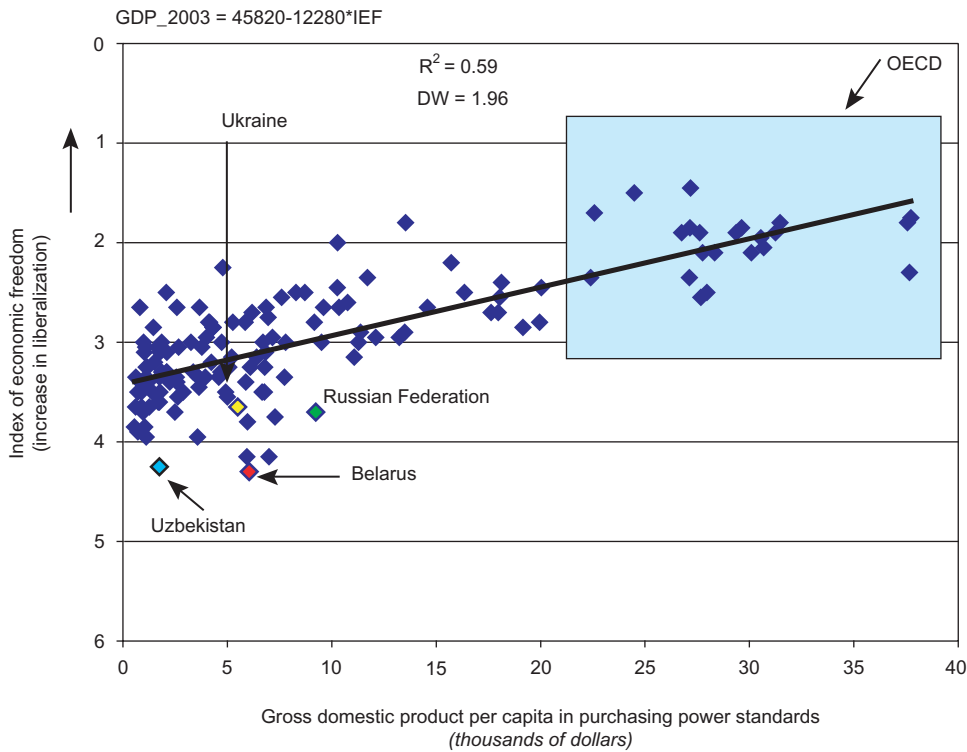
This paper set out to determine the possibility of defining which economic reforms provide the maximum increase in disposable income in the shortest time, considering the structure of the economy, and systems of formation, distribution and use of incomes.

One of the main factors that accelerate income growth is the process of economic liberalization. Effective economic reforms and liberalization hold significant potential for the growth of population incomes. The results of an intercountry analysis, illustrated in figure 4, demonstrate this. The main indicator of population incomes at the macroeconomic level is per capita GDP. World Bank intercountry statistics for 2004, which include an index of economic freedom, show that income growth is related to increased economic liberalization. In figure 4, transition-economy countries tend to be grouped in the bottom left corner, with economic freedom index levels of 2.5 to 4.5 and per capita income levels of \$5,000 to \$10,000. The most developed countries, which showed income levels of \$25,000 and above, also had greater economic freedom (index of levels ranging from 1 to 2.5).

The econometric analysis in this paper shows that the relationship between income and liberalization is nonlinear. The best equation received under this analysis looks like a polynomial of the second degree, and the interrelationship is illustrated in figure 5. When economic freedom is low (index levels of 5 to 3), increased liberalization does not have a strong influence on population incomes. Only at index levels higher than 3 is rapid growth of incomes expected.

The Russian economist V. Popov (2007) arrived at a similar conclusion. He led a team of researchers who studied the world's 28 transition economies, including those of China and Viet Nam, in order to measure the relationship between gross national product dynamics and the major factors and conditions of the first 10 years of the transition periods. The list of factors analysed included baseline conditions (level of population incomes, the degree of distortion in the economic

Figure 4. Liberalization and income-level relationships
(Gross domestic product per capita)



Source: Author's calculations based on data from World Bank Development Indicators (2007).

