

# An Economics Analysis of Tax Reform for Russia



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MY ECONOMIC analysis of the consequences of recent tax changes and proposed future tax changes in Russia begins with the taxes of 1999. I then analyse the introduction in 2000 of a flat 12% income tax along with an increase in the payroll tax from 32.6% to 38.5%, and discuss four possible tax changes: the Gref plan, the Primakov plan, the "Ministry of Finance conjecture" and the "Putin plan". The characteristics of these plans are as follows:

*The Gref plan*

The tax changes of 2000 represent a partial implementation of the Gref plan. The remainder of the Gref plan would:

- Reduce the turnover tax from 4% to 2.5% and replace the lost revenue by increasing the profits tax from 30% to 35%.
- Replace the flat payroll tax with one that increases the tax rate on lower incomes and reduces the tax rate on higher incomes, while collecting approximately the same revenue.

*The Primakov plan*

- Reduce the VAT by one-half over two years.
- Double the taxes on land and natural resources.

*The "Ministry of Finance conjecture"*

At a hearing of the Duma Committee on Finance in April 2001, Michail Motorin,

Deputy Minister of Finance in Russia, suggested that the elimination of the present 12% income tax would have no appreciable effect on the Russian economy. To test this conjecture, I model the replacement of the income tax with an increase in land and natural resource taxes yielding the same revenue.

*The "Putin plan"*

President Putin has said that taxes need to be shifted to land and natural resources to improve the productivity of the Russian economy, but he has not specified the details of how this would be done. Here I take the liberty of providing details and putting Putin's name on the result. The Putin plan is composed of the following proposals:

- Collect 90% of the rental value of land and natural resources.
- Eliminate all other taxes except for excise taxes on harmful activities.

The economic consequences of these alternative tax systems are estimated through the application of a mathematical model of the Russian economy. This model uses statistics regarding the Russian economy described in Appendix I, and

values of other parameters of the economy described in Appendix II. All of these statistics and parameters have a degree of uncertainty associated with them. However, the general results of the model, especially the general

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features of the comparisons of different plans, are quite stable for wide ranges of statistics and parameters. Details of the different plans are described in Appendix III.

The economic model assumes that people divide their time between work and leisure on the basis of their preferences and the after-tax reward for working, and that they divide their earnings after taxes between consumption and saving on the basis of their preferences and the ability of savings to grow through after-tax returns on investments. Taxation of work reduces the incentive to work and taxation of investment earnings reduces the incentive to save. The sources of government revenue that do not have harmful economic consequences are excise taxes on harmful activities (such as emitting pollutants or consuming alcohol) and public collection of the rental value of land and natural resources.

The economic harm that taxes do by reducing the incentive to work and to save is roughly proportional to the square of the tax rate, so that the harm from the last rouble of taxes is roughly proportional to the tax rate. And the tax rate that is relevant for this purposes is the overall share of an additional rouble of wages or investment earnings that the government collects through the combination of all taxes – income tax, payroll tax, VAT, property tax, turnover tax, profits tax, and any others. Therefore when tax rates are quite high, as they are in Russia, it is possible to achieve notable improvements in the economy by relatively small reductions in taxes.

In this analysis, I make no predictions about inflation, so I use 1999 roubles as the measure of value throughout.

UNDER 1999 taxes, the Russian economy faced a bleak future. In 1999, the average Russian worker earned 18,984 roubles. Out of this he paid taxes that I estimate at 3,690 roubles. In addition, his employer made payroll tax payments of 4,178 roubles. So out of a total of 23,162 roubles (wage plus payroll tax) that was paid for his employment, he was able to spend or save 15,294 roubles, or just 66.0% of what was spent to employ him. These figures reflect

that fact that tax collections in Russia are only a fraction of legal tax liabilities. If one assumes that the income tax, the payroll tax and the value added tax are going to be fully collected, then the average worker would have been able to spend or save only 46.6% of each additional rouble that he earned. The remaining 53.4% would have gone to the combination of all taxes. This greatly reduced the incentive to work in the formal economy.

When Russians do work in the formal economy, they produce less than western workers because they have so little modern capital with which to work. But because of high taxes, there is little incentive to invest in Russia. The gross rate of capital formation in 1999 was about 704 billion roubles, or about 15.5% of Russia's gross domestic product (GDP) of 4,545 billion roubles. Most of this investment was replacement of capital that was wearing out. I estimate that depreciation in 1999 was 658 billion roubles, leaving just 46 billion roubles, or 1.2% of Russia's net domestic product (NDP, that is, gross domestic product less depreciation) in net capital formation.

I estimate that investors pay an average of 34% of their returns in taxes, and that if all taxes were fully collected, they would typically pay taxes of 54.9% of their marginal returns. I forecast that in the absence of tax reform that improves incentives, the rate of capital formation will not increase much from its present low level.

The change in taxes in 2000, introducing a 12% flat income tax and raising the payroll tax, had a mixed effect on incentives while shifting taxes from the rich to the poor. It reduced the marginal tax rate on capital from 54.9% to 49.6%, but it increased the marginal tax rate on labour, on average, from 46.6% to 47.2%. I estimate that the net effect on output was slightly positive. I estimate that the NDP of the Russian economy in 2001 will be 3,980 billion 1999 roubles. This is 0.7 % larger than the 3,953 billion 1999 roubles that I estimate would have been produced under 1999 taxes.