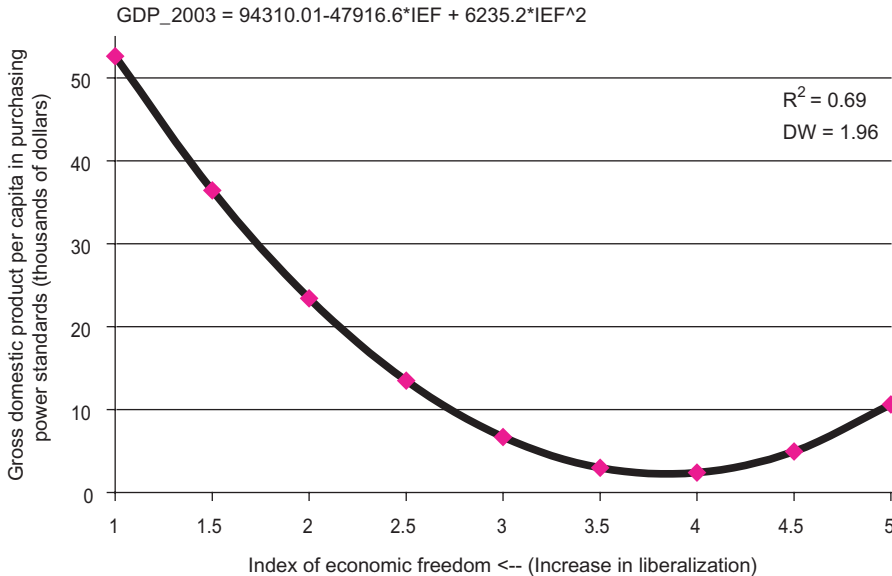
Note: The set comprises data for 2004 from 162 countries.

Abbreviation: OECD, Organisation for Economic Cooperation and Development.

structure, existing State debt, among other things); the development level of formal and informal institutions, and the economic policy parameters applied by the countries. The results showed that liberalization had only a weak influence on gross national product dynamics during the initial stage of the transition period (1989-1995). Other factors (for example, inflation) showed a substantially stronger influence on gross national product dynamics.

At some point between 1995 and 2003, the influence of liberalization on gross national product dynamics underwent a shift, and became positive. The effect of liberalization varies according to the stage of development and is closely related to the capacity of a country's institutions. During the initial stages, when

Figure 5. Correlation between gross domestic product per capita and index of economic freedom levels



Source: Author's calculations based on data from World Bank Development Indicators (2007).
Note: The set comprises data for 2004 from 162 countries.

market institutions were underdeveloped, liberalization did not have a major influence on economic growth. In fact, amid the conditions and shocks of the transition period, this influence was slightly negative. However, when new institutions began to consolidate themselves, liberalization became a major factor in gross national product growth. In other words, a minimum level of development of market institutions and relations is required to take proper advantage of the benefits gained from economic deregulation.

Estimates put Uzbekistan at level 4 in the index of economic freedom. Thus, greater liberalization is not expected to have a major influence on the growth of population incomes in the short- or midterm. However, in the long term, as State institutions become stronger, the role of liberalization will increase significantly.

II. THE SENSITIVITY OF DISPOSABLE INCOMES TO GROWTH FACTORS AND CHANGES IN ECONOMIC-ENVIRONMENT PARAMETERS

International experience shows that certain economic activities and parameters of the economic environment directly influence disposable income (figure 3). The current system of quarterly statistics reporting in Uzbekistan has identified a set of indicators of such economic activity, measured in terms of the following five indices: industrial production growth, small and medium-sized business production, consumer goods production, exports, and investment. Among the key parameters of the economic environment are money supply, public expenditures and indicators of tax burden.