According to the model I developed,

Implementing the remainder of the Gref plan would have relatively small effects on the Russian economy. Since the turnover is not in my model explicitly, I model the reduction in the turnover tax in the Gref plan as a uniform reduction in other taxes on all productive activity, with a magnitude that is just sufficient to offset the increase in the profits tax. I estimate that if the remainder of the Gref plan is implemented, the rate of growth of the NDP of the Russian economy from 2001 to 2006 will be indistinguishable from what it would be under existing taxes, namely 0.9% per year. However, the remainder of the Gref plan would cause a noticeable fall in net saving. I project that under existing taxes saving will decline by an average of 0.2% per year from 2001 to 2006, and that under the Gref plan saving would decline by an average of 3.7% per year. The explanation for this is that implementing the remainder of the Gref plan would increase the effective marginal tax rate on capital while decreasing the effective marginal tax rate on labour.

THE PRIMAKOV plan is intended to be "revenue neutral", that is, it is intended to neither increase nor decrease government revenue. However, in my model it generates a slight decrease in revenue. To provide a suitable comparison with other revenue-neutral alternatives, I modify the Primakov plan by providing that in its first year, taxes on land and natural resources are raised to 160% of their current level rather than 150%, and in the second year they are raised to 210% of their current level rather than 200%.

The Primakov plan achieves more than twice as much growth in output as the Gref plan or current taxes, namely 1.9% per year compared to 0.9%. It achieves this by improving incentives, substituting public collection of more of the rental value of land and natural resources (a source of revenue without harmful incentive effects) for taxes that reduce incentives. Workers' incomes under the Primakov plan would grow at an average rate of 3.6% per year, compared to 1.6% under current taxes and 1.8% under the Gref plan. Saving would

grow at a rate of 11.6% per year, compared to negative growth under existing taxes or the Gref plan.

The "Ministry of Finance conjecture" involves eliminating the income tax and replacing the lost revenue by increasing the tax rate on rent from land and natural resources from 6.1% to 7.3%. It is possible to replace the revenue of the income tax with such a small increase in the tax on land and natural resources because the income tax generates relatively little revenue in Russia (only 9.1% of revenue or 3.0% of NDP), and the tax change stimulates the economy. In the first year, the amount of labour supplied is 9.3% more than under current taxes. Under this tax change, the Russian economy does about as well as the Primakov plan. NDP grows at an average rate of 1.8% between 2001 and 2006, just less than the 1.9% of the Primakov plan. Wages grow somewhat slower, at 2.8% per year, compared to 3.6% under the Primakov plan, but saving grows faster, at 13.5% compared to 11.6% under the Primakov plan. While the elimination of the income tax would not be a miracle cure for the Russian economy, it certainly would not be valid to characterise this tax change as inconsequential.

THE PUTIN plan extends the benefits of the Primakov plan and the Ministry of Finance conjecture by collecting 90% of the rental value of land and natural resources, and eliminating all other taxes except those that charge people for the costs of their actions. Under the Putin plan, there is a five-year transition to the new system of taxes, from 2002 to 2006. I forecast that over the course of this transition period, Russian workers will increase their work effort by 74%. They will do this because their wages after taxes will rise by 176%. There are three sources of the higher wages. The first is the elimination of taxes. The second is the increase in the amount of capital that workers will have because of the investment that results from eliminating the taxation of capital. I estimate that net saving as a percentage of NDP will rise to 21.5% at the end of the transition period, and the capital

stock will 25.6% greater than under current taxes.

The third reason for the higher wages is that public collection of the rental value of land and natural resources promotes efficient use of land. When those who have control of land are not required to make annual payments for holding land, they tend to leave land idle, speculating that it will rise in value. Requiring those who have land to make annual payments for holding it improves incentives in three ways.

- First, the payments get their attention. People are less responsive to the implicit cost of missed opportunities than to current bills they must pay.
- Second, public collection of the rental value of land makes land more available to entrepreneurs. When the rental value of land is collected publicly, the selling price of land falls, so that someone who wants to build a business does not need to have much money to buy land, but only needs to pay the annual tax bill.
- The third way that public collection of the rental value of land improves incentives is by taking the profit out of land speculation. The lower selling price of land and greater holding costs make it not worthwhile for people to try to figure out how to get rich by buying land and leaving it unused.

I estimate that Russia is using only half of its land resources now, and that because of the incentives of the Putin plan, Russia would use 93% of these resources if the plan is implemented.