In terms of methodological and statistical comparability, all indicators used in this analysis reflect processes of income formation for the economy as a whole (that is, specified at the macrolevel) and are expressed as real growth rates for the period 1999 to 2007 (second quarter), except in the case of tax burden. Quarterly dynamics of growth rates were calculated using the quarterly dynamics of macroindicators at constant prices of 2003 (quarter averages). In addition, the factors of seasonality and stationarity conditions were excluded from all indicators and parameters (applying the ADF test statistics.).

Another reliability factor is that the results of econometric analysis, including estimates of income sensitivity to factors of economic activity and parameters of macroregulation, are based not on absolute level of indicators, but on the changes in those levels. In our opinion, estimates at the level of changes in industry output and exports, among other things, are more reliable than estimates of absolute levels. Furthermore, the real-income index, export production, State expenses and other items are calculated using the GDP deflator, which, in our opinion, more precisely reflects the dynamics of inflationary processes rather than the consumer price index.

In view of the above reliability considerations, the statistical base from Uzbekistan used in the analysis can be said to reflect the real processes of income formation and their influence on growth. Consequently, the results of the analysis drawn from this can be used as a reliable reference for preparing practical recommendations for solutions to the low levels of disposable income.

The results of the econometric analysis include regression equations (table 1), and generalized estimates of selected factor influences on the income dynamics.

Table 1. Factors explaining the growth rate of disposable income in 1999-2006: time series ordinary least square regression results

Factors (real rate, per cent)	Dependent variable: disposable income				
	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5
Money supply	0.13**	0.2**	0.2**		0.26**
Investment	0.19***			0.17***	
Industry	1.09***			0.83**	
Government expenditures		-0.64***			
Export		0.15***			
Small business			0.15*		
Private income tax			-4.8***	-4.6**	-4.6**
Retail turnover (-4) ^a					0.69***
Constant	-44.2	134.9	147.6	75.4	84.8
AR, MA specification	AR(3)	AR(3)	AR(1)	AR(1)	AR(1)
	MA(3)	MA(3)	MA(3)	MA(3)	MA(2)
Durbin-Watson Statistics (DW)	1.89	1.83	2.12	1.85	1.87
R ²	0.86	0.72	0.78	0.82	0.84

Source: Author's calculation, based on econometric analysis.

Note: Dependent variable and factor values used in equations were real rate percentages.

^a Mean lagging variable: influence on income has a four-quarter lag.

* $p < .10$, ** $p < .05$, *** $p < .01$

The analysis of the results shows that in Uzbekistan, as in many other countries, factors related to economic activity and the economic environment have the strongest influence in the formation of disposable income dynamics. The equations explain 72 to 86 per cent of the dependent variable (disposable income) variations.

Of the factors analysed, the following had the most explanatory power: tax burden (including Government expenditures), which accounted for up to 32 per cent of the variation; investments (33 per cent); monetary supply (25 per cent); growth of commodity circulation (20 per cent); and growth of small business (10 to 16 per cent).

Among the factors defining the economic activity level, industrial production growth had the greatest influence on disposable income.⁷ An increase of 1 percentage point in this growth rate in the period covered translated to an average additional increase in disposable income rates of 0.74 percentage points.

In the simplest terms, this increase can be seen in the fact that the average salary in manufacturing was traditionally higher than that of other sectors. However, it has influenced disposable income in other ways as well. For example, since around 2002, medium-sized and large organized industrial enterprises have been establishing themselves outside of Tashkent—mainly in rural areas. This shift has led to the creation of new workplaces and the introduction of new technologies for processing local raw agricultural materials and mineral resources, which in turn have resulted in the growth of exports and local population incomes. Thus, it is clear that increased industrialization in a country such as Uzbekistan is the major precondition for income growth and the well-being of the population.

The second greatest economic-activity influence on incomes during this period was the dynamics of commodity circulation (retail turnover). The elasticity coefficient in this case was 0.69, which suggests that developing the services sector holds major potential as a way of increasing population incomes.

Parameters of the economic environment were shown to have had a notable influence on the dynamics of incomes during this period. The elasticity coefficient for money supply was 0.22 (on average). However, in Uzbekistan, safe money-supply growth would be possible only with farther-reaching banking sector reform and liberalization of the financial market. Hence, a developed banking sector is a precondition for population income growth.

The results also show that high rates of budget revenues (Government expenditures) can negatively affect the well-being of the population, at least in the short term. This is indicated by the elasticity coefficient, which is -0.64. In contrast, income growth could increase significantly through reductions in the tax burden. An income-tax reduction of 1 percentage point (for example, bringing the present average of about 20 per cent down to 19 per cent) would result in real disposable income growth of 2 to 3 percentage points.

The econometric analysis also showed that the law of diminishing returns plays a role in the income factors of Uzbekistan. So, the introduction of a logarithmic function into equation 3 for the “small business” variable without compromising

⁷ The importance of the development of certain sectors of the economy (mainly the industrial sector) for poverty eradication has been stressed (see Loayza and Raddatz 2006).

the value of its statistical criteria reduces the sum of square deviations (from 197 to 190 in the corresponding equation) and makes the equation more reflective of real economic processes, where nonlinear relationships among economic environment parameters, resource costs and production results prevail.

Accordingly, the value of the elasticity coefficient is not constant. The extent of the fluctuations depends on the size of the factor change. When changes in the output of small and private businesses are small (1 to 10 per cent), the elasticity coefficient is about 0.38 to 0.39. If changes are significant (for example, output increases by 30 per cent), then the coefficient value falls noticeably, to 0.24.

The same type of relationship is found with the "industry output" factor. In other words, the effect of factors that influence income growth is greater when factor change occurs at a steady, rather than high, rate; also, the more factors (sources of growth) involved, the stronger the effect.

Based on such analyses of income factor dynamics, it is possible to draw the following conclusions. In the period analysed, only the industry factor of income growth showed significantly high (over 100 per cent) growth rates, although they were not absolutely steady. In other factors (such as investments, exports, monetary supply and small business), growth rates fluctuated significantly, which destabilized the dynamics of the disposable income indicator.

Using the results of this econometric analysis, it is possible to estimate the contribution of these factors to income dynamics (table 2). It is clear that during these six years, industry development accounted for up to one third of all disposable income growth. A quarter of overall income growth is attributed to commodity circulation growth, which reflects the development of the service sector. Together, these two factors account for over 60 per cent of all population income growth in the period. This emphasizes the importance of the role industry and service sectors play in increasing population income levels in Uzbekistan.

The contribution of other factors was either insignificant or incidental. The liberalization of the currency market in late 2003 and the fast growth of small business between the second half of 2004 and the beginning of 2007 raised the contribution of the small business factor to 10.7 per cent in 2006, up from 8.5 per cent in 2002 (see table 2). Improvement of the external economic conjuncture in 2003 and subsequent export growth led to an increase in the contribution of this factor to 9 to 10 per cent in 2003-2004, up from 7 per cent in 2001-2002.

Table 2. Contribution of disposable income-sources and other factors to disposable-income growth
(Percentage)

	2001	2002	2003	2004	2005	2006
Industry	36.9	37.8	38.1	35.5	38.5	35.8
Small business	10.5	8.5	10.8	9.9	11.9	10.7
Investment	8.1	8.3	8.6	7.8	8.8	8.1
Export	7.3	7.1	9.7	9.1	8.7	8.2
Money supply	10.4	9.8	10.0	10.5	13.4	11.5
Private income tax	-1.6	-0.6	0.1	-0.4	-1.3	-0.7
Retail turnover	26.3	24.9	26.5	23.8	27.3	26.0
Other factors	2.0	4.2	-3.7	3.7	-7.2	0.3
Total increase	100	100	100	100	100	100

Source: Author's estimates based on the elasticity coefficient (see table 1).