With the additional work effort, the additional capital, and the more efficient use of land, *I estimate that under the Putin plan, the NDP of Russia in 2006 would be 6,968 billion 1999 roubles, as compared to just 4,164 billion 1999 roubles under current taxes, an increase of 67%.*

FROM THE perspective of Russian citizens, the cost of working harder needs to be offset against the benefits of greater total output. A measure that takes both of these effects into account is the "excess burden of taxation". I estimate that in 2006 the excess burden of taxes would be 1,906 billion 1999

roubles under current taxes. The Gref plan would increase the excess burden of taxes in 2006 by 4.6 billion 1999 roubles, while the Primakov plan would reduce it by 148 billion 1999 roubles and the Ministry of Finance conjecture would reduce it by 108 billion 1999 roubles. Under the Putin plan all 1,906 billion roubles of excess burden is eliminated.

I estimate that under the Putin plan, public revenue in 2006 would be 2,542 billion 1999 roubles, compared to 1,371 under current taxes, a difference of 85%. This estimate is sensitive to the assumption that one makes about the total value of land. There is very little information to serve as the basis of an estimate. In my projections I assume that the share of output that does not go to workers and their taxes is divided  $\frac{1}{3}$  for capital and  $\frac{2}{3}$  for land. A different assumption would produce a correspondingly different revenue estimate, but the general pattern of the predictions would remain.

In summary: Current taxes offer a bleak future. The flat income tax offers some improvement in incentives, but does so by burdening the poor with taxes that are now paid by the rich. The Putin plan does as much as can be done to improve economic incentives. With incentives unleashed, the economy grows dramatically and ordinary citizens have much higher incomes.

**Appendix I**  
**Statistics on the Russian Economy for 1999**

Gross domestic product	4,545.5 bn roubles
Employment	64.9m
Average monthly wage	1,582.00 roubles
Government consumption spending	720.5bn roubles
Private consumption spending	2,489.3bn roubles
Population	145.4m
Labour force	74.0m
Capital stock	13,153.9bn roubles

(Note: the reported figure was twice as great, but I found this not believable and reduced it accordingly. I suspect that inappropriately low depreciation rates had been used to derive the published number.)

Gross saving 704.3 billion roubles

**Income shares of quintiles of the population**

0-20%	6.2%
20-40%	10.4%
40-60%	14.4%
60-80%	19.9%
80-100%	49.1%

**Wealth shares of quintiles of the population ,**

0-20%	0%
20-40%	0%
40-60%	10%
60-80%	20%
80-100%	70%

**Tax revenues in 1999**

(bns of roubles)

Profits tax	219.8
Individual income tax	116.9
Value added tax	286.9
Tax on buildings	51.5
Land and natural resource taxes	96.5
Payroll tax	279.5
Excises that are assumed to offset costs of harmful activities	30.8
Customs and other excises	23.1
Other taxes	167.0
Total tax revenue	1,282.1
Tax concessions	86.4

**Tax rates**

Profits tax	30.0%
Value added tax	18.5% (taking account of exemptions)
Payroll tax	32.6%
Employee pension contribution	1.0%
Turnover tax	4.0%

**Marginal income tax rates**

For 90% of the population	12.0%
For 9.5% of the population	20.0%
For 0.5% of the population	30.0%

## Appendix II Assumptions about the Russian Economy

Future annual growth rate of population and labour force	-0.52%
Elasticity of substitution between goods and leisure	0.8
Intertemporal elasticity of substitution in consumption	0.6
Share of land in return to assets	%
Current land efficiency	0.5
Elasticity of substitution in production between any two of land, labour and capital	0.8
Annual rate of autonomous technical progress	0.01
Maximum feasible labour effort	3 times current labour effort
Share of payroll taxes that represents benefit to workers	0.25
Persons per household	2.5
Taxable share of household income	%

## Appendix III Assumptions About Taxes Under Alternative Reforms

(Tax rates that are changed from 1999 or from 2000-1 if changed at that time are indicated in bold.)

	1999 %	2000-1 %	Gref %	Primakov %	Min Fin %	Putin %
Average Profits Tax (revenue/base)	9.8	9.8	11.5	9.8	9.8	0
Marginal Profits Tax (statute)	30.0	30.0	35.0	30.0	30.0	0
Average Income Tax (labour)	2.7	2.3	2.3	2.3	0	0
Marginal Income Tax (labour)	21.9	12.0	12.0	12.0	0	0
Average Income Tax (assets)	4.1	2.3	2.3	2.3	0	0
Marginal Income Tax (assets)	15.9	12.0	12.0	12.0	0	0
Average VAT	10.1	10.1	10.1	5.1	10.1	0
Marginal VAT	18.5	18.5	18.5	9.3	18.5	0
Excise taxes (as of NDP)	1.0	1.0	1.0	1.0	1.0	1.0
Building taxes	6.5	6.5	6.5	6.5	6.5	0
Land & Nat. Resource taxes	6.1	6.1	6.1	12.2	7.3	90.0
Customs (as of NDP)	0.7	0.7	0.7	0.7	0.7	0
Other (as of NDP)	5.7	5.7	4.7	5.7	5.7	0
Avg. Employer payroll tax	22.0	26.0	26.0	26.0	26.0	0
Marg. Employer payroll tax	32.6	38.5	38.5	38.5	38.5	0
Avg. Employee pension contrib.	0.7	0.7	0.7	0.7	0.7	0
Marg. Employee pension contrib.	1.0	1.0	1.0	1.0	1.0	0