In 2006, the greatest contribution to disposable-income growth was attributable to industrial development factors (36 per cent of all gain) and retail commodity circulation growth (26 per cent). Notable influence also came from the growth factors of monetary supply (12 per cent), small business (11 per cent), investments (8 per cent) and exports (8 per cent). The situation was about the same in 2007.

The higher tax burden, which took a greater share of average income, had a negative influence on disposable incomes. The contribution of this factor went from -0.4 per cent in 2004 to -1.3 per cent in 2005. Decreases in income tax rates and the introduction of a tax-free income bracket for the lowest wage earners are important preconditions for policies that aim to increase the standards of living in Uzbekistan and maintain steady economic growth.

III. PRECONDITIONS AND PRIORITY MEASURES: THE RESULTS OF MODELLING

An analysis of recent tendencies in the dynamics of disposable income indicates that the current income-regulation strategy could be made more efficient. As noted previously, in past years the strategy has entailed moderate salary increases (generally of 15 to 20 per cent), implemented by budgetary institutions once or twice per year. However, this does not help reduce the gap between

average incomes in Uzbekistan and those of the leading CIS states. Furthermore, the strategy feeds inflationary expectations and does not help reduce the inequality in income distribution that has developed. It is a testament to the necessity of improving current economic policy in the area of the formation of population income.⁸

When determining the measures and preconditions required to accelerate disposable-income growth, it is necessary to recognize that the various economic policy measures and directions do not all offer the same degree of potential. Of these measures, a significant decrease (about 4 to 6 percentage points) in the income tax rate would have the most rapid effect, as explained below.

First, this economic influence is under Government control and, unlike other income growth factors (for example, accelerated industry or commodity circulation growth), measures to decrease the income tax rate can be implemented within a relatively short timeframe and at minimal cost.

Second, in past years, the average income tax has tended to increase (see figure 5). The current average (about 18 per cent) clearly exceeds income tax rates in a number of leading CIS countries. For example, in the Russian Federation a flat-rate income tax of 13 per cent has been the standard for years. In this context, a decrease in the rate would raise the attractiveness of the national labour market in Uzbekistan and contain labour migration.

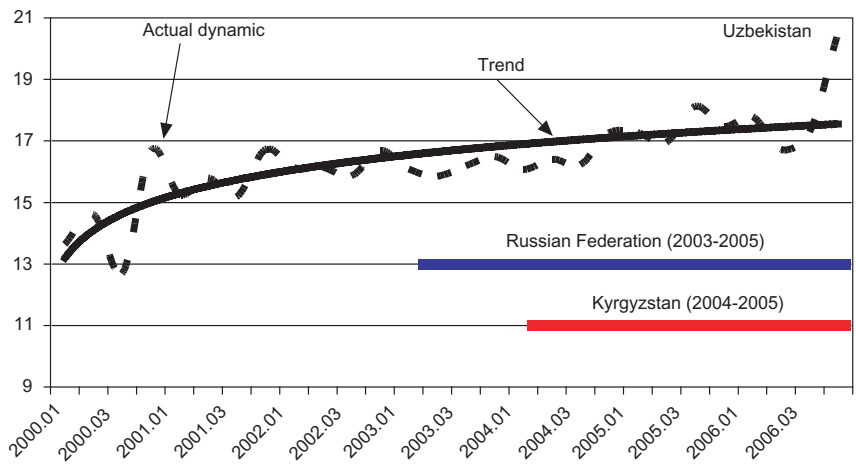
Third, a decrease in the rate would help equalize income distribution, since the benefits would be felt most strongly by public sector workers and working pensioners—that is, workers whose incomes are noticeably below the average national level.

Lastly, because disposable-income dynamics are highly sensitive to income tax rates, even a rate decrease of as little as 3 percentage points would result in appreciable growth.

Various forecasts of disposable-income dynamics for 2007-2008 support the above-mentioned hypothesis. Those calculations assume the continuance of tendencies demonstrated over the last two years in respect to growth-rate changes of income factors other than the tax burden (such as industry growth, commodity circulation, exports, small business and monetary supply). Forecasts are calculated on the basis of the received equations, and their results are shown in figure 7 (quarterly dynamics), and table 3 (annual dynamics).

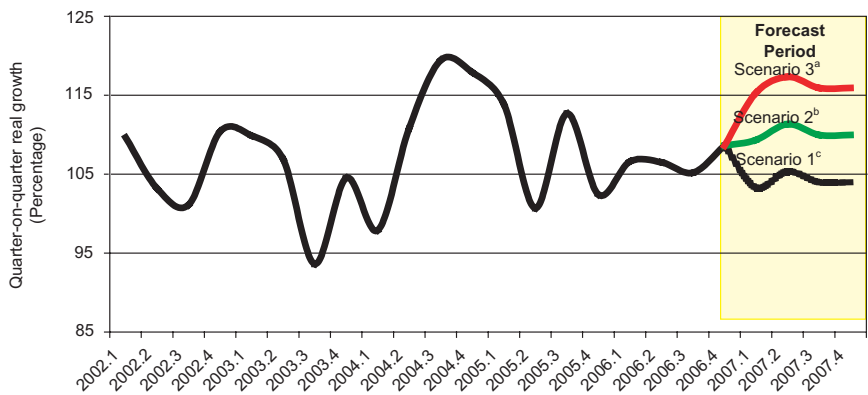
⁸ For a detailed discussion of the current strategy for maintaining population income and reducing poverty in Uzbekistan, see Center for Economic Research (2007).

Figure 6. Dynamics of income tax as a proportion of the average gross wage



Source: Author's calculations based on the current private income tax scale.

Figure 7. Short-term forecasts for disposable-income dynamics derived from various private income-tax-rate scenarios



Source: Author's calculation.

- ^a Decrease in the private income tax rate (as a proportion of the average accounted wage) of 6 percentage points.
- ^b Decrease in the private income tax rate (as a proportion of the average accounted wage) of 3 percentage points.
- ^c Initial (base) variant: All factors that affect disposable income continue to demonstrate the trends that characterized the 2002-2006 period.

Table 3. Short-term forecasts for disposable-income dynamics derived from various private income-tax-rate scenarios

	2002	2003	2004	2005	2006	2007
Disposable income						104.16 ^a
(Real growth percentage)	105.60	102.40	113.30	102.30	113.80	110.15 ^b 116.11 ^c
Private income tax						18.92 ^a
(Percentage of wage)	16.20	16.20	16.50	17.50	18.10	15.92 ^b 12.92 ^c

Source: Results of quarterly forecasts (see figure 7).

^a Initial (base) variant: All factors that affect disposable income continue to demonstrate the trends that characterized the 2002-2006 period.

^b Decrease in the private income tax rate (as a proportion of the average accounted wage) of 3 percentage points.

^c Decrease in the private income tax rate (as a proportion of the average accounted wage) of 6 percentage points.

An analysis of these results allows us to draw the following conclusions. If changes in the factors that shape disposable income dynamics follow the current trend in the forecast period (the baseline scenario), the real disposable-income growth rate would be expected to be 104.2 per cent in 2007 (as compared to 113.8 per cent in 2006, 102.3 per cent in 2005 and 113.3 per cent in 2004). In the second scenario, where the average rate of income tax is reduced by 3 percentage points (as measured against the tax level in the baseline scenario), the disposable-income growth rates would reach 110.2 per cent. The tax decrease would give an additional impetus to the demand for growth. This would also lead households to positively affect the dynamics of gross national product.

At the same time, it is necessary to consider the negative effect caused by reducing budgetary revenue and increasing the budget deficit. However, considering that in the last eight years, salaries accounted for about 20 per cent of the gross national product, the proposed reduction of income tax revenue would not have serious consequences for the budget, as the budget would not increase by more than 0.6 percentage points. Furthermore, in reality, the deficit increase would be even lower than that, since growth in demand and gross national product (0.45 percentage points) would increase the base for the value added tax and other taxes. In scenario 3 (a decrease in the average tax rate of 6 percentage points), disposable income growth rates are even higher: 116.1 per cent in 2007.

However, the one-time nature of the measure must be taken into account. It cannot be considered to have a long-term effect on disposable-income growth, since the potential decrease in the rate is limited by 3 to 4 percentage points (if using the level of taxation in the Russian Federation as a reference point). For this reason, it is necessary to apply a combination of economic policy measures. These must include not only decreases in the tax rate, but also efforts to increase the monetization of the economy, stimulate industrial production and commodity circulation, and develop the private sector and export potential. Results of alternative forecast calculations for 2007-2008 that model the effect these measures have on disposable-income growth are shown in table 4.

Table 4. Variants of forecasts for disposable-income dynamics, derived from alternative combinations of economic policy measures
(Percentage real growth, yearly dynamic)

	2004	2005	2006	2007 (forecast)	2008 (forecast)
Disposable income	113.3	102.3	113.8	104.1 ^a	105.2 ^a
				109.0 ^b	112.0 ^b
				110.7 ^c	114.6 ^c
				111.1 ^d	115.2 ^d
				111.6 ^e	116.1 ^e

Source: Results of quarterly forecast based on equations 1-5 in table 1.

^a Scenario 1 (Initial (base) variant): All factors that affect disposable income continue to demonstrate the trends that characterized the 2002-2006 period.

^b Scenario 2: Decrease in the private income tax rate (as a proportion of the average reported wage) of 2 percentage points plus a 5 per cent increase in the money supply growth rates.

^c Scenario 3: Conditions of variant 2, plus an increase of 4 per cent in the industry growth rate.

^d Scenario 4: Conditions of variant 3, plus an increase of 4 per cent in the retail turnover growth rate.

^e Scenario 5: Conditions of variant 4, plus an increase of 4 per cent in the small business growth rate.

The disposable-income growth achieved by decreasing the rate of income tax by 3 percentage points (scenario 2, table 3) is almost the same as that reached by a more moderate (2 per cent) decrease in the tax rate, when the smaller reduction is combined with other policy measures (see scenario 2, table 4). In the latter case, budgetary revenue is less affected, resulting in a revenue decrease of 0.4 percentage points compared to the 0.6 per cent decrease forecast in the tax-reduction-only scenario. However, the combined measure also entails raising money supply growth rates by 5 percentage points. As the scenario 2 forecast in

table 4 shows, disposable-income growth rates were expected to reach 109 per cent in 2007; this figure corresponds roughly to the average annual growth rates of 2004-2006. However, increasing the monetary supply requires additional measures to mitigate the inflationary risks such an action entails.

The experience of some CIS countries, primarily the Russian Federation, has shown that the greatest impact can be achieved through measures that stimulate both production growth and investment activity. To this end, scenarios 3 to 5 progressively add the following conditions: industrial production growth of 4 per cent above the baseline, commodity circulation growth of 4 per cent, and small business growth of 5 per cent. The results show that, given a combination of all these conditions, disposable-income growth would have reached up to 112 per cent in 2007 and would top 116 per cent in 2008.

The results of the modelling shown in table 4 can be used to conduct and coordinate the most appropriate (in terms of a cost-benefit analysis) measures to improve economic policy. The measures addressed in this paper (such as decreasing the tax burden, increasing commodity circulation and industrial production and liberalizing the banking sector) should be accompanied by measures that stimulate a range of disposable-income factors and sources simultaneously. For example, granting credits to small and private business projects with fast, high returns, such as manufacturing modern home appliances, would help increase the level of monetization of the economy as well as stimulate growth in industrial production, commodity circulation and the development of private business.

To help implement such a measure, the State could require commercial banks to earmark for such loans a certain percentage of their credit portfolios; the State could also provide support for banks that surpass the Government standard.

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